The Influence of Technology on the Academic and Social Lives of Students and Lecturers in Kuwaiti Higher Education (HE)

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I certify that all material in this thesis which is not my own work has been identified and that no material has previously been submitted and approved for the award of a degree by this or any other University.

(Signature)

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Abstract

The central purpose of this mixed methods sequential explanatory study was to identify the perceptions of higher education (HE) students and lecturers in Kuwait, as regards the use of technology in their academic and social lives.

In the quantitative phase of the study, the research questions were designed to identify the factors of influence on students' and lecturers' use of technology. The data were collected by administering survey questionnaires and the participants' answers to the items on the survey scales were then analysed using statistical analysis software (SPSS). This involved descriptive analysis and Exploratory Factor Analysis (EFA), which additionally included principal components analysis (PCA), a data reduction method. In the qualitative phase of the study, the research questions were aimed at understanding how students and lecturers used technology for learning and teaching, as well as for social purposes. Thematic analysis was subsequently applied in analysing the interview, diary and observation data.

The findings of the quantitative (factors) and qualitative phases (themes) were integrated while interpreting the outcomes of the study. Some of the significant findings to emerge from this thesis were that the expediency of the technologies and disruptive practices of the lecturers empowered the students; triggered student engagement in self-regulated learning; intellectually stimulated students' ability to identify and solve problems creatively, and improved student learning through social interaction and collaboration, all within a facilitating and encouraging learning environment. However, the analysis also acknowledged certain disadvantages of students being too dependent on technology. Meanwhile, although the lecturers espoused constructivist beliefs, thus helping them to orchestrate classroom activities and create socio-constructivist learning environments, as a means of facilitating learning through the adoption of learner-centred approaches, they were also frustrated. In the final analysis, the students were found to be overwhelmingly positive in their attitudes towards technology, while the lecturers saw themselves as associates in this process, creating communities of learners.

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Abbreviations

ADG - The Arab digital generation

BECTA – British Educational Communications and Technology Agency

BYOD – Bring your own device

CoP – Community of Practice

ECAR - EDUCARE Centre for Analysis and Research

EU – European Union

GCC – The Gulf Cooperation Council

GPA – Grade point average

HE – Higher education

HEFCE - Higher Education Funding Council for England

HEIs – Higher education institutes

ICT – Information and communication technologies

ILM - Internet-based learning medium

IM – Instant Messaging

IRB – Institutional Review Board

IT – Information technology

IWB – Interactive whiteboard

KMO- Kaiser-Meyer-Olkin

KU – Kuwait University

LMS – Learning Management System

LEaD – Learner Experiences across the Disciplines

MOOC- Massive Open Online Course

MENA – The Middle East and North African (region)

PAAET - Public Authority for Applied Education and Training

PCA – Principal Components Analysis

PBL – Problem-based Learning

RSS– Rich Site Summary (Web-feed)

SCONUL - Society of College, National and University Libraries (SCONUL)

SEM – Structural equation modelling

SMS – Short message service (mobile phone text message)

SPSS – Statistical Package for Social Sciences

TAM – Technology Acceptance Model

TAOP - Teaching Attributes Observation Protocol

TDOP - Teaching Dimensions Observation Protocol

UAE - The United Arab Emirates

VIO – Very Indicative of the Observation

VLE – Virtual learning environment

ZPD – The Zone of Proximal Development

Glossary

Affordance – Refers to the qualities or properties of an object that define its possible uses or clarify how it can or should be used.

Barriers – Factors that inhibit the use of education technologies.

Constructivism - A philosophy that stresses the importance of social interaction in the construction of knowledge.

Digital immigrant – Refers to someone born prior to 1980. The teacher in the present study would be considered a digital immigrant (Prensky, 2001).

Digital native – Refers to a person born after 1980. The participants in this study would qualify as digital natives (Prensky, 2001).

E-learning – Indicates the use of communications technology and networked information for learning and teaching; affording students flexibility, access and convenience (David, Salleh & Iahad, 2012; Ilechukwu & Njoku, 2014).

Efficacy – Denotes the self-reported competence of educators in their use of technology for instructional purposes.

Learning management system (LMS) – Also known as a course management system: a software applications that automates the administration, reporting and delivery of course materials, while also managing learners' progress and interaction.

Mobile learning – Refers to "learning across multiple contexts, through social and content interactions, using personal electronic devices" (Crompton, 2013).

Open content – Pertains to online educational resources, which are open for others to copy or modify.

Social capital – Refers to social resources that people accrue through their relationships with others.

Social constructivism – A learning theory that suggests socially constructed, collaborative learning, which occurs when individuals interact with others, for example with instructors or peers.

Social media networks – Forms of electronic communication (such as websites for social networking and micro-blogging), through which users create online communities to share information, ideas, personal messages and other content (for example, videos).

The social use of technology –Indicates any use of technology for personal reasons; for example, instant messaging, email, social media, the sharing of photos and videos with friends and family.

Technology acceptance model – Indicates an Information Systems Theory, which models how users come to accept and use a technology.

Virtual learning environment (VLE) – A software tool used by educational institutions to integrate learning materials; thus creating a space in which content can be delivered, where students and lecturers can interact online, and where students' performance can be assessed.

Chapter One: Introduction and Background to the Study

1.1. Introduction

This chapter commences by providing background information, before briefly stating the research problem. It then outlines the significance of the study; the research aims which helped sculpt and guide it, and the research questions forming the fundamental core of the research project. After providing an overview of the research context, the way in which the thesis is organised will be outlined in this chapter.

It is evident that the progress made in the development of new technologies has transformed the way in which people communicate with each other in their social lives. Technology is also increasingly being used in education and has influenced how students and educators use these emerging tools in both their academic and social lives. The Higher Education Funding Council for England (HEFCE) has established that "technology has a fundamental part to play in higher education" (HEFCE, 2009, p.2). Information and communication technologies (ICT) have enabled students and educators to gain access to information using a range of devices from anywhere at any time. Therefore, it has been claimed that technology has altered the role of instructors and dramatically changed the teaching and learning process (Mayes, Morrison, Mellar, Bullen & Oliver, 2009; Weller, 2011). Consequently, educational institutions and governments have invested heavily in this aspect of education and taken initiatives to adopt and integrate technology into it.

Lecturers in Kuwait have also experienced change and are gradually moving away from a reliance on textbooks for developing their lectures, while students no longer visit libraries to renew books or locate journal articles. In contrast, they use the Internet and access journals online. The increased flow of communication and information, thanks to enhanced Internet access, has changed the nature of learning and teaching. The efforts made by educational institutions to adopt technology and change the way people learn, together with the technology-based reforms introduced by policy-makers, are a response to the new and prevailing digital culture.

However, one of the challenges facing modern higher education institutions (HEIs) is finding out how to create environments that will support collaborative learning within classrooms and at a distance, if required. In the case of Kuwait and its neighbours, the situation is more complex and challenging. For example, on the Arabian Peninsula, most countries only began implementing technologies just over a decade ago and it is claimed that educational institutions have achieved varying levels of success in this regard (Mirza & Abdulkareem, 2011). The factors influencing the potential of technology-based learning include the expectations of younger learners, the intention of governments to reduce dependency on the oil sector in the region, and priority being given to the professional development of citizens (Ramady, 2012). However, only some of the Gulf States have been successful. Recent statistics show that in the Arab world, the United Arab Emirates (UAE) leads the way in implementing e-learning and ranks 23rd in the world (Dutta, Geiger & Lanvin, 2015). In contrast, Kuwait ranks 72nd in the world, with all the other Gulf Cooperation Council (GCC) states achieving better results (Qatar - 27th; Bahrain - 30th; Saudi Arabia - 35th, and Oman - 42nd) (Dutta et al., 2015).

The above statistics would seem to indicate that the policy-makers (the Ministry of Education and the Kuwaiti government) lack commitment to technology implementation in HEIs. This lacklustre approach to providing adequate support has affected students and they have not been properly equipped with problem-solving, critical-thinking, or communication skills, due to the rote-learning approach that prevails in secondary schools and university curricula in the context of this study. Kuwaiti students are also said to lack many of the so-called ‘soft’ and transferrable skills required for gaining an advantage in the job market (Buarki, 2010; Mourtada Salem & Alshaer, 2013; Al-Ali, 2014).

While research from the West has shown that technology (for example, social networks) enables learners to search for information and resources, share research papers and results, and collaborate with peers (Anderson, 2010; Pifarre & Kleine Staarman, 2011; Ferri, Grifoni & Guzzo, 2012), studies from Kuwait/the GCC states have been unable to report similar findings. Research is therefore required to find out more concerning the differences between the West and the Arab states in the Gulf. The literature on Kuwait also reveals problems in ICT integration (Alajmi, 2011; Mourtada et al., 2013; Erguvan, 2014). In short, the main reason for this failure to successfully integrate technology appears to consist of a lack of student-centred approaches to teaching and learning.

Research from the Arab states, especially the GCC countries, demonstrates how teacher-centric learning approaches, such as rote-learning and memorisation are still being given preference by educators (Muhammad, 2011; Wilkens, 2011). However, educators are beginning to show more interest in ICT; partly due to the fact that students in Kuwait are supportive of such technologies (Safar, Alqudsi-Ghabra & Qabazard, 2012). One recent study found that lecturers held positive views of Web-based or differentiated instruction (Erguvan, 2014). Furthermore, there is a great deal of interest in using e-books and e-reading devices in the area of e-learning (Hamou, Anwar & Benhadria, 2012). Nevertheless, although recent research findings seem to paint a rosy picture, more investigation is required to try and understand how traditional methods are slowly giving way to technology-enhanced environments. The results of the present study could therefore provide more insights.

1.2.The Importance of this Current Study

This study is important because it seeks to understand the current problems and opportunities presented by technology-based teaching and learning strategies or experiences in HE. Investigating the use of technology in this field is significant for several reasons. For instance, it has been well established that the use of new and emerging technologies for teaching, learning and social purposes has a major impact on student engagement (Gallagher-Lepak, Reilly & Killion, 2009); learning styles; an individual's social behaviour; social and interpersonal ties; student-lecturer interaction; lecturers' job satisfaction; the demand for technology use, and learning outcomes.

There have in fact been a number of studies that have focused on technology integration and e-learning, or blended learning practices in the UK, US and Kuwait/other GCC states (Ertmer, 2005; Abbitt & Klett, 2007; Allen et al., 2008; Mueller, Wood, Willoughby, Ross & Specht, 2008; Rouibah & Hamdy, 2009; de Winter, Winterbottom & Wilson, 2010; Alajmi, 2011; Hutchison & Reinking, 2011; Alsanaa, 2012; Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur & Sendurur, 2012; Wiseman & Anderson, 2012; Erguvan, 2014). However, most of these studies have focused on investigating teachers' beliefs; students' perceptions; perspectives on e-learning or blended learning, and the effects of problem-based learning. Almost all have been quantitative in nature, except for a few qualitative investigations (for example, Sharpe, Benfield, Roberts & Francis, 2006; Bonk & Graham, 2006).

The current research differs from previous investigations, in that it adopts an explanatory sequential mixed methods research design. Quantitative and qualitative data were consequently collected and analysed and the results were combined before reporting the findings. Moreover, the present study explores students' and lecturers' use of technology for social and academic purposes, as well as the relationship between these stakeholders. Also highlighted are dimensions such as lecturers' strategies, institutional strategies and student objectives, which have received scant attention in previous research.

1.3. Research Aim and Questions

The aim of this study was to identify the perceptions of HE students and lecturers in Kuwait, as regards the use of technology in their academic and social lives. It was guided by the following research questions:

1a. how do Kuwaiti HE students use technology in their academic and social lives to connect informal learning to the formal learning environment?

1b.What are the factors influencing that use?

2a. How do Kuwaiti HE teachers use technology to support their teaching practice?

2b. What are the factors influencing that use?

3. What are the lecturers' pedagogical beliefs with regard to the use of technology to support student learning?

1.4. Research Context

In order to examine the influence of technology on the academic and social lives of students and lecturers in Kuwaiti HE, the context and conditions at the respective institutions must be investigated. The site of this research is identified as Kuwait, with the participants and their institutions being located in Kuwait City, thus enabling particular attention to be drawn to the participants and institutions within the research setting, using interviews, surveys and observation. The following sections therefore provide some brief background on the Public Authority for Applied Education and Training (PAAET), and the College of Basic Education.

1.4.1. Public Authority for Applied Education and Training (PAAET)

Kuwait has two major public HEIs: Kuwait University (KU) and PAAET, established in 1982 (Public Authority for Applied Education and Training, 2016). PAAET is a HEI that is responsible for providing vocational education, such as technical or skills-based education for students who have completed their school education. The main purpose of establishing this institution was to help Kuwait diversify from sole dependency on oil. PAAET'S main objective is currently to provide vocational programmes for developing technical and entrepreneurial skills in students, thus equipping them for the 21st century workplace, with an emphasis on communication, team work and digital technology.

PAAET is comprised of four colleges, each dedicated to a different set of vocational specialties. These consist of the College of Business Studies, the College of Health Science, the College of Technology Studies and the College of Basic Education. In this way, PAAET specifically offers training for employment, with technically and vocationally trained cadres being steadily rolled out by the institute each year and placed in diverse economic sectors, especially schools, colleges and universities.

1.4.2. The College of Basic Education

The College of Basic Education was established in the 1960s to train individuals and prepare them for teaching in schools across different subjects (College of Basic Education, 2016). Its main goal is therefore to supply state-funded schools in Kuwait with skilled teachers. However, other key objectives outlined on the College website consist of:

a) Fulfilling the vision and mission of the College, in accordance with core values. These are aligned with the teachings of Islam, Arab customs, and traditions inherent within the Kuwaiti community.
b) Fostering an environment where students can maximise their learning potential.
c) Relentlessly pursuing and achieving inclusiveness in the integration of various forms of knowledge.
d) Defining and upholding core values through transparency and support for academic freedom amongst teaching and administrative staff, as well as students.
e) Establishing an adequate infrastructure, with the corresponding equipment, including technology, other modern educational tools and multiple facilities.
f) Prioritising the preparation of a faculty by training staff in modern teaching methods, curriculum design, the running of academic programmes and evaluation of students.
g) Prioritising the preparation of a faculty and training staff in the use of computer technology and the Internet, as well as in the integration of technologies into the educational process across the various academic disciplines.
h) Working towards a reduction in educational waste, repetition rates and student drop-out.
i) Improving the overall efficiency/inefficiency of the education system, as well as enhancing the impact of education and training on economic and social development and taking the necessary steps.
j) Creating a database of the needs within specific disciplines, forecast for the next 10 years, by gathering labour market information from the public and private sectors.

k) Limiting admission to disciplines where there is already an abundance of graduates; drawing attention instead to the expansion of other disciplines that do not currently attract adequate student numbers.

l) Moving away from traditional teaching methods towards equipping students with 21st century skills, which they can then use in real-life situations.

There are 20 departments within the College of Basic Education. The main objective of the College and these departments is to prepare individuals for employment in schools or in other government sectors. Therefore, the College and its departments are responsible for qualifying the national workforce in domains or disciplines outlined by the Ministry of Education (PAAET, 2016). One of the reasons for selecting the College of Basic Education for the current study was that students who graduate from it play a key role in educating school children. Moreover, in the training of teachers, lecturers and other staff at the College of Basic Education are required to integrate technology into their classes (Al-Ali, 2010). The College is consequently assumed to have the required ICT infrastructure and equipment, for use by students and lecturers in their learning and teaching.

Although all the departments at the College of Basic Education are fully equipped with advanced computer labs, faculty members have hitherto been able to integrate e-learning into their classes. The literature suggests that this frequent lack of expertise or inclination to use or integrate technology amongst faculty members is due to the absence of appropriate training (Al-Ali, 2010). It is also claimed that teaching staff rely on a teacher-centred model and lack pedagogical vision. According to Al-Ali (2010), there is no explicit pedagogical framework for e-learning in Kuwait and faculty members are left with the option of finding out 'what to do' and 'how to do it’ (p.6). One of the main reasons for the failure of ICT implementation in educational institutions is the elimination of faculty and student voices (Al-Ali, 2010). This chapter highlights the need to discover how students and lecturers are currently using technology for learning and teaching, as well as for social purposes.

The present thesis also identifies and attempts to fill gaps in existing knowledge; for instance, the gap between the extent of positive attitudes to ICT integration on the part of faculties and the degree to which they actually use technology in their classrooms; the gap between students' expectations of learning and teaching, and teachers' current ICT skills, together with the need to improve their skills, and the gap in the literature, combined with a lack of research evidence from Kuwait on the use of widely accepted teaching strategies, such as collaborative learning, problem-based learning, and socio-constructivist approaches.

1.5. Thesis Outline

Chapter One introduces the study and states the research problem, while also presenting the research questions, highlighting the significance of the study, defining terms, and providing some social and cultural background to the current research project.

Following the above, Chapter Two consists of a review of the related literature, providing some background on the emergence of a digital generation. It also discusses social constructivism - the learning theory underpinning this present research, as well as the effect of new and emerging technologies on the academic and social lives of students in HE in Western nations. Moreover, it mentions the barriers to technology use and explains the beliefs and perceptions that govern it, including students' perceptions and their use of technology for their academic and social lives. The challenges faced by students when using technology in HE are also described, with a subsequent review of the literature on the impact of technology on pedagogy. Particular attention is given to lecturers' perceptions of their role in supporting students' adoption of technology, as well as their pedagogical beliefs concerning the adoption of technology in their own practice.

In addition, to address the contextual factors that influence students' and lecturers' ICT use, Chapter Two provides some background on studies carried out in Kuwait and in the adjoining Gulf States. This is followed by a description of the Arab digital generation and the perceptions of Kuwaiti HE students as regards the use of technology in their academic and social lives. It also presents the perceptions of faculties/teachers in Kuwait and other GCC nation-states concerning the use of ICT, together with the barriers to its use in teaching and learning in HE, both in Kuwait and in the GCC countries overall.

Chapter Three subsequently details the methodology and procedures used to gather and analyse data for this study. It begins by stating the philosophical position adopted and proceeds by specifying the choice of an appropriate research design/methodology, along with the paradigm informing the study, justification for the choice of methods, and the corresponding ethical implications. It then explains how the data were analysed.

Chapter Four then presents the results of this study, while Chapter Five discusses the findings and Chapter Six draws out key findings, as well as indicating the limitations of this current research and pointing to implications for practice, before making recommendations for further study.

Chapter Two: Literature Review

2. Introduction

This review of the literature in the present study identifies and reports on current and previous research examining the impact of technology on the academic and social lives of students and lecturers in HE in Western countries, as well as in Kuwait and the adjoining Gulf States. The purpose of this chapter is to review the literature related to lecturers' use of technology in support of their teaching practices, and students' expectations of learning and teaching, as well as on how learners connect informal learning to the formal learning environment. The chapter will also focus on lecturers' pedagogical beliefs about the use of widely accepted teaching strategies, such as collaborative learning, problem-based learning, and socio-constructivist approaches, since these are areas that have not yet been researched in Kuwait.

The literature relevant to this topic is very much led by research originating from the UK and the US. Studies from Kuwait and the Gulf in general are limited and have not yet formed a cohesive or comprehensive body of knowledge. The present Review also focuses on information derived from contemporary research, which has examined changes in teaching and learning and the outcomes arising from the implementation of technology in HE. The studies selected for this research employ different types of such technology. The relevant literature was identified through database and online searches. The keywords used for the search included: social use of technology, Kuwait, UK, academic use of technology, formal learning, informal learning, collaborative learning, problem-based learning, socio-constructivist approaches, and teachers' pedagogical beliefs. The inclusion criteria consisted of peer-reviewed articles and research papers relevant to the topic; articles no more than 10 years old; qualitative, quantitative and mixed methods studies, and research undertaken in the UK, Kuwait and other Arab nations. All information was obtained lawfully and reported accurately.

3. The Emergence of a New Generation of Students

In order to investigate how educators are integrating technology into their teaching practice, it needs to be ascertained whether a new breed of students has in fact evolved, namely students who are more adept at using technology than their teachers. It is claimed that this new breed of student has entered the education system over the past two to three decades (Prensky, 2001). Such students have been referred to as ‘digital natives’ by Prensky (2001); as belonging to the ‘Net Generation’ by Tapscott (1998), and as the ‘millennials’ by Howe and Strauss (2003). Some scholars argue that today's students, surrounded by digital technology since infancy, are fundamentally different from previous generations (McHale, 2005) and that they are no longer the students our education system was designed to teach (Prensky, 2001). The debate over the use of such terminology, e.g. ‘digital natives’ or the ‘Net Generation’, has been raging on ever since and critics point to some disagreement among academics (Bennett, Maton & Kervin, 2008) in this regard. There is also the notion among academics and administrators that these new generations are deeply engrossed in technology throughout their social and academic lives and as a result, learn differently. Consequently, it is feared that traditional education methods or didactic teaching approaches are inadequate for such students, who are accustomed to technology in the form of, for example, computers, and related software and hardware (Bennett et al., 2008).

Nevertheless, digital natives also have difficulties when using technology, as in when trying to judge the legitimacy of information (Eastin, Yang & Nathanson, 2006), or when searching for and evaluating it (Livingstone, 2008). In spite of such difficulties, however, the argument for fundamental educational change or reform to meet the needs of a new generation of technically adept learners has hastened the implementation, integration and use of technology in this area (Bennett et al., 2008). Conversely, there are claims that this ‘tech-savvy’ generation does not actually exist and that a radical change in education is unnecessary (Bennett & Maton, 2010). Studies have also questioned the use of age as a criterion for belonging to the ‘digital generation’ and have argued that people of all ages have the potential to develop technological expertise (Dede, 2005; Bullen, Morgan, Belfer & Qayyum, 2009). Neither is it clear whether the determination to apply these new technologies in educational institutions stems from the requirements and capabilities of the learners themselves, or whether it is purely due to the fact that such technologies have emerged (Corrin, Bennett & Lockyer, 2010). These criticisms have had a profound effect on the original claims and Prensky (2009) has since accepted that a fundamental gap between students from more recent generations and their predecessors does not exist. The following sub-section provides evidence for the existence of this new generation of students in the context of Kuwait.

2.2.1. The Arab Digital Generation (ADG)

A new generation, referred to as the Arab digital generation (ADG) and consisting of the generation born between 1977 and 1997, is also said to have emerged in the Middle East and North African (MENA) region (Sabbagh, Mourad, Kabbara, Shehadi & Samman, 2012). A survey conducted by Booz & Company and Google found that this generation, who are very active online and in the use of social networks, are having a significant impact on Arab society and educational institutions in the above-mentioned zone (Sabbagh et al., 2012).

The members of the generations described here are users of Web and Internet technologies and are said to belong to the age group, 15-35. They are considered to be digitally active; own a laptop, computer, or smartphone; access the Internet multiple times each day, and have at least one account on a social network. They are educated, independent and decidedly religious, yet free-spirited. In addition, they are politically aware, if not politically active and also expect better public services - such as e-education initiatives - as well as more transparency amongst government agencies and officials. For the ADG, life without digital technology is unthinkable (Sabbagh et al., 2012).

Booz & Company and Google commissioned YouGov to carry out a study, in order to gain some understanding of the perceptions of the youth in the GCC member states, comprising Kuwait, the UAE, Saudi Arabia, Bahrain, Oman and Qatar. The research instrument implemented was the Booz & Company-Google Arab Digital Generation Survey. The sample consisted of respondents who accessed the Internet at least three to four times a week (for an average of at least 30 minutes each day); owned a smartphone, computer or laptop, and had at least one account on a social network. The results of the above study arguably revealed that technology has an impact on the traditions and customs of populations, for example, the Arab custom of 'arranged' marriages. Most of the respondents declared that they would prefer to meet someone and get acquainted with them before marriage; in fact, very few wanted an arranged marriage. Even among those who still chose to marry in the traditional way, members of the younger generation now have the opportunity to find out about the other person online. Nevertheless, in spite of this growing dependence on technology, the above study found that Kuwaitis did not favour online purchasing.

The results of the aforementioned study also revealed several characteristics of the goods and services associated with Web technology, which mainly appeal to youngsters. One of these is customisation. Over half the respondents indicated a desire for customised products and services. This phenomenon was significantly more widespread in Kuwait (at 68%) and least evident in Qatar and the Lebanon (46% for both countries) (Sabbagh et al., 2012). In order to shed more light on this context, the current thesis investigates students' and lecturers' perceptions and use of technology in HE. The following sections present the theories underpinning the current research.

4. Learning Theory Underpinning the Current Research

Prior to discussing the technologies used by students and lecturers, it is necessary to look at the learning theories pertaining to the creation of learning environments of greater relevance to the new generation of students. In the past, digital curricula may have been designed according to behaviourist principles by structuring classroom activities and monitoring student behaviour, in order to achieve predetermined outcomes (Lefoe, 1998). However, these models, whilst applicable in a behaviourist environment, do not serve instructional designers well, when the theoretical foundation for subject outcomes is a constructivist learning approach. This is because the constructivist group of theories places less emphasis on the sequence of instruction, but more emphasis on the design of the learning environment (Jonassen, 1994). In a Web-based environment, this can prove to be even more challenging.

2.4.1. Socio-constructivist Learning Theory

Constructivism supports the acquisition of knowledge through socially-constructed learning opportunities (Savery & Duffy, 1995; Gredler, 1997). The pedagogy of constructivist-inspired educational technology has its roots in Piagetian and Vygotskian psychology and in the neo-Vygotskian theories of Lave and Wenger's situated cognition within communities of practice (CoP). The two main theoretical positions on learning are: cognitivism, based on perspectives of cognition and social constructivism and propounded by Piaget, the Swiss philosopher and psychologist, and Socio-cultural Theory, based on the work of Vygotsky and his associates: Luria, Lebedinsky and Leontiev, who were all involved in establishing the Kharkov school of psychology. Although cognitivism lends itself more easily to the provision of structured foundations for planning and undertaking instructional design activities, the two approaches are not entirely different from each other.

Cognitive or individual constructivism, dependent on Piaget's Theory, constitutes a model of how learners individually construct meaning or understanding in interactive environments. For Piaget, learning is a developmental process that involves change, self-generation and construction, each building on prior learning experiences. People learn by actively exploring their immediate environment, receiving feedback for their actions, and then drawing conclusions (Mayes & de Freitas, 2007). The central interest of cognitive constructivism is the individual learner's own psychological understanding. Therefore, while cognitive constructivism does not emphasise social interaction, it does require instructors to scaffold and create a learning environment where meaning-making can happen, but this does not need to be social.

There is a great deal of overlap between cognitive constructivism and Vygotsky's Socio-constructivist Theory. Piaget's Cognitive Theory proposes that instructors play a limited role, while Vygotsky's theorises that both instructors and peers have a very important function in learning. For Vygotsky, it is culture that gives the child the necessary cognitive tools for development (Vygotsky, 1978). The type and quality of these tools will determine, to a much greater extent than is the case with Piaget's Theory, the pattern and rate of a child's development. The tools provided for a child by culture may include the history of that culture, the social context, and language (Alves, 2014). Today, these tools also incorporate technology and almost all forms of information access.

2.4.2. Pedagogy of Constructivist Learning Theories

With the advancement of technology, constructivist learning theories have been reviewed and revised as educators try to incorporate technology, while simultaneously trying to balance constructivist-based pedagogies. Technology offers flexibility and adaptability to reflect pedagogies across various learning models, based on constructivism (Ford & Lott, 2009). Consequently, the pedagogy of constructivist learning theories, such as social constructivism and situated learning, have been altered and empowered through the use of technology as an e-learning tool (Mayes & de Freitas, 2004).

According to Situated Learning Theory, learning is understood as the development of practice in a particular community. Lave (1988) argues that learning is a function of the activity, context and culture in which it normally occurs (i.e. in which it is situated). This differs from most classroom learning activities, which involve abstract knowledge taken out of context. Moreover, social interaction is a critical component of situated learning. Learners become involved in a CoP, which embodies certain beliefs and behaviours to be acquired. In a review of e-learning theories, the findings suggest that learners in situated learning can progress from novice to expert levels through observation, reflection and mentorship (Mayes & de Freitas, 2004).

While employing Situated Learning Theory in e-learning, teachers should encourage learners to integrate their knowledge with the actual experience of the learning situations, so that students can observe, imitate and acquire basic knowledge and skills and then gain more advanced knowledge in real situations (Shaw, 2001). In short, the premise and pedagogical foundation of Situated Learning Theory is that learning is more effective in shared social situations. Although it is possible for situated learning to involve a degree of collaboration without using technology, the prospect of success in constructivist pedagogies is greater and more genuine opportunities are presented when technology becomes a part of the process (Ford & Lott, 2009).

Situated Learning Theory is used in e-learning to gain new understanding of the nature of student participation, knowledge acquisition, and relationship development within social networking communities, in order to analyse the joint enterprise, mutual engagement and shared repertoire experienced; for example, within social networking communities around language courses (Mills, 2008). Applied at doctoral level, one organisational behaviour course was delivered through an extensive, simulated educational activity (involving student interaction, but with less direction) and centred upon designing a model for educational organisation. In the above case, situated learning was found to be able to engage the learner in more realistic settings, thereby increasing the likelihood of the information acquired being useful when the students faced similar situations in real life (Schell & Black, 1997).

Furthermore, situated learning tends to be unintentional rather than planned and conscious. These ideas form part of the process of what Lave and Wenger (1991) call 'legitimate peripheral participation'. The legitimate peripheral participation framework suggests that learners start learning by joining communities, but remain on the periphery. As they immerse themselves in learning through legitimate peripheral participation in tasks, the community accepts these newcomers or ‘apprentices’ and gives them access to knowledge. Gradually, they become competent leaners. In other words, the learners move from legitimate peripheral participation to ‘full participation’ (Lave & Wenger, 1991, p.37). In addition, problem-based learning (PBL) is underpinned by theories of situated learning, which assume that learning is most effective when it is embedded in authentic tasks and anchored in everyday contexts (Hung, Jonassen & Liu, 2008). Some universities have already started using PBL, such as Maastricht University in the Netherlands, which is noteworthy for its innovative PBL teaching model (Maastricht University, 2013). According to academics at Maastricht University, PBL may be used to solve socially relevant problems experienced by students, by providing them with support. A student-centred approach may therefore be adopted to give students the opportunity to learn from real-life cases, tackling specific problems, analysing them from various perspectives, conducting independent research and identifying their underlying mechanisms (Maurer & Neuhold, 2012). Students can then be given the freedom to lead discussions and collaborate with each other in group work, together with people from different cultural backgrounds offering diverse perspectives (Maurer & Neuhold, 2012). In contrast to a more traditional method of instruction, PBL follows the underlying constructivist rationale that knowledge is constructed.

At the heart of the PBL philosophy is the (socio-constructivist) idea that students are personally responsible for their own academic education (Maastricht University, 2013). PBL pedagogy has subsequently been integrated with e-learning in clinical practice, as a means of developing information literacy skills; critical-thinking and evidence-based skills (for example, in nursing); communication, co-operation and team-working skills, and problem-solving and self-assessment skills (Jauhiainen & Pulkkinen, 2009). It is also used in e-learning to develop tutorials for students, where specific Web or multimedia technologies are explained, or where programming can be learned in ways believed to be the most effective, merely by performing that activity (learning-by-doing) (Dornberger & Hanne, 2011). In short, it has been used to develop professional competencies in workplace-specific skills (Baturay & Bay, 2010).

An extension of this idea (of PBL) can be seen in CoPs, which, according to Wenger (1998), consist of three aspects: the domain, the community and practice. The domain is the specified shared pursuit and shared group attribute; the community is the environment in which the interaction takes place, as well as the relationships developed, while the practice may be defined as the "…shared repertoire of resources: experiences, stories, tools, (and) ways of addressing recurring problems" (Smith, 2009).

The CoP concept comes from a socio-cultural idea that students "acquire both deep knowledge about a subject and the ability to participate in the practice of a field through productive inquiry and peer based learning" (p.28). However, the concept is largely influenced by pedagogies of collaboration and the learning context. The context in which learning takes place is in fact essential for determining the authenticity of a task.

The aforementioned theories were examined in order to find a suitable theoretical framework for this study. Activity Theory was not selected, because it is more of a sociological theory than one which relates to psychological learning. Moreover, it is a complex theory and not necessarily one to be considered as a learning theory, since it is most often used at organisational levels. In addition, Wenger's CoP concept is very much based on ideas of distributed cognition, which can be applied to studies on online learning. However, the concept may only be partially relevant to Kuwait, as Arab culture and traditions are quite distinct from those of Western nations, where Wenger's concept is perhaps better accepted.

Lamontagne (2005), who conducted a qualitative study on faculty members in the UAE as regards their perceptions of CoP, found that although Arab students consider themselves as potential CoP members, they do not accept the Western approach of assigning a numerical value to intelligence, or distinguishing between learners on such a basis. Moreover, students were reported as helping each other to succeed, even if this meant being guilty of 'cheating'. In addition, the teaching faculty continued to adopt a behaviourist approach to measuring student success and for the students, helping others did not amount to 'cheating', but was rather a matter of being helpful, or of needing to fulfil a social obligation.

Despite the fact that most significant technological developments in recent years have been based on the CoP concept, such as Blackboard (Rosson, Dunlap, Isenhour & Carrol, 2007), massive open online courses (MOOCs) (de Waard et al., 2011; Rodriguez, 2012) and knowledge management in the domain of e-learning (Wenger, 2004), it is possible that the principles of effective CoP - a sub-theory of social constructivism - may only correspond in part to traditional Arab culture (Lamontagne, 2005). Therefore, for the current study, the researcher considers social constructivism to be a much more suitable theoretical framework, since it promotes student-centred learning. Moreover, it is widely embraced and used in research.

Student-centred thinking has spawned a burgeoning interest in the use of many different active learning methods, both within and outside the classroom. These include collaborative learning, experiential learning, problem-based learning, and a variety of other pedagogical methods. The reason why Socio-constructivist Theory is so widely accepted is because pedagogy (teachers' pedagogical practices), which is rooted in authoritarianism or behaviourism, is criticised by constructivists (theorists), precisely because it is authoritarian and teacher-centred, rather than progressive and learner-centred. It is also because it encourages passive, instead of active learning. Its focus is on teaching as transmission, rather than learning through discovery (McCarty & Schwandt, 2000). Learner-centred models based on Socio-constructivist Theory are used for designing e-learning assignments/activities (for example, in IT and business fields) within an e-learning environment (Koohang, Riley & Smith, 2009).

Lecturers facilitate cognitive growth and learning by integrating technology and using digital tools or devices to accomplish the goals of a socio-constructivist classroom. They can use emerging technologies (for example, mobile devices and computers) and telecommunication tools, such as e-mail and the Internet, as a means of interacting and collaborating (in dialogue, discussion and debate) and to create simulations, which may lead to the social construction of meaning. Lecturers who adopt socio-constructivist approaches can apply reciprocal teaching and also use technology to design certain pedagogic strategies (for example, an anchored instruction approach), assessment strategies and instructional design models (for example, problem-based instruction) in e-learning environments (Chen & Bryer, 2012; Schunk, 2012). However, in order to be able to understand and apply models of instruction that are rooted in the perspectives of social constructivists and their specific assumptions about reality, knowledge and learning (Hollins-Alexander, 2013, p.3), it is important that lecturers become aware of their underlying premises.

Nevertheless, the theory and practice of student-centred pedagogy is not without its problems (Geduld, 2014). Studies now show that students demonstrate more learning, better conceptual understanding and increased engagement when collaborative or interactive teaching methods are used, compared to the effect of traditional lecturing (Armbruster, Patel, Johnson & Weiss, 2009; Armstrong, Chang & Brickman, 2007). However, not all students necessarily advocate socio-constructivist learning approaches when they are unfamiliar with the respective theoretical and philosophical foundations. Therefore, students' perspectives of their preferred teaching styles are important, because there is the notion that if they are taught according to their preferred style, they will learn more effectively (Johnson & Dasgupta, 2005). Research also suggests that many students report a preference for personalised, teacher-centred methods of instruction (Dimitrios, Labros, Nikolaos, Maria & Athanasios, 2013). In fact, the teacher is still viewed as the primary expert in any body of knowledge concerned. All this would indicate that in spite of a wide acceptance of social constructivism, its principles - such as social interaction and collaborative learning – tend to be over-emphasised, while the role of the individual student is not given due importance.

This section has provided an understanding of social constructivism and the reasons why it was chosen as the theoretical framework here over other cognitive/constructivist theories. Socio-constructivist Theory provides the foundation for this research, since its fundamental underpinning factor is its holistic approach. This is required for the integration of technology as a means of delivering student-centred learning programmes. The socio-constructivist approach and e-learning are a good fit for each other: e-learning is a student-centred activity that can promote social connections, and social constructivism can promote discussion, collaboration and interaction. This enables reflection as part of the learning process within a social environment. Emerging technologies and e-learning can provide such an environment for students and lecturers, whereby they acquire knowledge, participate in a social community and create knowledge (Sfard, 1998; Paavola, Lipponen & Hakkarainen, 2004). The following sections will discuss the various Internet and related technologies used by the current generation of learners in their academic and social lives.

5. The Effect of New and Emerging Technologies on Learning in Higher Education (HE) in the West

The integration of new educational technologies to meet the demands of the 21st century has presented HEIs with new challenges. One of these is the need to redesign learning spaces for quality learning approaches. It is therefore essential to understand the different systems and learning environments created for effective learning, as well as the role of the lecturer in supporting students' adoption of technology for learning and their pedagogical beliefs about technology use to support student learning. The effect of various learning systems and technologies on learning is discussed here.

2.5.1. Virtual Learning Environments (VLEs)

A virtual learning environment (VLE) is a software tool used by educational institutions to integrate learning materials. It also creates a space where content can be delivered and where students and lecturers can communicate or interact online. Meanwhile, it is a means of assessing the quality of student performance (BECTA, 2004). Furthermore, it may be described as a space where students can find out more about a course, task schedule or assignment and also provides a forum for discussion, where students and lecturers can engage in dialogue. In the process, various topics can be discussed and unclear information or instructions for academic work clarified (Simkova & Stepanek, 2013).

Virtual spaces or worlds allow students to participate in authentic learning and facilitate the deep and meaningful acquisition of life transition skills, such as self-confidence, negotiation and mediation, teamwork and active problem-solving (Devlin, Lally, Sclater & Parussel, 2013). In these realistic and interactive environments, students can thus engage in creative discussions and learn through collaboration in virtual communities (Lally & Sclater, 2013).

Although the term ‘virtual learning environment’ (VLE) is used interchangeably with ‘learning management system’ (LMS), there is a difference between the two types of learning system. The present researcher is of the view that LMSs are used by institutions, not only to deliver online courses, but also to manage content delivery, or to create an environment where learning can take place.

2.5.2. Learning Management Systems (LMSs)

One type of technology implemented in HEIs is LMS software (for instance, Moodle or Blackboard), which can be used to create online training courses. These learning systems are now a central component of HEIs and are not only aimed at enabling lecturers to publish content or course materials online, so that students can access them, but also at facilitating interaction between lecturers and learners (Siemens & Tittenberger, 2009; Mott, 2010). These LMSs are widely used, even today in the US and Canada, as was found in a recent study by Smith and Caruso (2010). The above researchers surveyed over 100 HE Is in the two above-mentioned countries and found that over 90% confirmed their use of an LMS. However, other research also indicates that LMSs have failed to provide users with the individual social presence essential for more vigorous and valuable networking experiences and to facilitate learning (Minocha, 2009; Brady, Holcomb & Smith, 2010). This is because most of the LMSs used in institutions focus on ‘traditional’ modes of instruction, especially for presentations and assessments (Lane, 2009).

In blended learning environments, LMSs are believed to integrate collaborative and interactive learning activities into university courses, by creating both traditional and non-traditional (i.e. technological) learning contexts (Dias & Diniz, 2014). However, it is also claimed that LMSs do not support immediate social connections or interaction (Hazari, North & Moreland, 2009). Consequently, it has been pointed out in some studies that the adoption of LMSs poses challenges (Morgan, 2003; West, Waddoups & Graham, 2006) and that their value has been undermined following the emergence of social networking sites, for example Facebook. This is because LMSs, unlike social networks, lack the potential to offer enhanced support for self-governed, problem-based and collaborative learning processes (Dalsgaard, 2006).

2.5.3. Instant Messaging (IM) Systems

Instant messaging (IM) systems (for example, Yahoo Messenger, MSN Messenger, Skype, Viber and WeChat) can enhance the learning experience, motivate students to obtain immediate feedback from lecturers, and increase their knowledge and skills, thus enabling them to comprehend course material more easily (Allen et al., 2006; Martinez-Torres, Toral, Barrero & Gallardo, 2007). IM appeals to learners, because it is fast, displays both textual and audio-visual data and can support multiple conversation media, such as Skype or Yahoo Messenger. IM can also help students work together with their peers on projects and connect with lecturers and librarians, whenever they seek assistance in their academic studies (Quan-Haase, 2007). IM and text messaging (using mobile phone apps, such as Viber or WeChat) also enable students to remain in contact with family and friends, regardless of distance. IM and text messaging could therefore be considered as enriching students' social habits.

Studies have shown that text/IM; short message services (SMSs); mobile phones and other hand-held communication devices, as well as mobile instant messaging (MIM) via wireless, handheld and desktop devices on the Internet (for example, Facebook Chat and

Twitter) appear to be the preferred modes of communication for students when communicating with either peers or lecturers (Dourando, Parker & de la Harpe, 2007; Junco et al., 2011; Lauricella & Ray, 2013; Aregbesola & Olatokun, 2014). The above authors found that while the students surveyed regarded text messaging as a very useful tool, they perceived IM to be reasonably valuable for academic purposes.

Lauricella and Ray (2013) have examined how HE students use text messaging and IM for academic purposes with their peers and lecturers. The results indicate that students used text messaging and IM to save time and because these tools are convenient and easy to use. Students seem to believe that both types of messaging are useful, viable means of enhancing communication with peers and lecturers in HE (Lauricella & Ray, 2013). However, they were found to only communicate with their lecturers once a week. All these studies suggest that students use IM purely for communication, but do not use it frequently with lecturers. It could therefore be argued that IM is an ideal communication tool for students' social, rather than academic lives. On the other hand, Junco and Cotton (2011) conducted a Web-based survey to examine technology usage in HEIs in the US. The sample consisted of a large number of college students and the researchers examined how IM affected their learning. The results of this study suggest that college students use IM for multi-tasking. However, more research is required to study the factors affecting students' and lecturers' acceptance of IM for social and entertainment purposes in Arab countries.

2.5.4. Use of Open Content Tools, Such as Wikis and Blogs

A blog is an online journal, which a user can publish on a website and where dated entries are written and presented in reverse chronological order, so that the latest post is displayed at the top of the page (Ali, Byard, Julich & Kommunuri, 2013). Blogs are easy to use and students do not require a high level of skill or practical knowledge to create or maintain them (Bartlett-Bragg, 2003, p.2).

Blogs create an authentic environment, which not only enables students to collect, exchange and review information or make changes, but also to publish their knowledge and take full advantage of learning through critical reflection (Ferdig & Trammell, 2004). Furthermore, blogs support social forms of interaction between students and between students and lecturers (O'Donnell, 2006). As they are content-creation management technologies that promote creativity, encourage collaboration and improve higher order thinking skills, blogs are, moreover, widely used in HE (O'Donnell, 2006; Tretiakov, Kaschek & El-Qawasmeh, 2007; Farmer, Yue & Brooks, 2008; Kerawalla, Minocha, Kirkup & Conole, 2009). Richardson and Ice (2010) assert that the use of open-ended discussion as an instructional strategy in online environments can impact students' critical-thinking levels. Nevertheless, it is argued that blogging and other technologies may disrupt traditional communication and learning patterns in the classroom (Ellison & Wu, 2008).

Unlike blogs, wikis constitute an e-learning approach that promotes collaborative learning among students. Newmann and Hood (2009) examined how students used a wiki in a first year university statistics class at Griffith University, Australia. Although the students, belonging to two different groups, were being taught the same courses, the results of the study indicate that both groups, using different approaches, had improved their knowledge of report-writing. However, there were no differences in their academic accomplishments. Nevertheless, what the wiki approach did generate was higher engagement with other students, cognitive engagement and better class attendance than the individual approach. These findings suggest that student engagement, but not performance on assessment, may be enhanced when a wiki is used to support learning in HE.

The literature shows that open content tools present opportunities for promoting positive changes in education, in order to enhance quality and extend access by encouraging student-generated content, knowledge creation, and self-organised learning processes, wherever students are located (Wheeler, 2010). Open content tools, such as wikis, also enhance collaboration (Kershner, Mercer, Warwick & Kleine Staarman, 2010). In order to examine how students engage in collaborative activities that are supported by a wiki environment, Pifarre and Kleine Staarman (2011) collected data from a science project in which 25 primary school students participated. The activities included the communication of ideas, researching the topic, creating and sharing content, and writing a collaborative text about Mars. The contributions of the students to the wiki environment and the nature of their interaction were analysed. The findings suggest that the students were certainly collaborating with each other and taking part in dialogue and consultations during the wiki sessions. They were willing to share their ideas, welcome suggestions or criticisms and use the feedback or comments to solve the tasks together.

Although the above study was carried out in a school, such collaboration also takes place in HE (Zheng, Niiya & Warschauer, 2015). However, Zheng et al. (2015) argue that an effective learning design is necessary if wikis are to support collaborative learning. Besides, although these tools can support the social construction of learning and increase student engagement within it (De Winter et al., 2010), it is not certain if they can be used in the same way students use IM, smartphones or Android tablets for engaging in social activities.

2.5.5. The Use of Social Media Networks and Cloud Computing

The dominance of social theories in the field of e-learning has led to an increase in the use of social media networks for teaching and learning. Social networks and their sites enable students to search for information and resources and connect learners with their peers, so that they can share ideas, thereby facilitating both formal and informal learning and allowing collaboration (Anderson, 2010). Social networking thus allows learners to receive instruction and acquire knowledge; leading to career development, employment and professional development (Benson & Morgan, 2013).

Major reasons why universities are currently adopting social networks not only involve their enhancement of teaching and learning, but also their popularity with youngsters (Madden & Zickuhr, 2011). Social networking can also create a congenial atmosphere in which learners establish relationships, share, discuss, exchange ideas and knowledge, and further their learning experience (Jenkins, Clinton, Purushotma, Robinson & Weigel, 2006; Wheeler, Yeomans & Wheeler, 2008; Lee & McLoughlin, 2010; Gazi, Aksal & Oztug, 2012). Myspace, Facebook, Twitter and Ning are four of the most commonly used social networking sites in education in the UK (Toetenel, 2014).

The use of social networking sites – for example, Facebook - in HE settings has been examined by various researchers, especially in the context of language learning programmes (Piriyasilpa, 2011; Ho-Abdullah, Ruzy, Azhar & Rosnani, 2011; Hiew, 2011; Promnitz-Hayash, 2011; Virvou, Troussas, Caro & Espinosa, 2012; Troussas, Virvou, Caro & Espinosa, 2013). Moreover, the findings suggest that there is a consequent overall improvement in students' language proficiency, where they have practiced on a social networking site. This would suggest that social networks are potential tools for learning and teaching. Although Facebook has been the focus of most studies, there are a number of discipline-specific social networking platforms, namely

ResearchGate, Academic.edu, Mendely.com and Zotero.org. These can be used to share research papers and results, as well as to discuss issues and stimulate debates (Ferri et al., 2012). Such social networks allow students and academics to collaborate, organise their research, create personal profiles, search for people with similar scholarly interests, and obtain open feedback on papers published on the network. However, despite the fact that social networks can empower students in a democratic society, there is a lack of experiential data to prove that they can essentially improve learning outcomes (Eikenberry, 2012).

Cloud computing or peer-to-peer social cloud computing, which enables the delivery of applications and computing services over the Internet, works together with social networks to generate a sustainable resource-sharing environment for users (Mell & Grance, 2009; Kiranmayee, 2015). Individuals, especially of the younger generation, often use cloud computing to store and retrieve data, such as music, movies, videos, files and documents. Cloud-based SMART education systems are used in HE for providing e-learning content services, with a view to delivering and sharing various enhanced forms of educational content, including text, images, videos, three-dimensional objects, virtual reality and augmented reality scenarios (Jeong, Kim & Yoo, 2013). Cloud computing is an excellent alternative for students who may not have the budget to store large and voluminous files in external hard drives or flash drives. Some of the most popular cloud computing and storage resources include Dropbox, Microsoft OneDrive, Google Drive, Apple iCloud, and Amazon Cloud Drive (Sclater, 2009).

Cloud solutions also support collaborative learning and socially-oriented theories of learning via computer technologies that promote collaborative methods of instruction (Thorsteinsson, Page & Niculescu, 2010). These tools are so powerful that they allow students to use them innovatively. Educational institutions are leveraging cloud computing technology to meet the new demands arising from the impact of Google and Microsoft on students' academic and social lives. However, it is not evident from the research whether universities are also enhancing their current e-learning processes, or developing educational concepts to explore new ways of adopting this technology. Although cloud computing is enhancing the social lives of students in many ways, very few studies have focused on its impact on other aspects of everyday life.

2.5.6. The Effect of E-books and E-book Readers

E-books are electronic books that consist of written text and graphics (for example, text books, fiction and journals), which can be read digitally on a computer screen, a special e-book reader (for example, Amazon Kindle), an Android tablet, or even a mobile phone (Nelson, 2008). However, e-books are not limited to static pictures; they can also integrate video, audio-, animation, and even interactive simulation. E-books and e-readers have had a profound impact on the concept of the book as the new generation of students are more inclined towards technology (Nelson, 2008). Pattuelli and Rabina (2010) investigated the use of e-books (Kindle) among Library and Information Science (LIS) students in the US and found that the students enjoyed using them, due to the portability of the device and its convenience of use anywhere and at any time. The study concluded that e-books can enhance students' reading experience.

As students gain rapidly increasing access to e-book reading devices, educators are forced to look at the potential of using them to provide a more interactive learning experience and access to content at any time and from any location (JISC, 2012). However, HEIs in Kuwait and other Arab nations are not always sure how they can respond to these possibilities and the challenges associated with them. Research has not yet clearly ascertained whether e-books providing interactive content can be adopted in the classroom.

2.5.7. The Use of Interactive Whiteboards to Enhance Learning and Teaching

Interactive whiteboards (IWBs) or SMART Boards are interactive display boards that are connected to a computer and digital projector, which allows students to interact with the content or images using an infrared pen or its touch screen feature. IWBs are increasingly being used in educational institutions (Gillen, Kleine Staarman, Littleton, Mercer & Twiner, 2007), because they can have a positive effect on learning and teaching (Campbell & Martin, 2010; Teck, 2013). IWBs are especially used in schools in the UK and the US, as it is widely believed that this technology can enhance student motivation and interaction (Smith, Hardman & Higgins, 2006; Gillen et al., 2007; Wood & Ashfield, 2008; Turel & Johnson, 2012). Gillen et al. (2007) examined how the use of IWBs as a tool can enhance classroom interaction in primary school classrooms in the UK. The findings suggest that authentic classroom activities involving an IWB supported whole class interaction, engaged the students, enabled them to construct knowledge and improved their understanding of the topic. Therefore, it is claimed that this technology can also have a positive effect on learning and teaching in HE (Schroeder, 2007). However, the above researchers also concede that IWBs should only be integrated if the pedagogical approaches are appropriate and associated with these technological tools, in order to ensure their benefits are gained (Gillen et al. 2007; Teck, 2013).

2.5.8. The Use of Mobile Devices for Collaborative Learning

The evolution of handheld portable devices and wireless technology has resulted in radical changes in the social and economic position people find themselves in today. As a result, educators have started considering the implications of these devices for the modern teaching and learning environment. Mobile learning (or ‘m-learning’, as it is sometimes called) is learning by means of wireless technological devices that can be pocketed and utilised, wherever the learner’s device is able to receive unbroken transmission signals (Attewell & Savill-Smith, 2005). Mobile devices have the potential to enhance communication and knowledge (Nyíri, 2002).

Smartphones have developed considerably, even since the release of Apple’s first iPhone in 2007 (Woodcock, Middleton & Nortcliffe, 2012). These mobile devices (which include features such as cameras, audio-recorders, gesture-based input and high resolution displays, besides a wide range of applications (‘apps’) to support interactivity, media production, Web browsing, social media, communication and entertainment) have had a significant impact on young learners, prompting them to use these gadgets for social and academic activities. The increased use of these devices has come about due to their size, computing power and memory, which is capable of supporting complex software and storing huge amounts of data (Woodcock et al., 2012). There is great potential for smartphones in education, because of their ubiquity, multi-functionality and connectivity, offering a new and potentially powerful networked learning environment (Woodcock et al., 2012).

In addition, mobile tablets made their entry onto the consumer market when the first Apple iPad was launched in March 2010. The research studies which commenced instantaneously showed that iPads can be used as a supplementary learning tool in the classroom (Rossing, Miller, Cecil & Stamper, 2012; Hamilton & Tee, 2010; Kukulska-

Hulme, 2012). Students were immediately drawn to Android tablets and started using them, not only for social activities, but also for academic purposes, as this technology fosters collaborative learning and enhances interaction between students and between students and tutors (Shuler, Hutchins & LaShell, 2010).

The explosion of mobile apps and computer programmes has created a new market for academic 'apps', focusing specifically on enhancing the teaching and learning experience. Educational 'apps' are the fourth most popular type of download, after gaming, books, and entertainment (Walker, 2011). The versatility of smartphones, tablets and mobile 'apps' is expected to change the nature of educational content and communication and therefore, the nature of learning itself. The prevalence and widespread acceptance of smartphone devices and tablets by students has prompted HEIs to explore the potential use of this technology to address student expectations, in order to achieve a more mobile learning experience (Woodcock et al., 2012).

Some studies from the UK suggest that mobile technologies enable information-sharing and knowledge construction through contributions to Web forums. It is likely that location awareness will also play a greater role in informal learning, as learners adopt and adapt their mobile device functions to suit their informal learning needs (Clough, Jones, McAndrew & Scanlon, 2009). Research also indicates that m-learning devices can retain the pedagogical richness of the original desktop-based material (Bradley, Haynes, Cook & Smith, 2009), in spite of the difficulties involved in navigating these gadgets. Mobile devices provide, for example, rich interactive visualisations, learner-controlled pacing, and the use of scaffolding to assist learners in the transition to real-life applications of knowledge (Holley, Cook, Smith, Bradley & Haynes, 2007; Smith, Cook, Bradley, Gossett & Haynes, 2007). Studies also conclude that the future of pedagogically rich, constructivist learning resources, developed on mobile devices, looks very promising (Bradley et al., 2009).

The findings of the above-mentioned UK studies are similar to those presented by Chapel (2008), who investigated the potential for mobile technologies to further the development of a virtual campus in a university in the US. The technology was found to support increased academic participation, improving student retention rates and "strong student participation in a more well-defined campus culture" (Chapel, 2008, p.17). The mobile devices fostered a stronger sense of community and provided students with a safe, secure and rich learning environment. The participants considered that they had the potential to connect across time and space, rather than in purely face-to-face situations (Chapel, 2008). In other words, 'seamless learning spaces' were provided, where students could learn whenever they were curious, in a variety of scenarios; while easily and quickly switching between scenarios or contexts (such as between formal and informal learning, personal and social learning, etc.), using the personal device as a mediator (Chan et al., 2006). Thus, the devices were found to allow students to remain connected in the classroom, promoting a more active learning environment; facilitating the building of learning communities; providing more extensive feedback for lecturers, and enhancing student motivation (Junco, Heiberger & Loken, 2011).

'M-learning' offers additional new solutions for traditionally problematic information delivery contexts in HE (Cobcroft, Towers, Smith & Bruns, 2006). Mobile devices can help improve literacy and numeracy skills, while at the same time encouraging independent and collaborative learning experiences; identifying areas where learners need assistance and support; mitigating resistance to the use of ICT; engaging reluctant learners; enabling learners to remain more focused for longer periods, and promoting self-esteem and self-confidence (Attwell, 2005, pp.13-15). Furthermore, m-learning could be instrumental in increasing flexibility in learning by customising the latter, so that it becomes a more personalised and learner-centred activity (Leadbetter, 2005, cited in Cobcroft et al., 2006).

A socio-constructivist view of learning would consider that students learn best when given the opportunity to acquire skills and theories in a context they are accustomed to. Students can then construct their interpretations of a subject and communicate such understanding to others. Mobile technologies, if employed effectively, have the potential to support socio-constructivist approaches to learning. Consequently, through the application of mobile technologies within a learning design, students may be further empowered to undertake 'user-led education', thus creating their own content and collaborating with peers and communities within and beyond the classroom (Cobcroft et al., 2006).

Mobile devices have enabled new approaches to delivering instruction. In turn, this puts pressure on faculties to redesign their approach to teaching, so as to be able to respond to the needs of students who are technically proficient (Prensky, 2009; Berrett, 2012; Tucker, 2012). More specifically, mobile tablet design focuses on cloud computing. This allows schools to better control the software that is available, as well as monitoring use (as appropriate), and installing protection against the less positive aspects of the Web. Combined with controls on school-based Wi-Fi networks, tablets may provide a safer computing experience than was previously possible with fully-fledged laptops (Rosenberg, 2011).

Students use these technologies, not just to acquire information, but also to store data and to share and collaborate with their lecturers and peers. However, collaborative learning has been discouraged in traditional teaching approaches, with a historical emphasis on students working and being assessed as individuals. This type of learning is also heavily rooted in Vygotsky's views that learning has an inherently social nature. Conversely, in recent years, the need to develop collaborative skills for work environments has started to be reflected in HE.

Aside from the above, the availability of electronic textbooks on mobile devices (such as on Android tablets) continues to increase, with university programmes incorporating experimentation with tablets by students and lecturers, as a means of completely replacing textbooks. A study conducted at Abilene Christian University in Texas found that 75% of college freshman would use their own funds to purchase an iPad if there were at least 50% of the required textbooks available (Wireless News, 2011). Additionally, the study concluded that both lecturers and students were using mobile technologies for class-related reasons and that levels of engagement increased when mobile solutions were introduced into the classroom (Wireless News, 2011).

All this indicates that mobile technology can be productive and can enhance student learning through collaboration. It is therefore necessary for educators to focus on tools which will not only motivate students to learn, but which will also increase collaboration and enthusiasm (Kershner et al., 2010), thus creating a new student-centric learning experience. The studies reviewed in this section demonstrate that all educational technologies are assumed to be beneficial in the classroom. Moreover, while it could be argued that these technologies have the potential to aid student development and the transmission of information, the role of the teacher increasingly involves the mediation of new technologies. Therefore, although students may have some degree of skill in the use of digital technologies, there is the need to understand the role that instructors can play in helping students use technological media to socialise and communicate. This thesis aims to gain insights into the perceptions of Kuwaiti HE students as regards how they use technology for academic and social purposes, as well as the perceptions of Kuwaiti HE lecturers concerning how they integrate technologies to engage and improve student learning.

6. Barriers to Technology Use

Students face new and unexpected challenges when using technology for learning and while the current study attempts to investigate how this takes place, there is also the need to review past literature on the problems facing students. The challenges encountered by students who are "immersed in a 'media diet' accumulating a fulltime job plus overtime devouring entertainment, communication, and forms of electronic media" (Rosen, 2007, cited in Kirschner & Karpinski, 2010) are numerous. The literature indicates that the main barriers (external and internal) to the use of technology are time constraints; a dearth of skills; limited student interaction; the absence of ongoing support; a lack of technology infrastructure, training and support; teachers' beliefs; poor access; limited student interaction; cultural context; the use of multiple devices by different students; a sedentary lifestyle; increased stress levels, and a failure to promote constructivist-based teaching activities (Joseph, 2012; Ertmer et al., 2012). While reviewing the literature on barriers to technology use amongst students and faculties, the need to examine the affordances and opportunities provided by these technologies for learning and teaching become evident. When an affordance lens was applied to explore whether technology use could benefit students and lecturers (in their academic and social lives), a review of the literature identified affordances that could be categorised as interactive, collaborative, problem-solving, related to the teacher's role, immersion (for example, where virtual environments prompt individuals to deeply involve their senses and consequently enter into an altered mental state), learner-centred, and instructor-supported pedagogy.

The affordance of a technology refers to the properties of a particular tool that enable it to be used in certain ways (Vrasidas & Glass, 2002). For example, an Android tablet affords gaming, while a VLE might afford interaction, collaborative learning and the development of communities of inquiry. These are “attributes of the supporting features” (Kennewell, 2001, p.106), with “the setting impos[ing] constraints” (2001, p.55) that are complementary, although they “are not the opposite of affordances” (2001, p.108). Within an educational setting, some learners are purposefully constrained, in order to facilitate desired action, so that the instructor can alter the available affordances and constraints. The gap between these and the learners’ abilities will allow intended learning to occur (2001, p.107). It is these constraints which can present barriers to the use of technology.

Ertmer (1999) categorises the barriers hindering technology integration into external and internal obstacles. Rogers (2000) conducted a study in a HE system on the barriers to technology adoption and identified a lack of funding as the primary external barrier. This was followed by a lack of technical support. However, external barriers, such as a shortage of equipment or absence of training and support in the technology infrastructure can be overcome through adequate funding and training, and via governmental policies (Vrasidas & Glass, 2005). Other external barriers to educational technology include cost implications and disruptive technology (Joseph, 2012).

Internal barriers, related to teachers’ beliefs, are key variables (Park & Ertmer, 2007; Palak & Walls, 2009). Despite increased opportunities for accessing technology, several internal barriers are possible; for example, a lack of information-sharing on best practice; a shortage of time for teachers to learn how to use new software and technology and devise lesson materials; the absence of ICT in teacher preparation programmes; the absence of curriculum policy and assessment support; teachers’ resistance to altering their traditional approaches, and incompatibility between didactic teaching methods and the constructivist frameworks fostered by ICT (Rogers, 2000; Vrasidas & Glass, 2005).

The barriers, whether external or internal, are significant for this current thesis and are addressed by exploring Kuwaiti HE students' and lecturers' perceptions of the barriers encountered when using technology. Some of the key barriers found in the literature, both external and internal, are discussed below.

2.6.1. Lack of Time

The lack of time caused by faculty workload is an important barrier that must be addressed in university settings, in order for innovation to succeed (Butler & Sellbom, 2002; Myers, 2004; Tabata & Johnsrud, 2008). Course releases are suggested to help give faculties time to integrate technology into instruction (Rogers, 2000; Sahin & Thompson, 2006). Time can indeed be a significant barrier, as lecturers are already consumed with teaching requirements, research and campus committees (Annan, 2008; Rogers, 2000). This is especially important for those who are new to technology, as they will have a steeper learning curve than those who have already worked with it in the past (Rogers, 2000). As a result, some lecturers may require more release time than others, in order to successfully master the required skills. For this barrier to be reduced, it may be advantageous to have similar technologies across departments or institutions. This could involve the same model of projector and computer in all classrooms. In this way, lecturers will not need to learn multiple system set-ups.

2.6.2. Limited Student Interaction

One of the most significant challenges will stem from the mode of interaction selected. Students who are immersed in new and emerging technologies seem to prefer face-to-face interaction in classrooms. They consider such interaction to have more value than online interaction, because it affords nuances that cannot be reproduced by online communication (Wellman, 2001). The reasons for favouring face-to-face interaction over encounters via technology include the physical presence of the individual and the element of emotion which normally exists when interacting face-to-face with another person (Wellman, 2001, p.439). As a result, on-line interaction is perceived as less personal than off-line interaction. However, research has also found that face-to-face talk can support computer-mediated discussion. For example, Staarman (2003), who carried out a study to examine whether face-to-face talk could enhance computer-mediated discussion, found that face-to-face discussions improved collaboration.

Meanwhile, Lai and Savage (2013) explored the perceived values of an LMS and its impact on the quality of teaching and learning at McMaster University in Hamilton, Ontario, Canada. (In-depth) interviews with lecturers and students revealed that LMSs failed to encourage enhanced interaction between students and lecturers. For the most part, the learners also indicated that they preferred face-to-face interaction with their lecturers, which, in their view, created a sense of understanding that helped personalise their relationship. Moreover, the students felt that LMSs did not even promote or develop mutual exchanges or collaboration among learners. Some students stated a preference for using social networking sites, such as Facebook and text messaging, which are convenient for coordinating group work. Finally, they were of the opinion that LMSs failed to encourage active learning.

It is claimed that educational technologies support social interaction among learners and instructors (Manganello et al., 2013) and that these interactions are not limited either by time or space (Bajt, 2011). However, the literature indicates that one of the initial barriers related to the use of online discussions is limited student interaction, combined with strong instructor participation (Redmond (2011). This is based on the observation that teachers seem to dominate online discussion in many public, one-to-one conversations between instructors and students, rather than this consisting of many-to-many discourse. It supports research conducted by Vandergrift (2002), who observed that it is difficult for teachers not to respond immediately. The instructors in the above study were found to be concerned about the discussion being more formal and the fact that there would be a permanent record. This then impacted the way in which they contributed to the online discussion in the above study.

2.6.3. Limited Access

There are also challenges which abound, where one lecturer has access to particular technology and others do not, thus creating a digital divide and resulting in differing levels of computer literacy (Koller, Harvey & Magnotta, 2001). However, with vast improvements in technology and the ease with which mobile devices are being used to access information, earlier studies have become redundant.

2.6.4. Cultural Contexts and Resistance

One of the most challenging barriers to the use of electronic materials, such as e-books in HE, is cultural resistance (JISC, 2012). According to Nelson (2008), students who have grown up with paper books (p-books) and have always read from them, find it difficult to switch to e-books for anything more than reference purposes. However, institutions such as the University of Phoenix exclusively use e-books and electronic reports, with less than 1% of students acquiring a print version of the book rather than using the electronic version supplied, which is covered by the course fee (Nelson, 2008). Nevertheless, the ethnographic survey carried out for the Society of College, National and University Libraries (SCONUL) Report, entitled 'libUX: Improving User Experience in Libraries within the Higher Education Sector' also revealed resistance from students who stated that they preferred p-books as a medium, in part because of the straightforward annotation possibilities offered by paper and also because they were not yet "familiar with the possibilities of tablets and e-book readers, including their (future) possibilities for single-user and social annotations" (Van Harmelen & Randall, 2011, p.18).

Chai, Jong and Teo (2009), in a comparative study of Singaporean and Taiwanese pre-service teachers, identified cultural contexts as obstacles to technology integration in education and determined that these contexts play a mediating role, influencing how teachers relate their pedagogical beliefs to technology use. In Taiwan, there is immense pressure from parents to ensure that students study and memorise all their course materials, with high expectations for end-of-course examinations (Chen, 2008); a finding that corroborates results obtained in Cuban, Kirkpatrick and Peck's (2001) study in the US. In response to these pressures, many teachers use textbooks as the primary knowledge source and only consider correct answers or high scores in paper-and-pencil tests, when assessing learning success (Lee, 2009). Consequently, teachers may abandon their constructivist teaching ideas, even if technology is used. There are also many external factors, such as teacher training and the availability of technology, although these are not likely to be problems in the context of Taiwan, as numerous technology-based programmes have been funded by the Taiwanese government for more than two decades.

Further to the above, in Taiwanese culture, parents typically ask teachers to teach all textbook content, as they believe this will result in high academic achievement and performance in high school or university entrance exams. However, in a study by Chen (2008), which investigated why Taiwanese teachers did not integrate technology into their teaching, few teachers actually expressed the belief that they needed to cover textbook content in order to guide student learning and fulfil their teaching obligations. Nevertheless, this phenomenon is not limited to Taiwan. Li (2007), who interviewed 15 Canadian teachers about technology integration and noted that if teachers had poor students, or were teaching unfamiliar subjects, technology use was not considered, even when teachers understood that students favoured technology and technology was their preferred means of acquiring information. Therefore, the pressure to teach all textbook content and help students achieve high exam marks may also affect technology use. The rationale for including cultural contexts in the present Literature Review was the intention to draw upon a cultural perspective, when examining the impact of culture on ICT use in Kuwaiti HE and the challenges and issues of this adoption.

2.6.5. The Use of Different Devices

Another issue which arises is the use of more than one device amongst students when accessing information and interacting with teachers. Today's students often own or can access multiple devices and this can complicate issues, such as the way in which training is designed, or the provision of support. Moreover, although many students own mobile devices, ownership is not universal. Identifying specific student demographics, possibly relating to ownership trends, is therefore critical. It is also important to determine which devices are most helpful for academic use; mobile technologies afford new opportunities for learning, but their use does not guarantee effective learning will take place (Chen & deNoyelles, 2013).

2.6.6. Preferences

Lenares et al. (2012), who examined students' and lecturers' perceptions of e-books, found that the lecturers concerned had a slightly higher acceptance of e-books, while students had a slightly higher preference for p-books. Bell (2005) and Safley (2006) also concluded that students use e-books, but not necessarily for reading right the way through. For instance, students use e-book collections as tools for conducting research, rather than purely as reading material. Thus, it would appear that e-books are mainly used for finding 'relevant' information that will support an argument in a research paper. It could therefore be suggested that in this environment, critical thinking is lacking; students are not critically analysing the material for appropriateness to their arguments, but are merely quoting a source without contextualising the author's argument. This 'research driven methodology' has made students more receptive to using e-books for conducting research and as textbooks (Bell, 2005). On the other hand, lecturers and academic staff in general have overwhelmingly indicated a preference for using p-books for conducting research, as textbooks and for leisure reading. Therefore, p-books, rather than e-books are still the primary format for reading text. The cultural norm of reading p-books is therefore so ingrained that e-books have significant hurdles to get across before they become the reading format of choice.

Students have preferences for small and portable equipment, such as smartphones and tablets and not only bring their own digital devices to college or university, but also use them for class-related and extra-curricular activities. This phenomenon is referred to as 'bring your own device' (BYOD). Numer and Spencer (2015) examined the effectiveness of BYOD to understand its impact on the student learning experience. The findings of the above study suggest that students were more attentive and that BYOD facilitated discussion and collaboration. They also found that the devices and 'apps' in question provided instantaneous feedback and that the learners were able to actively engage in classroom activities.

It is clear from the studies carried out so far that students in general will only welcome technologies or devices if there are definite advantages to be gained from their use.

2.6.7. Inability to Transform Teaching

Educators are integrating and using technology in the belief that these tools support traditional instructional approaches and can extend their teaching capabilities. However, research also shows that this may not always be the case. For example, Gillen et al. (2007), who examined the use of IWBs in classrooms, claim that technology cannot transform teaching in terms of classroom discussion and interaction. The above researchers are of the view that IWBs are fast-paced and since the images or content are presented quickly, students may find it difficult to maintain high quality whole-class interaction. Nevertheless, whole-class and peer discussion is crucial if students are to learn through collaboration and it is argued that technologies like IWBs may not always be able to encourage and shape such collaborative activity (Kershner et al., 2010). Another reason why technology may be unable to transform teaching is the risk of unexpected technical glitches, which can discourage productive collaboration and result in frustrated students (Kershner et al., 2010).

Mayer (2010) observed that technology has not yet transformed classroom practice, as the focus has been on the actual technology, rather than the learning. The above author claims that students' needs are not taken into account when adopting technology, because it is assumed that instructors and learners will adapt to the technology (Mayer, 2010). In other words, technology is implemented, while the key principles of student-centred learning are ignored: namely that teaching is based upon a deep understanding of learning and the curriculum should be designed based on students' perspectives (Seifert, Sheppard & Wakeham, 2013). Mayer's (2010) claims have been upheld by Price and Kirkwood (2014), who assert that technology must be integrated into the context of its implementation, without focusing on the tools themselves as the 'agents of change' (p.342).

2.6.8. A Lack of Constructivist-based Teaching Activities

Another barrier to the adoption and use of technology in HEIs is the dearth of constructivist-based teaching activities (Liu, 2010). This scenario largely occurs in most of Asia. Except for the computer skills usually developed in computer labs, current technology use in teaching typically supports traditional teaching modes, such as lecturing with the use of technology (Laurillard, 2007). However, in order to identify the potential uses of IT for teaching Chinese language arts, Lin, Lee and Chen (2004), in a study of Taiwanese teachers, characterised a lesson which is often considered by many educators as the most 'traditional' and, thus, "the most incompatible with technology." Contrary to Liu's (2010) statements, Lin, Lee and Chen (2004) report that many teachers do manage to successfully implement constructivist teaching activities.

2.6.9. A Sedentary Lifestyle

Aside from the above, increased interaction with computers, gaming consoles, Android tablets and smartphones can result in more sedentary lifestyles. Students may become addicted to technology use, as they become more involved with their favourite devices. It is claimed that students engage in online activity, either to do their assignments, play computer games, or interact socially with others, without leaving the device or location (Griffiths, 2010). Such behaviour will inevitably lead to an individual becoming isolated, less involved socially and more sedentary in their lifestyle. Griffith (2010) also claims that this interaction with devices may have implications for obesity, due to the significantly reduced demands for physical activity (Owen, Sparling, Healy, Dunstan & Matthews, 2010; Lepp, Barkley, Sanders, Rebold & Gates, 2013).

2.6.10. Detrimental Effects on Academic Performance

The findings of Junco and Cotton's (2011) study suggest that most students have negative feelings about using IM for communicating in an educational environment. They are of the belief that IM will have a negative effect on their coursework. Furthermore, Kirschner and Karpinski (2010) claim that students tend to participate in website activities while doing their homework. This may have a detrimental effect on their academic achievements, in that it interrupts the learning process. The above authors collected survey data from 102 undergraduate and 117 graduate students at a university in the US. The results of the study showed that Facebook users reported having lower grade point averages (GPAs) and spending fewer hours per week studying than non-users. It suggests that those students who are constantly multi-tasking deliver decreased academic performance. Therefore, it is becoming difficult to ignore the fact there might be a direct link between social networking system usage and students' academic performance in HE. However, Kirschner and Karpinski (2010) did not analyse the actual amount of time spent on Facebook (although their methods suggest this information was collected).

Although mobile devices can enhance social support, frequent use of such devices may in fact lead to stress. Thomee, Härenstam and Hagberg (2011) conducted a questionnaire survey with a sample of 4,156 young adults in Sweden; finding that very high use of mobile phones increased stress levels, caused sleep disturbances and was associated with symptoms of depression.

Researchers also claim that technologies distract students (Kraushaar & Novak, 2010; Sana et al., 2013). The argument is that students' attention gets diverted when technology use is not structured around a meaningful activity, which in turn has a negative impact on learning (Kraushaar & Novak, 2010; Sana et al., 2013). It is also claimed that such situations can be avoided if teachers exert a degree of control and allow students to use mobile devices with approval and guidance (Baker, Lusk & Neuhauser, 2012; Cheon et al., 2012). These findings suggest that it is essential for teachers to understand students' wishes, motivation and concerns when integrating technology (Baker et al., 2012; Cheon et al., 2012).

2.6.11. Confidence and Skills

Students who use smartphones to send text and e-mails, access social media websites, and download or listen to music, still often seem to lack knowledge, confidence and skills in using other technologies, including Web 2.0 tools (Robinson, 2006; Ransford, 2013). Additionally, students who are fluent in the use of online tools and digital media are generally not prepared or able to apply their skills to academic or professional projects (Sandars & Schroter, 2007; Kumar, 2009).

2.6.12. Lack of Responsiveness

According to Goldstein and Gardner (2005), technology has become so advanced that cell phones can now automatically correct spelling errors. The consequent lack of conciseness displayed by some when writing a text message is remarkable. Many students who use text and IM are no longer concerned about what they are writing and do not pay attention to, for example, spelling errors. This is negatively affecting the way people write. Students have also reported problems with the size of mobile devices and failure of wireless Internet (Wi-Fi) connectivity, resulting in frustration and disappointment (Wang, Wiesemes & Gibbons, 2012).

2.6.13. Questions about Collaboration

Wheeler, Yeomans and Wheeler (2008), for example, revealed that although many undergraduate trainee teachers (on B.Ed. programmes) readily posted their own content onto a wiki (usually in the form of useful hyperlinks and brief descriptive annotations), they were often more reluctant to edit the content posted by their peers for fear of causing offence. Such a constraint negates a major facility of wikis, i.e. they can be used as a space to encourage collaborative activities between all group members. Another issue creating barriers for students was the wiki's undeveloped and chaotic nature. The findings indicate that the environment in which the above students were working was complex and multi-faceted and it was evident that they sought traditional support mechanisms (such as maintaining constant contact with lecturers). The results also seem to indicate that it was collaboration and not competition that was the main aim of Web-based activity.

Newmann and Hood (2009) also received qualitative feedback to suggest that students had negative experiences when working in groups. They were not happy when the contributions from others belonging to a group were poor or meagre and feared that other students may make changes to their work. The students were also of the view that it was difficult to obtain opinions and ideas from their peers. Other negative feedback indicated that wikis were found to be time-consuming.

2.6.14. Usability

Another challenge faced by students is technical in nature and relates to the constraints and usability of 'apps' in smartphones (Woodcock et al., 2012). In a study by Woodcock et al. (2012), the respondents highlighted the need for highly user-friendly hardware and software. In their view, the screen sizes of such mobile devices were too small, especially for reading pages of text. Another issue was the size of the phone memory, which would determine how many applications could be stored. The latter affected the decisions of some students when considering phone purchases, phone contracts, and 'apps'. Battery life was found to be another factor that some students paid attention to, remarking how some 'apps' quickly drain phone power. Other factors noted as challenging were the time required to load applications and Internet connection speeds. The above study concluded that students who own smartphones are largely unaware of their potential to support learning and, in general, avoid installing smartphone applications for that very reason. They are, however, interested in and open to this potential as they become familiar with the possibilities for a range of technology uses (Woodcock et al., 2012). The next section describes the barriers to technology use that exist in the context of the current study.

2.6.15. Barriers to the Use of ICT in Higher Education (HE) Teaching and Learning in Kuwait and the GCC States

The most disturbing aspect of the crisis in education in Kuwait and the GCC states in general is their inability to facilitate the development of Arab students. These countries can only become educationally and economically competitive in today's knowledge-based global economy if ICT is integrated into teaching and learning. Although the Arab world has seen a massive increase in Internet access, most Arab students lack the "basic skills necessary for conducting efficient and effective searching", as do many information professionals in the Arab world, particularly when it comes to searching for resources in Arabic (Fahmy & Rifaat, 2010). A previous lack of exposure to electronic resources can affect the way in which online resources are used, as well as their usefulness when consulted. Furthermore, IT literacy courses in Arab countries were originally created for Western society and contain examples that may be deemed culturally inappropriate and therefore ineffective for teaching (Martin, Birks & Hunt, 2010). Possible issues with linguistic capability may be identified as another barrier to students adapting to the online learning environment. Hughes (2005), who explored linguistic and cultural factors related to international students' use of online learning resources, observed that: "linguistic factors tended to have more impact on the participants' actual use of online resources while cultural factors had greater influence on their wider educational experience" (p.5).

Schoepp (2005) undertook a research project investigating what faculty members at a UAE University perceived as barriers to their attempts to integrate ICT into their teaching. The most frequently cited barriers to technology integration were poor administrative support; problems with time, access, space, supervision and operations; poor software; difficulties with curriculum integration; teachers' attitudes to and knowledge of computers; the limitations of computers and inadequate access to them, and a lack of technical support. These results contradict findings by Vrazalic et al. (2010), five years on. This could have been due to the distribution of ICT in the national education systems of the GCC countries, the impact of ICT-based learning as a catalyst for research development, and the outcomes and capacity of national innovation systems in the region (Wiseman & Anderson, 2012).

In his study, Erguvan (2014) found that instructors generally believed that ICT or online tools in classrooms allowed students to plagiarise the work of others. The concern in institutions is that the Internet and easy accessibility of information through downloads has led to a rapid increase in plagiarism, leading to poor educational standards. Students are consequently unable to produce quality research, due to their lack of knowledge. However, despite the claims of the above researcher that plagiarism has led to the degradation of educational standards, he does not clarify whether this plagiarism is intentional.

This section has presented a number of serious obstacles facing students and lecturers in their adoption and use of various technologies, in an attempt to categorise the problems as they are identified and informed by the literature reviewed. The current study, in this examination of Kuwaiti HE students' and lecturers' perceptions of technology use, will continue to expand on the themes found in the existing literature.

7. Pedagogical and other Beliefs and Perceptions: Theoretical Perspectives

One of the research questions in this current study examines lecturers' perceptions and beliefs about the use of technology to support student learning. Therefore, the literature on lecturers' pedagogical beliefs and perceptions is reviewed here. Beliefs are the principles, opinions, or views of an individual about what they consider to be true, or which may implicitly exist (McConnell & Zhao, 2006; Bromage, 2010). In educational settings, beliefs are defined as "one's convictions, philosophy, tenets, or opinions about teaching and learning" (Haney, Lumpe & Czerniak, 2003, p.367). 'Belief', as a term, has been defined in a variety of different ways in e-learning and assistive technology literature (Bromage, 2010). For example, it may refer to opinions about the benefits (or otherwise) of using e-learning and assistive technology, as well as beliefs about the skills or effort required to implement it. However, beliefs will vary according to perceptions, rather than information alone (Simons-Morton et al., 2012); with perceptions constituting the way in which a person views or interprets information from various sources (Simons-Morton, McLeroy & Wendel, 2012). In fact, the terms ‘beliefs’ and ‘perceptions’ are often used interchangeably in e-learning (Abbitt & Klett, 2007; Simons-Morton et al., 2012).

Beliefs about e-learning and assistive technology are frequently discussed in conjunction with attitudes and values. ‘Attitude’ refers to the tendency of an individual to respond either positively or negatively to a certain idea, object, person, or situation (Barros & Elia, 1998). In contrast, attitudes are rooted in experience and have a more emotional element, as they are made up of an individual’s beliefs, values and disposition. Pedagogical beliefs are educational beliefs about the nature of knowledge, perceptions of self, feelings of self-worth, and the confidence to perform a certain task (Ertmer, 2005). In other words, pedagogical beliefs are teachers’ visions for, or beliefs about, classroom technology use and how these match their classroom practice.

Institutions and educators must first clarify the pedagogical basis on which they wish to proceed, before adopting any new educational technology (Mayes, 2001). Mayes argues that the emerging pedagogical consensus surrounds constructivism, which stands for collaborative learning, authentic tasks, reflection, dialogue, and the promotion of identities and learning communities. The constructivist approach is promising for the promotion of learners’ language and communicative skills, as well as for fostering their autonomy and social and interactive skills, thus contributing to their development into more confident, pro-active and responsible individuals. It may be facilitated by support for incentives, using diverse media in language learning and teaching (Can, 2009). However, research has revealed three factors impacting the successful implementation of Constructivist Learning Theory, namely limited or improper theoretical understanding; the conflict between teachers' beliefs and lecturers' expressed pedagogical beliefs about external factors - which would include a lack of access to computers and software - insufficient time to plan instruction, and inadequate technical and administrative support (Naismith, Lonsdale, Vavoula & Sharples, 2004).

Last century, what was required of educational institutions was to prepare students for work and life in a society that had developed in an industrial age. Snape and Fox-Turnbull (2011) argue that education in the 21st century requires a new way of teaching and learning through technology, as this new era requires schools to prepare students for a society demanding different skills. According to Snape and Fox-Turnbull (2011):

> The skills, attitudes, values and competencies that will be needed have not always been addressed in traditional educational programmes. Students' resilience and ability to accept and adapt to change will determine success. Different approaches and methods of teaching are what many educationalists are calling for. (p.149)

In particular, Snape and Fox-Turnbull (2011) were discussing technology education in New Zealand, but they made it clear that teachers in general may have to adopt constructivist teaching approaches to ensure that their students acquire the skills they require to live and work in the 21st century. In other words, students should be engaged in authentic, real world activities, where they are obliged to socially construct outcomes, make connections with others and collaborate with a range of partners. These students will therefore need to be prepared, willing and determined to take on board topics which will add meaning to their lives. In such an environment, technology teachers can become leaders of change to revitalise education systems.

However, Lally and Sclater (2013) argue that if students are to make successful career transitions, the technologies currently implemented in HE may need to be evaluated.

The authors suggest that 'virtual worlds' or emerging Internet-based technologies that support the development of transition skills must be adopted, if institutions are to enable students to acquire a wide range of skills; for example, higher order thinking, problem-solving, social and team skills, organisation and communication skills. This occurs when students are involved in realistic or authentic activities. Lally and Sclater (2013) are of the view that students acquire these skills when they interact or collaborate with peers or other members of the virtual community. One can infer from this argument that the learning environments provided by virtual worlds or virtual communities are authentic and have the potential, not only to engage students, but also to transfer skills to real-life contexts.

In another study from New Zealand, Sinclair (2009) argues that lecturers should adopt a provocative pedagogy, due to the cultural transformation resulting from online learning. This transformation has come about as a result of traditional forms of university teaching being questioned, e.g. lectures, tutorials and laboratories. Sinclair (2009) declares that "beliefs about pedagogy will be constantly confronted and challenged by the growth of new technologies and thus require an appraisal of and reflection on existing practices" (p.206).

Teachers and lecturers who are not products of a technologically rich learning environment, or who have never studied online, will continue to struggle in the 21st century, where m-learning, blended learning and online learning will become more prevalent. The provocative pedagogy mentioned by Sinclair (2009) is one where these lecturers must learn to examine the effect on students' learning by reflecting on their own strategies and beliefs about teaching. They must consequently examine their underlying pedagogical assumptions and explore "the multiple perspectives of the views of others" (Sinclair, 2009, p.205).

Some studies have focused on technology integration in pre-service education, while others have addressed the fact that many currently working teachers still feel uncomfortable about using technology in their teaching (Bauer, 2005). Although research has demonstrated that ongoing support and continuous professional development are required to change practice (Ertmer, 2005; Wang, Ertmer & Newby, 2004), interdisciplinary, collaborative teaching practices that result in higher levels of student performance, have not been demonstrated in the research. Increasingly, scholars have indicated that technology should be integrated into experiences of professional development (Hasselbring et al., 2000; Fishman, 2006), in order to ensure the effective subsequent integration of technology into teaching and learning (Fishman, 2006).

Shifts and changes in beliefs have also been prompted by theory. Several reviews of the theories underlying educational technology tools and pedagogic activities have been presented in the literature; for example behaviourism, cognitivism and constructivism (Hung, 2001; Ally, 2004; Conole, Dyke, Oliver & Seale, 2004; Mayes & de Freitas, 2004). These theories have contributed in different ways to the use of technology for designing online educational resources and they will continue to be used to develop learning materials of this kind. Prior to these theories, the theory of 'objectivism' was prevalent, where the teacher was the 'sage-on-the-stage' and the student was passive. The teacher was therefore active, with whatever they delivered being unquestionably accepted by the student (Nawaz, 2012). Later, behaviourist strategies were used to teach facts (what), while cognitivist strategies were used to teach principles and processes (how), and constructivist strategies were adopted for teaching real-life and personal applications, together with contextual learning.

While some reviewers argue in favour of a move from behaviourist pedagogy (instructivism) to cognitive constructivist pedagogy (Wilson, 1995, 1997), or else promote a social constructivist-inspired pedagogy, instead of cognitive constructivist pedagogy (Ravenscroft, 2001), others remain theoretically polytheistic; preferring to develop models that can accommodate any learning theory (Conole et al., 2004; Ally, 2004; Hung, 2001). Underpinning these reviews is an unquestioning acceptance of Socio-constructivist Learning Theory as the basis for pedagogy related to educational technology. However, this may not be right, because there should be further clarification and critical engagement before accepting a learning theory. Moreover, one cannot assume that university students will be happy to collaborate or agree to be social. This would suggest that students do not favour any kind of personalised learning whatsoever.

Socio-constructivist Learning Theory is dominant in this area and is likely to have been frequently applied by many researchers and practitioners in relation to an examination of the use of mobile devices and social media for learning and teaching. Socio-constructivist Learning Theory actually dominates contemporary educational research and the extent to which it has been applied in the study of educational technology would suggest that it promotes an understanding of why and how individuals integrate and apply new technologies in education (Laurillard et al. 2013). In this current study, the researcher emphasises socio- rather than cognitive constructivism. Socio-constructivism prioritises the purposeful creation of knowledge. It is based on revealing the ways in which individuals and groups participate in the creation of their perceived social reality (Chi et al. 2008). It also involves looking at how social phenomena are created, institutionalised and transformed into tradition by humans (Laurillard et al. 2013). The social construction of reality is moreover seen as an ongoing, dynamic process, where reality is reproduced by individuals acting according to their interpretation and knowledge. Socio-constructivism is therefore a sociological theory of knowledge, concentrated on how individuals come to construct and apply knowledge in socially-mediated contexts (Hutchinson & Huberman, 1993; Fuhrman, 1994).

In the light of the above, socio-constructivist theories have implications for both lecturers and students. Social constructivism not only focuses on individual learning or construction, but also maintains that learning is socially influenced in a collaborative environment. Peers and teachers therefore play a key role in development by engaging in dialogue with learners, developing a shared understanding of tasks, and providing feedback on learners' activities and ideas (Mayes & de Freitas, 2004; Pifarre & Kleine Staarman, 2011). Lecturers who apply socio-constructivist principles will typically choose classroom discussion as an instructional format and create a learning context where students can become engaged in interesting activities to encourage and facilitate learning. For Vygotsky, language and culture, as social phenomena, are used by learners to construct knowledge, without them necessarily having to draw sense or meaning from the learning experience. Social constructivism is in fact primarily concerned with providing experiences that may include scaffolding (or support from the teacher), while stressing the importance of social interaction, as this helps learners develop meaning. To sum up, cognitive-constructivism differs from social constructivism, in that ideas are constructed in individuals via a personal process; in contrast to a process of social constructivism, where ideas are constructed through interaction with a teacher and other students (Powell & Kalina, 2009).

'Social constructivism' considers the roles of culture and society, language and interaction as important for understanding how humans learn (Vygotsky, 1978). It emphasises the critical importance of culture, language and the social context for cognitive development. One of Vygotsky's principal and best known concepts is the 'Zone of Proximal Development' (ZPD), which refers to a phase where young learners can, with the help of adults or more advanced peers, master concepts and ideas they would be unlikely to grasp on their own.

In addition to the above, even as constructivism has been and continues to be the main focus for learning theorists, the tools or 'technology' used in education have become increasingly powerful, bridging the gulf between everyday life and education. The original philosophy behind the use of new technology to help improve schools and raise academic standards (Allen, 2005; Allen, Seaman, Lederman & Jaschik, 2012) was based on cognitive interactionist thinking, particularly Vygotsky and his notion of ZPD (Figure 2.1). In ZPD, it is the language used in a social situation which becomes the tool considered as important for enabling students to learn.

ZPD therefore emerges as a mental state and it is widely used to study children's mental development through a process of interaction and most importantly, inter-subjectivity. Learners first succeed in performing a new task with the help of another person and then internalise this task so they can perform it on their own.

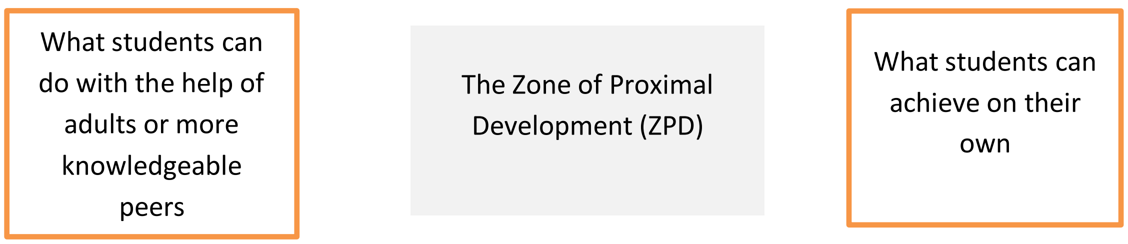


Figure 2.1: The Zone of Proximal Development

ZPD has been defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p.86). However, there are different ways of interpreting ZPD and these may depend on the cultural context. Bruner (1966), for instance, suggests that learning is an active process, in which learners construct new ideas or concepts on the basis of their current or prior knowledge, thereby advocating a scaffolding position. In addition, Grizzle (2004) argues that instruction should have the objective of making the learner or problem-solver self-sufficient. If information is to be used effectively, he reasons, it must be translated into the learner's own way of attempting to solve a problem.

The scaffolding interpretation has inspired pedagogical approaches, which explicitly provide support for the initial performance of tasks that can then be undertaken at a later stage without assistance (Lave & Wenger, 1991). In his more recent work, Bruner (1986, 1990, 1996) expands on his theoretical framework to encompass social and cultural aspects of learning, referred to as "communal activity" (p.127), which gives learners the opportunity to interact with sensory data and construct their own worlds (Grizzle, 2004). Wenger (2009), an exponent of cognitive learning theories and a social constructivist, states that:

> cognitive theories focus on internal cognitive structures and view learning as transformations in these cognitive structures. Their pedagogical focus is on the processing and transmission of information through communication, explanation, recombination, contrast, inference, and problem solving. (p.217)

Thus, for Wenger, learning is a focus on internal cognitive structures (scaffolding) and how these are transformed. Wenger would argue that cognitive theories of learning are useful for designing sequences of conceptual material, in order to build upon existing information structures (Allen, 2005).

Situated learning, which is in keeping with socio-cultural perspectives, focuses on the communal nature of cognition and learning. Although one might be tempted to apply other theories, because cultural differences exist in various societies, a socio-constructivist perspective shall be adopted here. This perspective is closely associated with many contemporary theories, including situated learning. The rationale for adopting a socio-constructivist perspective therefore arises from an emphasis on the importance of culture and context, when endeavouring to understand what occurs in society and then constructing knowledge based on this understanding (Derry, 1999; McMahon, 1997). Moreover, this current study will attempt to reconceptualise lecturers' perceptions and pedagogical beliefs, based on social constructivism.

8. Students' Use of Technology for Their Academic and Social Lives

The main aim of this study is to identify the perceptions of HE students in Kuwait, as regards the use of technology in their academic and social lives. Literature pertaining to these aspects and the factors potentially influencing such use have been reviewed and presented in this section.

2.8.1. Students' Use of Technology for Their Academic Lives

The principal use of technology in education involves obtaining information. However, the emergence of social media has created opportunities to establish peer support networks, prior to students arriving on campus and in ways which may not have previously been possible, without the affordances of these new media. Indeed, social media websites are being developed by universities to enhance connections between graduate students, lecturers and staff across distributed campuses (Kaya, 2010). Social networking sites are perhaps the most prominent examples of such media; receiving considerable attention from researchers and the general public alike, due to the increasingly large user base for sites like Facebook. Research on Facebook, in particular, has shown that students may reap social benefits from using the site. For instance, Ellison, Steinfeld and Lampe (2007) have found associations between Facebook usage and various forms of social capital.

'Social capital' broadly refers to social resources that people accrue through their relationships with others. In particular, Ellison et al. (2007) found a strong association between Facebook usage and bridging social capital, which is typically associated with an expansive network of weak ties. Social networking sites are thought to facilitate more extensive social networks, due to the reduction in the cost (e.g. in terms of time and effort) of developing and maintaining relationships. As such, having students connect with one another on a social media site prior to their arrival on campus may help them enter college with a more expansive social network than would otherwise be the case, thus contributing to bridging social capital.

Hargittai, Fullerton, Muenchen-Trevino and Yates Thomas (2010) point to the continuing importance of personal networks and have observed an increase in the interweaving of on- and offline presence. Despite the large amount of information available on the Web, research has shown that users continue to rely on specific people in their personal networks when seeking various types of information. Kayahara and Wellman (2007) (studying information searches around recreational activities), and Tepper, Hargittai and Touve. (2008) (studying cultural content searches) found that users supplement online sources with advice they get from friends and family. This underscores the importance of viewing IT use in the wider context of people's everyday lives, where online and offline activities are constantly intertwined (Wellman & Haythornthwaite, 2002).

In the UK, Jones, Ramanau, Cross and Healing (2010) found that 30.4% of university students reported using social networking sites for course-related conversations. In another study, the vast majority of students stated that they regularly use social networking sites to informally discuss academic coursework (Madge, Hooley, Wellens & Meek, 2009). There are also studies which suggest that UK students prefer using e-mail for communicating with their teachers and peers, but favour Facebook for academic communication (Reed, 2013). The reasons behind using social networking for academic practice appear to be to organise group meetings; to revise; to enquire about coursework; to request social support for academic matters, or to vent about coursework and tutors (Madge et al., 2009; Selwyn, 2009).

A recent study by the EDUCAUSE Centre for Analysis and Research (ECAR) (2013) found that the needs and expectations of undergraduate students when using technology depended on their relationship with it, their frame of reference for online learning environments, their readiness to use mobile devices, and how much they valued their privacy (Dahlstrom et al., 2013). Students not only bring their own digital devices to college, with a preference for small and portable equipment, such as smartphones and tablets, but also use these devices for class-related and extra-curricular activities.

In addition to helping to establish and maintain interpersonal connections, researchers have argued that social media sites like Facebook have the potential to guide students entering an unfamiliar social environment. Selwyn (2007) states that Facebook has "become an important site for the informal, cultural learning of 'being' a student, with online interactions and experiences allowing roles to be learned, values understood and identities shaped" (p.18). Likewise, Yu, Tian, Vogel and Kwok (2010) suggest that social networking sites offer a unique opportunity to promote socialisation in the college environment. They argue that these sites can help students learn about their peers and the institution they attend, which can in turn engender satisfaction and affiliation with the respective university. Therefore, social networking sites may function as a means of improving the transition to college by helping students socialise in their new environment, thus establishing a sense of connection with their institution. Research by Haythornthwaite and Kazmer (2002) supports the notion that social media can be utilised to develop student-to-student and student-to-lecturer connections.

Students are able to use technology for their academic and social lives because at the very heart of social media is the ability to generate connections. The learning curve associated with various social media does not seem to present overt barriers for the larger body of traditional students and lecturers who use them; however, developing a theory of social media use in the classroom, in order to maximise student learning outcomes, requires further research. Pedagogically speaking, the theory of social constructivism, with its emphasis on groups in the construction of knowledge to promote learning, naturally pairs with learning how to use social media (Churcher, Downs & Tewksbury, 2014). Nevertheless, there is a dearth of studies examining students' attitudes to the use of social media for learning. The researcher in this thesis/research kept this in mind when examining Kuwaiti HE students' perceptions of technology use in their academic lives.

2.8.2. Students' Use of Technology for Their Social Lives

More and more students are subscribing to mobile phone plans as they use these devices for browsing; playing games; chatting; downloading 'apps'; socialising; taking photos, and searching for information (Kinash, Brand & Mathew, 2012). As a result, the number of mobile subscriptions worldwide will reach the seven billion mark by 2013, which is more than the entire human population of the world (Faille & Morrison, 2013). Moreover, as smartphones and tablets become more user-friendly and powerful, they will tend to replace desktop and notebook computers. It is estimated that the number of smartphones and tablets sold in 2016 will be 1.34 billion and 384 million, respectively

(Faille & Morrison, 2013). Meanwhile, mobile technologies, like phones and tablets, are being used for many activities and to complete multiple tasks, besides socialising and taking photos. For example, they are being used to shop, bank, call taxi services, etc. Learners are also using the same mobile technologies for informal learning and to study outside the classroom (Terras & Ramsay, 2012; Jones et al., 2013; Lai, Chang, Li, Fan & Wu, 2013).

Hadyn (2008) draws attention to a Becta survey of learners in the UK. Of the 2,600 learners surveyed, 74% had social networking accounts and 78% had uploaded artefacts using Web 2.0 applications. However, nearly all use of Web 2.0 by students proved to be outside school and for social purposes. Few students appeared to have any understanding of how Web 2.0 might be used for educational purposes and few had developed sufficient digital literacy or critical skills to navigate Web 2.0 territory in a mature way.

Aside from the above, Internet use is not confined to computers, as students quite often prefer using mobile devices. Young people have been avid early adopters of mobile technologies. A study on *Teenagers and Mobile Phones* (Lenhart, Ling, Campbell & Purcell, 2010), conducted in the US, found that out of 75% of teenagers who owned mobile phones, 87% used text messaging at least on an occasional basis. However, these students were extremely sensitive about the boundaries between their personal and academic lives. This suggests that the relationship between students and their technology is complex (Dahlstrom et al., 2013).

This complexity is compounded by serious claims that excessive use of technology in the social lives of children can have a negative impact upon them (Anderson et al., 2010; Ferguson, 2013). Although online video games have become an important part of almost all children's and adolescents' lives, studies suggest that excessive use of technology for gaming can be harmful; for example, increasing the tendency towards aggression and depression (Anderson et al., 2010; Lemola et al., 2011). These claims may be due to the violent nature of some games, such as Grand Theft Auto and Halo4 and it is natural to think that overindulgence in such games could have deleterious results (Granic, Lobel & Engels, 2014). Consequently, there are arguments that there is a relationship between violent gaming and aggression.

On the contrary, however, recent research also suggests that some online games, such as Minecraft, FIFA13 and Starcraft 2 are motivational; create complex relationships; increase pro-social behaviour; encourage multi-tasking, and enhance mental rotation abilities and spatial skills (Green & Bavelier, 2012; Uttal et al., 2013; Granic et al., 2014). Pace, Bardzell and Bardzell (2010) even argue that World of Warcraft, an online game, offers virtual world experience and opportunities for ambiguous and nuanced intimate experiences. In fact, the above authors argue that World of Warcraft software allows users to "shape sophisticated emotional relationships by appropriating system features into private expressive languages" (p.241). Nevertheless, the excessive use of these technological advances may cause students to become unfocussed, overly stressed and increasingly isolated, although other emerging technologies allow students to create meaningful relationships and share their lives with others (Granic et al., 2014), for example photos, videos, text and music. Notwithstanding this, the simple sharing of common interests and pursuits with people through technology will not necessarily have a positive impact on social skills and social development.

The literature indicates that technology has clearly had a profound impact on what is meant to be social, but this study will attempt to gain an understanding of how technology really impacts the social lives of students in Kuwait, i.e. whether they get distracted, become isolated, or whether they are able to establish profound social relationships (Kraushaar & Novak, 2010; Sana, Weston & Cepeda, 2013).

9. Students' Perceptions of the Adoption and Use of Emerging Technologies in Higher Education (HE)

The successful implementation of technology in HE will depend on the perceptions of the user, as well as their knowledge and skill in implementing it. Factors such as awareness and attitudes have been shown to affect users' initial acceptance of computer technology and their future behaviour regarding the usage of Web-based learning systems (Kim & Moore, 2005; Jones & Jones, 2005). However, the literature suggests that students' pedagogical beliefs about the relationship of technology to learning (outcome expectations) will positively influence acceptance (Bures, Amundsen & Abrahmi, 2002).

2.9.1. Students' Perceptions of Technology Acceptance

Students' technology acceptance is in turn influenced by their epistemological beliefs; institutional culture; gender (Tolhurst & Debus, 2002); the technical support available to them (Ngai, Poon & Chan, 2007); computer self-efficacy (Ong & Lai, 2006), and autonomous learning mode (Drennan, Kennedy & Pisarki, 2005). Furthermore, gender and age will have an impact on students' acceptance of e-learning (Shuell & Farber, 2001; Ong & Lai 2006). Consequently, developers and deliverers of e-learning need more understanding of how students perceive and react to its various elements, along with how to most effectively apply an e-learning approach to enhance the learning itself (Koohang & Durante, 2003). In addition, knowing students' intentions and investigating the factors influencing their beliefs about e-learning could help academic administrators and managers create new methods of attracting more students to this type of learning environment (Grandon, Alshare & Kwan, 2005; Park, 2009). Therefore, it is crucial to investigate issues that explain students' acceptance, intentions and attitudes to the use of technology, especially e-learning systems.

Lee, Cheung and Chen (2005) investigated university students' adoption behaviour in relation to an Internet-based learning medium (ILM), introducing the Technology Acceptance Model (TAM). However, in the above case, TAM was integrated with Motivational Theory, with the authors including 'perceived enjoyment' as an intrinsic motivator, in addition to 'perceived usefulness' and 'perceived ease of use' in TAM. According to their results, perceived usefulness and perceived enjoyment had an impact on students' attitudes towards and intention to use an ILM, although perceived ease of use was found to be unrelated to attitude.

In his study, Park (2009) used TAM as a theoretical model to help understand and explain the behavioural intention to use e-learning. One interesting result from Park's study was that both e-learning self-efficacy and subjective norms appeared to play an important role in affecting attitudes towards e-learning and the behavioural intention to use it. A possible explanation for this may be provided by Motivational Theory. The result proved TAM to be an effective theoretical tool for understanding users' acceptance of e-learning; a view also expressed by Lee, Cheung and Chen (2005).

Aside from the above, Shroff, Deneen and Ng (2011) used TAM to examine students' behavioural intention to use an electronic portfolio system; meaning that they explored how students use and appropriate such a system within the specific framework of a course. The results of the study indicated that the students' perceived ease of use had a significant influence on their attitudes towards usage. Subsequently, this had the strongest significant influence on perceived usefulness. The research further demonstrates that individual characteristics and technological factors may have a strong influence on lecturers adopting e-portfolios into their courses. The outcomes of the above study therefore point to TAM is a solid theoretical model, which can be extended to an e-portfolio context.

In contrast, Kim, Chun and Song (2009) draw attention in their study to the role of attitude in explaining technology acceptance behaviour. Their findings reveal that, regardless of the strength of the attitude towards using technology, it is the most important determinant of the behavioural intention to use technology. The above study consequently sheds light on the importance of attitude; a construct which has been gradually omitted from technology adoption studies. Most notably, it was found in the above research that attitudes towards using technology fully mediated the effects of perceived usefulness and perceived ease of use on behavioural intention, in the case of a strong attitude group. That is to say, the effect of perceived usefulness is no longer significant for directly explaining behavioural intention, which is contrary to what was originally proposed by Davis, Bagozzi and Warshaw (1989). This finding alerts researchers to be cautious in removing attitude from their models examining individuals' technology acceptance. Even in the case of the weak attitude group, the effect of attitude cannot simply be ignored, as its impact on behavioural intention is greater than that of perceived usefulness.

More specifically, Sumak, Hericko, Pusnik and Polancic (2011) examined the factors influencing students' perceptions of the use and acceptance of Moodle - an open source e-learning system. In their study, TAM was used as an underlying theory. The data, collected from 235 students, were analysed using structural equation modelling (SEM). The results of the analysis reveal that the actual use of Moodle depends on two main factors: behavioural intention and attitudes towards its use. Perceived usefulness was consequently found to be the strongest and most important predictor of attitudes towards using Moodle; a view upheld by Shroff et al. (2011). Although TAM is an accepted model, it is unclear whether it can be applied to e-learning in developing countries, including Kuwait and other Arab countries, where there is very little research on the adoption and use of technology in HE.

Students' perceptions of the adoption and use of ICT must be gathered, if technologies are to be efficiently incorporated into the HE teaching and learning process. The literature on student perceptions was consequently analysed for themes in the present study, so as to provide a more in-depth understanding of the views expressed. Themes appeared across the studies reviewed; the main ones being degrees of freedom and levels of confidence; access; perceptions of e-learning environments; perceptions of the use of open content tools; perceptions of the performance of technology-related activities; perceptions of the effectiveness of m-learning, and attitudes towards the use of social networking sites.

2.9.2. Degrees of Freedom and Levels of Confidence

Students are gradually demanding more freedom and autonomy in their learning and have high aspirations for a lively and more engaging learning experience (Oblinger & Oblinger, 2005; Barnes, Marateo & Ferris, 2007). One study analysing the innovation and sense of efficacy of student teachers found that the respondents were progressively more innovative; a characteristic which explains their openness to new experiences, inventiveness, risk-taking and opinion-forming (Celik, 2013). This suggests that the current generation of learners are showcasing themselves as a new kind of confident and creative talent; utilising Web 2.0 tools as they emerge, in an attempt to expand their capacity to fulfil social and academic goals.

2.9.3. Access to Emerging Technologies

A very high proportion of students have access to various technologies, such as smartphones, Android tablets, mobile apps, e-books/e-book readers, laptops and desktop computers (Oliver & Goerke, 2007; Kennedy, Judd, Dalgarno & Waycott, 2010; Van Harmelen & Randall, 2011; Woodcock et al., 2012; Lenares, Smith & Boissy, 2012). However, access to these technologies is not equal the world over. This is referred to as 'digital inclusion or exclusion' (Seale & Dutton, 2012). Moreover, some of these technologies or devices are more popular than others. This is generally due to cost in relation to the distinct advantages of one technology over another, as perceived or experienced by the individual - in this case, students. For example, there is an increase in the use of laptop computers and broadband access amongst students, while there is a decline in dial-up Internet use (Salaway et al., 2008).

2.9.4. Perceptions of E-Learning Environments

An investigation of students' opinions and experiences of e-learning in further education and HE in the UK (Howe, Towle & Brett, 2009) revealed that learners value VLEs as a storehouse for course material, but complain that such environments are not interactive. Students appear to consider e-learning as a computer-based activity involving a wide variety of technologies, such as laptops, tablets and smartphones to supplement the learning environment. In the above study, the students were of the view that institutions needed to be as flexible as possible in choosing technologies, in order to suit learners' requirements. The above students also favoured the audio-visual elements of such technologies. Moreover, it emerged that although most learners only use the technology recommended to them by their lecturers, they may also look for alternatives, as they seek devices or tools which will fit in with their lifestyle, as well as with their learning. The students in the above study emphasised that when moving from one course to another and one academic year to the next, institutions needed to be mindful of these changes and the students' technology and training needs (Howe et al., 2009).

The Learner Experiences across the Disciplines (LEaD) project (2009) looked at the involvement and impact of learning technologies on students as they progressed through an academic year in the UK. The study was undertaken at the University of Edinburgh and involved the collection of in-depth data from first-year students across a variety of subject areas. The project explored learners' expectations of learning technologies and how they adapted their approaches to e-learning. It also examined the key factors influencing learners' e-learning strategies and the extent to which learners use personal technologies to support their own learning.

The above research adopted a student-centred approach, whereby the learners' own opinions and interpretations were central to the study. The project also applied a holistic approach to discover whether the learners' use of e-learning was integrated into their learning experiences as a whole. The findings of the study reveal that the learners did not all have similar views; while technology was clearly rooted in their lives, there was variation in their learning experiences. Neither did the students attach any importance to the use of the term 'e-learning', as they were focused purely on the technology implemented and how such tools would enable them to achieve a balance between different activities and learning approaches. However, they were of the opinion that technology should only be used if it really added value and supported social interaction and group learning. The above study was unique in that it exclusively revealed the views of the subjects: the conclusions, explanations and recommendations arising from the students themselves. These are highly significant for both lecturers and students and will help inform future direction in the provision and use of technologies, in order to support the needs of different learners.

The adoption of LMSs in HEIs has in fact evoked mixed responses from students. Research studies on students' experiences of LMSs have reported variable findings on the advantages, fulfilment and academic outcomes of their use. Caruso (2006), who reviewed the results of several research studies on course management systems (CMSs), reported that the increased flexibility and accessibility of these learning systems enable students to use course materials more easily. Kvavik and Caruso (2005) claim that if LMSs are implemented to their full potential, students will be more involved with their studies; something which cannot always be accomplished using textbooks or even lectures. However, the claims of Kvavik and Caruso (2005) were reviewed by Paechter and Maier (2010), as they compared the benefits of virtual learning with those of conventional face-to-face learning. Their study findings imply that online environments provide students with the opportunity to learn and absorb material independently. However, although LMSs offer online access to learning material and course information, permitting self-regulated learning, the students in the above study appeared to favour face-to-face learning for acquiring theoretical and practical knowledge. The students also declared that they were unhappy with LMSs, which did not consist of the interactive material that would permit the application of knowledge. Hence, regardless of the ease of access to information, the benefits of LMSs were found to be limited and more suitable for meeting the administrative demands of universities and student assessment (Paechter & Maier, 2010).

However, online learning environments do ensure autonomy, as they enable students to reflect on how they learn and to assess their own progress. Nevertheless, studies show that students also require appropriate support. For example, Rienties et al. (2012)

examined students collaborating in an online setting to develop a better understanding of economics. The corresponding research results revealed that this activity only allowed students to become autonomous learners to a certain extent. It is a finding which supports the views of other studies, for example Jang, Reeve and Deci (2010) and Cheon, Lee, Crooks and Song (2012). Jang et al. (2010) found that student engagement can be enhanced, if teachers provide more structure, guidance and scaffolding. Likewise, Cheon et al. (2012) found that technology supported by lecturers can guide students through an unfamiliar assignment or activity to achieve real world learning.

2.9.5. Perceptions of the Use of Open Content Tools

Students' experiences and perceptions of the use of open content tools, such as blogs and wikis have also been examined by several researchers, such as Williams and Jacobs (2004), Davi, Frydenberg and Gulati (2007), Farmer et al. (2008), Blau et al. (2009), Kerawalla et al. (2009), Newmann and Hood (2009), and Pifarre and Kleine Staarman (2011). Davi et al. (2007) explored discussion blogs in a US college Business Studies class. As communication skills are necessary in business education, students' skills at both undergraduate and graduate levels were examined in classroom discussions. A blogging exercise was assigned to find out how the students read, posted and responded to discussions. The exercise not only required students to read the set course materials, but also to critically engage with them. By using the same assignment and assessment tool in three different courses, the authors argued that blogs were effective for enhancing class discussion across disciplines. The students who used the blogs also considered them to be a powerful communication tool, with the ability to promote classroom interaction (Davi et al., 2007).

In another study, Farmer et al. (2008) used a case study to explore the ongoing development of an educational blogging resource accessed by undergraduate students at the University of Melbourne, Australia. The above authors stated that one of the most valuable aspects of blogging was that it enabled students to interact with their peers. Likewise, Williams and Jacobs (2004) explored the potential of blogs as learning spaces for students in the HE sector. These authors used a blog tested on students from two course units. The result of the online survey, which collected quantitative and qualitative data, revealed that most students considered blogging to be a useful tool that helped facilitate intellectual exchange with student peers as a medium for reflection. Kerawalla et al. (2009) further corroborated the findings of Williams and Jacobs (2004) and identified that blogging supports instruction and sustains social interaction. Besides, students in other studies have also acknowledged that blogs are relatively easy to use and navigate (Ali et al., 2013).

Neumann and Hood (2009), who conducted research on students at Griffith University, Australia, received qualitative feedback to suggest there were learning benefits offered by wikis. The respective students stated that the wiki assisted them in learning about report writing and helped them improve their self-assessment. Besides this, they reported technological advantages, as wikis were easy to access from anywhere, and were easy to save and edit. Thus, blogs and wikis have been found to have various types of effect on students' social and academic lives: blogs promote communication amongst students and create online communities (Yang, 2009). Conversely, wikis tend not to be used for interaction, as students generally only use them for educational purposes and to interact with others in offline communication (Blau, Mor & Neuthal, 2009).

2.9.6. Perceptions of Performing Technology-related Activities

Corrin et al. (2010) reported the findings of an anonymous survey of first year students at one Australian university. The survey collected data on students' access to technology, in order to find out how they performed technology-related activities. The students frequently undertook communication-based activities, especially mobile phone communication via text messages or voice calls. However, the percentage of daily activity involved in, for example, writing a blog, building a website, or using RSS feeds was low, as the vast majority of the students had never performed these activities. The results of the above study indicated that in general, the frequency of technology use for study activities was lower than for everyday life. Conversely, it was not clear if this was due to a lack of technology integration into the teaching they had received, or if the respective students were simply unmotivated to use technology to support their learning.

Another study implementing mixed methods research examined students' use of tablet computers for a learning activity in the US (Rossing, Miller, Cecil & Stamper, 2012). The results of the study demonstrated that students were able to find information online, as well as collaborate and share ideas with other students. However, these results are in contrast with the findings reported by Corrin et al. (2010), where mobile technologies were found to be especially useful for in-class learning activities, assessment, communication and research support.

2.9.7. Perceptions of the Effectiveness of Mobile Learning

In addition to the above, Android tablets, like other mobile devices, can create engaging and productive collaborative learning experiences for students. However, this will depend entirely on how they are used and how the collaborative pedagogy is set up by the lecturers or teachers. In other words, technology in itself does not automatically lead to collaborative, engaging or productive learning. However, one study found that participating students used tablets in the classroom to enhance their interaction with their peers and lecturers (Shuler et al., 2010). Rossing et al. (2012) examined the use of mobile technology for learning, namely the Apple iPad 1, which was the first commercially available tablet. This investigation took place at a higher education institute (HEI) in the US. The study explored students' perceptions of learning and engagement when iPads were used as auxiliary learning tools in the classroom. The team (the lecturers) used iPads for in-class learning activities and assessment, communication, research support and many other tasks. The study showed that most of the students perceived a high learning value while using the iPad, especially on courses like English, journalism and music. Nevertheless, although this tool was generally deemed beneficial, there were still students who did not like using the iPad for learning (Rossing et al., 2012). Perhaps what is most readily observed from this study is that although iPad is a convenient m-learning tool, students' perceptions may vary across devices.

The benefits of using a smartphone have also been reported by students who noted that these gadgets could facilitate many learning processes (Woodcock et al., 2012). However, they tend to be of the opinion that speed of access to the Internet and information (for example, e-mails, course material, library resources, personal organisation and time management) are the most valuable features. The respondents in Woodcock et al.'s study (2012), for example, believed that smartphones allowed them to improve their productivity, thus benefiting their learning performance. This suggests an overall positive attitude to technology in learning amongst the students being studied (Woodcock et al., 2012).

2.9.8. Attitudes towards the Use of Social Networking Sites

Perceptions and attitudes are two factors influencing the way in which students use technology. For instance, it is commonly believed that students in general tend to have a very positive attitude to the use of social networking sites and some studies have found that the use of social networking in HE classrooms can improve language learning (Toetenel, 2014). Toetenel examined the use of a social networking site called Ning in a classroom setting at a further education college in the UK. By setting up a closed Ning network, Toetenel observed students in informal language practice sessions and analysed their posts and interactions, as well as their diaries. The findings suggest that this social networking tool improved team and group cohesion, as well as student-to-student interaction. It was also found to enhance informal language learning, due to an increase in learner collaboration. Nevertheless, although Ning appeared to enhance students' learning, the further education college concerned did not have the technical know-how or administrative capability to implement it as an educational strategy. Toetenel therefore suggests that the respective college should provide more training for its lecturers; promulgating policies for the use of social networking tools in the classroom.

Students' preferences regarding the integration of specific Web 2.0 technologies into their classes were explored by Yaoyuneyong, Thornton and Lieu (2013). The study examined the innovativeness of a sample of Business Studies students in the US, as well as their familiarity and experiences with Web 2.0 technologies and interest in adopting Web 2.0 tools for use in education. As expected, the study deduced that the business students investigated were above all supportive of the adoption of technologies that they were most familiar with; for example, social networking sites, such as Facebook and Twitter, and social video tools, like YouTube, podcasts, social photo tools and collaborative writing tools. Conversely, they were least supportive of technologies which they had low awareness of or little experience in using; for example collaborative thinking tools, virtual worlds, blogs, social bookmarking/tagging tools and wikis.

From the literature reviewed on students' experiences and perceptions of technology in HE, it is evident that apart from the personal use of Web 2.0 tools, not all university students who are proficient in the use of technology foresee the value of Web 2.0 applications for learning. The literature also revealed that students are not always fully confident of their skills in technology use (Dahlstrom, de Boor, Grunwald & Vockley, 2011). Students' perceptions, understanding and interest, as regards their use of technology for learning, will admittedly shape their actions, but it could also be argued that they will be more motivated to actively participate in acquiring the necessary skills for the classroom, if they are made aware of the direct transferability of such skills to their personal lives and future success (D'Aloisio, 2006).

2.9.9. Students' Perceptions of Learning Technologies for Deep Learning

It is claimed that technologies support deep learning, which can allow students to create new knowledge and make connections with the real world (Carty & Baker, 2014; Dede, 2014). According to Fullan and Langworthy (2014), the objectives of deep learning are that students will achieve the capabilities and learning dispositions required to become "creative, connected, and collaborative life-long problem solvers and to be healthy, holistic human beings who not only contribute to but also create the common good in today's knowledge-based, creative, interdependent world" (p.2). Students' perceptions of the effectiveness of learning technologies for deep learning were examined by Carty and Baker (2014), who administered a questionnaire survey to Accounting Management students. The above authors found that the three instructional technologies: interactive quizzes, a Group Response System, and videos supported superficial, rather than deep learning approaches. Dede (2014) warns that if educational institutions are to implement deeper learning models when preparing students for the future, teachers will have to redesign their teaching tools and platforms and build the professional capacity to use technology effectively in the creation of new learning environments.

2.8.10. Contextual Factors that Impact on Students' and Lecturers' ICT Use: Perceptions and Expectations of Kuwaiti Higher Education (HE)

Research and literature from the West (for example, Ertmer, 2005; Voogt, 2008; Ertmer & Ottenbreit-Leftwich, 2010) assert that teachers have indeed tended to integrate technology and are using constructivist practices, thus painting a promising picture of classroom teachers' current efforts to use technology to support student learning. The above studies show that the functionality of most technologies and their accompanying software allow for the development of classroom activities, which are engaging for students, thus encouraging greater focus, participation and interaction. This then results in improved learning outcomes.

In the West, there seems to be a determination to expand education beyond traditional boundaries and current student-centred approaches, towards educational practices and principles that provide all students with equal access to the knowledge and skills required for further education and career readiness in the 21st century – to a great extent, this has been achieved. However, there is a scarcity of similar studies in Kuwait and other GCC countries. Therefore, the impact of emerging technologies on the academic and social lives of students and lecturers in Kuwaiti HE needs to be examined, generating findings that will consequently have practical implications for lecturers.

Most of the research in Kuwait and other GCC countries has been carried out in the area of e-learning, distance learning systems, computers and the Internet (for example, Schoepp, 2005; Al-Khashab, 2007; Al-Wehaibi, Al-Wabil, Alshawi & Alshankity, 2008; Al-Hawari et al., 2009; Vrazalic, MacGregor, Behl & Fitzgerald, 2010). Other studies have limited their scope to an examination of the barriers to ICT integration in education, by concentrating their attention on students' lack of basic skills (Fahmy & Rifaat, 2010); the inappropriateness of the electronic resources used (Martin, Birks & Hunt, 2010); teachers' poor attitudes; the lack of technology support (Schoepp, 2005), and plagiarism (Erguvan, 2014).

A certain number of other studies have been carried out on the use of social media; for example, Rouibah and Hamdy (2009), who examined factors affecting IM usage and user satisfaction, Al-Daihani (2010), who investigated awareness of social software applications and their use in Kuwait, and Alsanna (2012), who investigated students' acceptance of social networking. Other studies have looked at the ICT skills of Library Information Science (LIS) students in Kuwaiti HE (Buarki, 2010); the perceptions and willingness of undergraduate students to use concept-mapping software in support of learning at KU (Safar et al., 2012); the attitudes of teachers in Syria (Albirini, 2006); patterns of Internet use within faculties (Al-Ansari, 2006); teachers' competence (Alajmi, 2011), and lecturers' perceptions of a highly differentiated Web-based instruction tool (Erguvan, 2014).

Conversely, very few studies have explored online tools, including social media, in teaching and learning contexts in the GCC zone (Behl, Fitzgerald & Vrazalic, 2007; Al-Hawari et al., 2009; Vrazalic et al., 2010). Moreover, no studies conducted in the GCC region have examined constructivist learning approaches and technology; for example, studies on whether collaborative learning is appropriate when introducing new hardware and software, because teachers with the necessary technology skills and experience are equipped to provide learning support for its use.

The lack of research into ICT use and its impact on the academic and social lives of students and lecturers has created a gap in the literature. It is not clear if this lack of research is due to socio-political and cultural differences between Gulf countries and Western nations. However, it is a knowledge gap that can only be closed by conducting research in this area. Nevertheless, the present researcher has still been able to review the relevant literature from the West, even if there is a lack of research that specifically relates to the countries under study.

In fact, the present study assumes that the principles guiding student-centred learning in the West are more defined, as increased attention is being paid to the most appropriate tools and resources to ensure its success. On the surface at least, it would appear that technology offers Western educators a natural and accessible means of advancing student-centred learning, as more and more institutions demonstrate a good or above average student-to-computer ratio. However, despite its availability, technology is still not widely integrated into the learning experience, not even in the West, due to the prevailing culture in institutions and instructors' lack of confidence in using it (Moeller & Reitzes, 2011).

In Kuwait and the Gulf region in general, technology has the potential to equip students to independently organise their learning processes. However, there is no evidence to prove that learners are embracing technology or becoming active users, as is the case in the West. In Kuwait, integrating technology into educational practices has proven to be a slow and complex process (Erguvan, 2014). The reason for this may partly lie in a lack confidence amongst instructors, as regards the benefits of technology or their own

ICT skills, although this has yet to be substantiated through investigation. Regardless of the above, however, traditional teaching methods are still being adopted.

In a recent survey (AlMunajjed & Sabbagh, 2010) on challenges facing the youth in the GCC States (the UAE, Saudi Arabia, Kuwait, Qatar and Bahrain), it was found that students were dissatisfied with traditional teaching methods, due to the emphasis of these methods on repetition and memorisation, rather than on the skills that are highly valued in the modern workplace, such as creative thinking, brainstorming, problem-solving and personal initiative. The current study assumes that teachers from the GCC States, who use technology, do so primarily to present information, rather than to ensure hands-on learning for students. There also appears to be a lack of clarity amongst teachers about the policies governing technology use, but these assumptions need to be investigated.

2.8.11. The Perceptions of Kuwaiti Higher Education (HE) Students of Using Technology in Their Academic and Social Lives

The introduction of technology into the academic and social lives of HE students in Kuwait has gradually changed their perceptions of learning and socialising. As mentioned above, students in the Arab world now belong to a new generation of youth, referred to here as the ADG (Sabbagh et al., 2012). Members of this generation use IM, social networking sites and social software applications for their academic and social lives.

Al-Khashab (2007) explored attitudes to e-learning amongst Business Studies students in Kuwait. The above study found no differences between the male and female respondents. Neither did the above researcher find any difference in students' attitudes based on their educational level, as all the participants expressed positive attitudes to

Web-enhanced instruction. Such a result suggests that ICT implementation can enhance learning environments by increasing learner motivation and engagement. Al-Khashab's findings are similar to those in studies from the West (for example Chapel, 2008; De Winter et al., 2010; Woodcock et al., 2012), as all confirm that students' positive attitudes relate to their increased learning engagement. For example, Rouibah and Hamdy (2009) investigated factors affecting IM usage and user satisfaction in Kuwait, discovering that students voluntarily used IM at university, in the sense that it was of their own accord and not according to any mandate. Moreover, the technology exemplified the characteristics of contemporary ICT, which the Arab population was embracing on a large scale.

KU, the setting for Rouibah and Hamdy's (2009) research, had made the technology widely available from a number of wireless locations on campus, such as in franchised cafes and libraries. Thus, there were no access issues inhibiting technology usage. Data were consequently collected from a sample of students by the above researchers, revealing that the students frequently used IM to socialise in their daily lives, thus engaging with new people. This had been anticipated, since Arab culture is characterised by high levels of social interaction, the personalisation of relationships, but also gender segregation. The results corroborate the findings of Ford and Lott (2009), who found that students voluntarily accepted technology, if they were supported by instructors.

Further to this, Al-Daihani (2010) explored the perceptions of postgraduate students majoring in LIS, using a Web-based questionnaire as the survey instrument. The participants were students at KU and the University of Wisconsin-Milwaukee. The results of the study showed that the majority of students from both institutions were aware of social software applications and their utilisation. Blogs, video-sharing, collaborative authoring, communication, and social networking received the highest mean scores. Moreover, the students' perception of online activities, use of social software and obstacles to such use were not found to be significantly affected by institutional affiliation. It was further revealed that institutional affiliation exhibited significant differences in the perceptions of social software applications in education. However, the use of quantitative methods alone to explore the impact of social software applications is questionable, as an in-depth study would have more meaningfully contributed to an understanding of the effect of social software on students. Nevertheless, Al-Daihani's study is one of very few to examine students' social interaction and collaborative experiences when using social media.

This increase in social interaction indicates an acceptance of social constructivism and some of its principles. The findings substantiate the results of research carried out earlier, such as by Brown and Adler (2008) and Anderson (2010), suggesting that students are able to share ideas and collaborate with others.

Buarki (2010) explored the ICT skills of LIS students in Kuwaiti HE by adopting a mixed methods research approach. ICT skills are deemed essential for the employment of LIS graduates in different job sectors. The above study therefore investigated the ICT skills of current LIS students, the needs of employers, and the LIS curriculum in Kuwait. In addition, the author investigated the factors impacting on students' ICT skills. Semi-structured interviews and self-administered questionnaires were implemented to elicit both qualitative and quantitative data, supplemented by focus groups, analyses of syllabi and related documentation. The research subjects included employers, LIS students and teaching staff. Buarki (2010) found that in overall terms, the students had some knowledge and basic ICT skills, but lacked advanced search and Internet navigation skills.

In the above-mentioned study, the negative factors affecting ICT proved to be an unsuitable teaching and learning environment, negative attitudes, social influences, and a lack of resources. Data from employers indicated that students need to develop more advanced ICT and non-ICT skills, in order to become employable. Meanwhile, an analysis of the curriculum revealed that the course content was inconsistent, failed to reflect the needs of the job market and was in fact outdated. In addition, the courses were conducted with very little use of the English language, which in turn hindered the improvement of students' ICT skills and ICT use. These findings suggest that although students are being referred to as 'digital natives' they may still lack the basic skills required for employment. The respective faculty and HEIs in general should therefore provide support for these students and assist them in making such transitions. This is to avoid complacency, in the belief that the digital generation, who are capable of using technology for social purposes, will also be adept at using ICT for improving their learning.

What consequently emerges is that students require adequate skills in using technology for academic purposes, but these skills will also transform them into a flexible, autonomous and productive workforce, with a high level of expertise. Buarki's findings are significant, as students who lack such basic skills will not be resilient or able to accept and adapt to change in today's professional climate. Snape and Fox-Turnbull's (2011) study appears to support these findings, asserting that it is necessary for students to gain the skills that they need to live and work in the 21st century. The absence of such skills may lead to students lacking confidence in their own ability (Dahlstrom et al., 2011).

Safar et al. (2012) investigated the opinions of undergraduate students at KU, namely their perceptions and willingness to use concept-mapping software to assist their learning. The above study examined and identified the usefulness of this application in students' learning and thinking. Furthermore, it explored students’ beliefs concerning the usefulness of this type of software for their learning and thinking processes. As descriptive statistics, the findings indicate that the majority of the participants held significantly positive beliefs, thoughts, perceptions and attitudes towards concept-mapping software. The participants asserted that the technology had the potential to enhance teaching and learning, as well as their knowledge; although only 21% of the respondents had previously been aware of this type of software application. The results revealed that most of the respondents – around 90% - had no prior experience of using such software, but almost all – around 99% - were satisfied with it. Additionally, it was evident that the vast majority of the undergraduates – approximately 92% - had no difficulty in using and manipulating the software adopted. Therefore, although these students were neither aware nor experienced in using the software, they seemed to be open to new experiences and willing to take risks.

Some of the studies reviewed earlier lend support to these findings (for example, Celik, 2013). Safar et al.’s study also disproves other claims by Yaoyuneyong et al. (2013) that students are least supportive of technologies that they have low awareness of, or little experience of using. It could therefore be argued that by increasing students’ awareness and providing thoughtful training in the use of appropriate technology, substantial gains can be made in students’ learning.

In addition, Alsanna (2012) explored students’ acceptance of the incorporation of communication technologies into HE in Kuwait. Survey data were consequently gathered from a sample of KU students aged between 17 and 34 years. These participants were asked to report the frequency of their social and educational use of different e-learning tools. The students’ responses to the survey questions presented an overview of their e-learning experience, i.e. Facebook was reported as the most commonly used social media for education - at 76.5% for the combined answer category (daily and often) - followed by podcasting, at 67.4%; Twitter (48.8%); YouTube (36.3%); educational applications (20.3%); wikis (18.7%); VLEs (16.6%), and finally, blogs (10%).

Aside from the above, Hamade (2013) specifically assessed the perceptions and use of social networking sites among university students in the State of Kuwait. This descriptive study used a questionnaire to study the positive and negative impact of social networking. The results showed heavy use of Twitter and Facebook among university students, who viewed sites more frequently than posting on them. The most positive impact was on their relationships with their families, relatives and friends and greater involvement in social, political and cultural activities. The principal drawback, however, was the increased amount of time they spent using social networking sites, which could have affected them academically, as they often neglected their coursework. Time constraints have also been widely acknowledged, as demonstrated in previous research (Vrasidas & Glass, 2005; Newmann & Hood, 2009). Furthermore, the finding that emerging technologies allow students to create meaningful social relationships was supported by Granic et al. (2014) in one recent research paper.

Most of the studies related to technology use in Kuwait consist of student dissertations, with very few journal articles emerging on students' use of technology in HE; for example, there are no Kuwaiti studies examining students' perceptions of the use of smartphones, Android tablets or mobile devices in HE. Neither has there been any attention to collaborative learning in the above context. Besides, there is a shortage of research exploring how Kuwaiti HE tutors use technology to support their teaching practice, or lecturers' pedagogical beliefs about technology use to support student learning. Therefore, this gap in the literature needs to be closed, which is the intention of the current study.

10. The Impact of Technology on Pedagogy

Lecturers' beliefs with regard to the use of technology to support student learning impact what they teach and what methods they have to use to teach it. In other words, it is these beliefs that translate into instructional practice in the classroom. The current thesis assumes that the beliefs and practices of HE teachers from Kuwait may differ from those of their counterparts in other countries and the results of this study may reveal such cross-cultural differences.

The world of education is passing from an 'information age' to a 'connected age' and some of the most significant challenges currently facing HE involve a variety of types of student and trends in technology (Educause, 2013). Today's students are a different generation of learners, with diverse backgrounds and interests and a global perspective; they are entrepreneurial and socially aware, consummately mobile and connected. They expect technology to enable them to access information and communicate with others at any time and from anywhere. On the other hand, technology, as the enabler, can provide online tools and new modes of communication to create opportunities for community building; it can then change the paradigm of teaching and learning by improving didactic interaction between students and lecturers (Redecker, Ala-Mutka, Bacigalupo, Ferrari & Punie, 2009; Moran, Seamann & Tinti-Kane, 2012). For example, students are able to connect with lecturers using their mobile devices and social networking platforms, interacting with them online when it is convenient, and posing questions and discussing issues remotely (Dahlstrom, 2012; Moran et al., 2012; Redecker et al., 2009; Educause, 2013; Truong, 2013).

Therefore, HEIs are now aware that there is a need for universities to start taking immediate action towards understanding various technologies, VLEs, MOOCs and what the future might offer. Institutions cannot afford to adopt a ‘wait and see’ approach, as they are at risk of being left behind. Pedagogy is thus being driven by patterns of change, which includes making socially engaged education more meaningful; opening up learning (resources) and rendering it more accessible and flexible; mobilising ‘deep learning’ (by preparing all learners to be life-long, creative, connected and collaborative problem-solvers); enabling the extensive use of technology, and creating practical learning communities, where a new kind of learning partnership is created between lecturers and learners, and between the learners themselves (Fullan & Langworthy, 2013; Murgatroyd, 2014).

Since 2000, the evolving technology of the educational environment has grown considerably, with the use of tablets, cloud computing, podcasts, Web 2.0 and online delivery. This evolving technological environment is an educational environment, where technologies are used to deliver content, facilitate student interaction and enable assessment, and where learning artefacts include the latest developments and innovations in digital technology, in terms of hardware, software and Web 2.0 capabilities (Whitefield, 2012). The evolution of technology over the years has been instrumental in changing the learning environment. In 2002, the latest technological advancements in the classroom consisted almost entirely of laptop computers with access to the Internet in class and the beginnings of LMSs for the storage and delivery of curriculum material. By 2012, the learning environment had incorporated a number of portable digital learning devices, such as laptops, iPads and smartphones to engage with curricular materials prepared by lecturers (Alexander, 2004). The goal of the institutions responsible for creating these environments was to integrate mobile technologies and thereby enhance education in new and innovative ways.

Research and current practices apply traditional and new hybrid learning theories in the integration and support of mobile technologies. This evolving technological environment also includes schools and universities that cater for a diverse range of learners through online and blended learning possibilities (Oliver, 2002; Whitefield, 2012). Calls for alternative delivery methods were already being proposed in many universities by the late 1990s, especially for the use of Web-based instruction. This was due to the following three perceptions: access by the target market would be reasonably significant; it is a cost-effective method of delivery, and it provides global access (Lefoe, 1998). As the environment has evolved, technologies have enabled lecturers, students and others to participate in teaching and learning at times and places which are convenient for them. The changing nature of both the student body and available technologies has required academics to change their approaches to teaching, in order to improve learning outcomes (Hativa & Goodyear, 2001).

Technology as a tool in learning has been welcomed by some and rejected by many (Ford & Lott, 2009). The reason for its acceptance by some is the fact it has been recognised as a key learning tool. However, many institutions and individuals (for example, lecturers and administrators) have either shunned, or failed to give due consideration to such tools. On the other hand, some students – sometimes considered as digital natives - have accepted technology and are willingly negotiating virtual worlds (Ford & Lott, 2009). Although this group does not comprise other students who are reluctant to use technology, the scenario has prompted Desai, Hart and Richards (2008) to comment that "students are far more technologically savvy than the institutions that support them" (p.329). This poses a problem, as some lecturers are either unfamiliar with or overwhelmed by technological tools. However, it is technology which opens the door to new and innovative applications of constructivist teaching and learning methods. According to Desai et al. (2008), "the vast amount of information that computers supply on a daily basis has allowed teachers and students new ways to explore education compared to ordinary instructional tools" (p.329).

Thus, the transition to online teaching and learning from a traditional face-to-face approach challenges the expectations and roles of both lecturers and learners. Academics who have commonly taught in a face-to-face environment are under pressure to embed ICTs into their face-to-face teaching and to work in blended and online modes. Some lecturers, when they change their usual way of teaching, may feel that their identities are under threat and many regard their professional identity as being tied to their past face-to-face teaching, where they once had a high level of expertise. In order to change their teaching approaches, lecturers may have to redefine themselves in the light of changes in the wider environment (Meloncon, 2007).

Allen and Seaman (2013) surveyed more than 2,800 colleges and universities in the US and found that more and more institutions are gradually starting to offer online courses as opposed to face-to-face instruction. Although institutions offering traditional courses, where the content is delivered face-to-face, remain the most popular, 32% of college students report taking at least one of their courses online. The above authors also state that more than 570,000 students claimed that they took classes online, bringing the total count to 6.7 million students (Allen & Seaman, 2013). This would suggest that online courses are increasing in popularity.

Online courses generally do not include any face-to-face class sessions. Face-to-face contact time is reserved purely for lectures, which can have significant attendance challenges (Parslow, 2012). Face-to-face classes are being re-purposed by including online courses and technology use, giving lecturers more flexibility to address the limited 'person time' they can spend with students (Berrett, 2012; Bull, Ferster & Kjellstrom, 2012; Tucker, 2012). Moreover, smartphones and tablets can play a key role in the ‘flipped’ classroom system or inverted traditional classrooms, where learners are guided through their lessons (for example using online videos) by instructors who also engage them in other interactive activities. In such online settings, the instructors only facilitate learning by responding to students’ questions and shaping content. The content can then be accessed by students from any location on demand (Tucker, 2012). Finally, portability and ease of use makes tablets a valuable resource for students on the go. This is leading to a reduction in university-supported lab computers and laptop ownership (New Media Consortium, 2013).

Nevertheless, technology in learning and teaching does necessarily bring with it a change in the role of the lecturer or the nature of the teaching. An overview of the various roles of lecturers are summarised in Table 2.1, below.

Table 2.1: The various roles of lecturers

Berge (1995) Berge (2009) *Conceptual papers*	**Laurillard (1993, 2002)** *Research; articles; books*	**Berge & Collins (2000)** *Research paper*	**Goodyear, Salmon, Spector, Steeples & Tickner (2001)** *Research report*	**Morris**, Xu & Finnegan **(2005)** *Research paper*	**Weltzer-Ward (2011)** *Research paper*
Managerial (organisational; procedural; administrative)		Managerial (course manage-ment)	Assessment	Grading and assessment	Managerial
Course management	Designing and organising online courses (designing the learning environment, content and context)	Editorial; content expertise	Designing	Customisin g courses	
Pedagogical (facilitating or moderating)	Facilitating discourse/facilitatin g iterative dialogue	Leading discussion	Facilitating; facilitating content	Facilitating courses/ processes	Guiding discourse
Social (promoting human relationships and developing group cohesiveness)			Advising/ counselling		Supporting ; instructing
Technical (making technology transparent)		Providing swift feedback, especially on technical problems	Technologist		

The views of the researchers in the above Table show how the lecturer's role has changed over the past two decades, as technology has been increasingly integrated into classrooms. The reason for choosing the six authors presented above was based on the fact that they cover the four domains: social, cognitive, management and technical. Although this Table was adapted from Redmond's (2011) paper on the prioritisation of online instructors' roles, additional roles are included from other studies, focusing on teachers' roles in online learning environments (e.g. Laurillard, 1993, 2002; Berge, 2009).

Berge (1995), Berge and Collins (2000) and Weltzer-Ward (2011) have found that lecturers are playing more of a managerial role these days, in an environment where students consider communication to be a key factor in HE (Pirani & Sheehan, 2009). Lecturers working with large groups of students should therefore adopt a variety of strategies to take advantage of the communication opportunities provided by the Internet. However, students' expectations need to be carefully managed and the parameters defined at the beginning of each teaching period (McDonald & Reushle, 2002), namely through assessments. Lecturers also need to manage interaction with strong leadership and direction (Berge, 1995), and design instructional products and experiences to meet the learners' need for instruction. As instructional designers, they will focus on real problems, cases or projects within the CoP to which the learner belongs.

Lecturers' roles also include designing and editing (or customising) courses to promote higher order learning and to provoke intellectual responses to the learning materials, context and environment (Berge, 1995; Laurillard, 1993, 2002; Morris et al., 2005). Thus, the managerial role will include carrying out the pedagogical tasks related to course management (Berge, 2009). The pedagogical role of lecturers, according to the authors in the above Table consists of facilitating and guiding discourse. By facilitating discourse, lecturers use instructional methods that are socio-constructivist in nature. As facilitators, they will therefore adopt teaching strategies that focus on creating discourse among lecturers, learners and other members of the community. In other words, the emphasis will be on dialogue, learning partnerships and the joint construction of knowledge, thus facilitating online interaction (McDonald & Reushle, 2002). Socially, lecturers foster and promote development in students. In this role, the lecturer supports learners as they endeavour to work in personal ways towards their own goals. This will help them solve problems, determine their goals, gather resources and participate in the community. Lecturers are able to achieve this by facilitating informal discussion (interaction) among learners.

As technologists, lecturers adjust to the new challenges presented by technology (Goodyear et al., 2001). As facilitators, their role is to make students comfortable with the system and the software being used for lessons (Berge, 1995; Berge & Collins, 2000). The reason for including Berge's (2009) conceptual paper is that lecturers have recently started focusing more on "informal, collaborative, reflective learning, with user-generated content" (p.412), due to the emergence of virtual worlds and other learning environments.

From this summary, it could be suggested that effective lecturers (including in online environments) need a range of skills and knowledge, particularly in the areas of management; pedagogical approaches, which will effectively enable the design, facilitation and assessment of courses; content knowledge; the ability to support the social and emotional well-being of students, and technical skills. The different perspectives of the lecturers depicted in Table 2.1 (above) indicate that although researchers have used different labels for lecturers' roles, the most common types of activity include management, design, organisation, facilitation and instruction. Interestingly, the process of facilitating discussion appears to be a key role when teaching in an online space, as it explicitly appears in several frameworks summarised in the Table above.

2.10.1. Lecturers' Pedagogical Beliefs about the Adoption of Technology in Their Own Practice

In order to examine lecturers' pedagogical beliefs with regard to the use of technology to support student learning, there is a need to review the literature relevant to the subject matter of the research. Many researchers have demonstrated how teachers' pedagogical beliefs play a critical role in successful technology integration (Ertmer, 1999, 2005; Hermans, Tondeur, van Braak & Valcke, 2008; Tondeur, van Keer, van Braak & Valcke, 2008), or at least indirectly influence technology use (Chen, 2008). Each teacher holds a set of beliefs that will determine the priorities for pedagogical knowledge and how students will acquire it. It was Ertmer (2005) who investigated teachers' beliefs about teaching and learning and referred to these beliefs as 'pedagogical'. Similarly, a commonly used distinction in relevant studies is associated with two prototypical ideologies: teacher-centred, or teaching-oriented beliefs, and learner-centred or learning-oriented beliefs (Schug, 2003; Meirink, Meijer, Verloop & Bergen, 2009).

Teacher-centred beliefs are based on assumptions of knowledge delivery that resemble traditional teaching methods and underscore the importance of knowledge reproduction; while learner-centred beliefs emphasise the student's responsibility for his or her own learning and are focused on knowledge construction and how students are induced to work and learn together. Moreover, in terms of acquiring knowledge, teachers' beliefs about teaching and learning can be broadly classified into either the knowledge transmission category, or the knowledge construction category (Chan & Elliot, 2004). Thus, teachers' beliefs typically encompass teacher-centred and learner-centred pedagogical beliefs (Chai, Hong & Teo, 2009). Studies have demonstrated that teachers' beliefs are a critical indicator of technology use in the classroom (Ertmer, 2005).

Besides the above, teachers' beliefs about teaching are referred to as 'preferred ways of teaching' (Teo, Chai, Hung & Lee, 2008). The use of large amounts of information from numerous sources during the course of teaching may confuse students. Thus, lecturers need to design learner-centred activities that will engage students as they process knowledge and foster the ability to think critically about the information presented. Traditional lecture-based teaching does not always help students internalise complex information, but, as mentioned earlier, teachers' beliefs will affect their teaching activities. Moreover, constructivist beliefs are positively correlated with the use of technology in the classroom, whereas traditional beliefs are negatively correlated with such technology usage (Hermans et al., 2008). Accordingly, teachers are now expected to retain their learner-centred beliefs and implement constructivist-based teaching activities to meet students' needs, when the latter are trying to learn complex information.

There are also inconsistencies between pedagogical beliefs and teaching practice (Chen, 2008). Identifying teachers' pedagogical beliefs is associated with teaching and practice via technology. This has been correlated with perceived contextual factors in a large sample of teachers, to explain why some teachers have not integrated technology into their teaching, or responded to the efforts of government and educational initiatives to promote technology use and skills amongst teachers. This varies from one country to another, given that it is dependent on contextual factors; for instance, culture, or teachers' insufficient understanding of the pedagogy associated with technology use (Liu, 2010). It may be concluded, therefore, that technology integration involves perceptions and practices associated with technology use. Therefore, a teacher's pedagogical beliefs about technology integration can influence their teaching methods when using it. In other words, teachers using technology during instruction must rely on their pedagogical beliefs in practice.

University lecturers, on the other hand, adopt academic social networks as they are influenced by the economic, political, technological, social and cultural forces prevalent in society (Siemens & Matheos, 2010). The main concern of HEIs is that forms of social media are changing rapidly and present irrefutable difficulties, such as the delivery of instruction to learners who favour online communities and devote a great deal of time to social networking sites (Sarachan & Reinson, 2011). On the other hand, lecturers in HEIs tend to choose social networking systems based on their beliefs and the influence of culture and technology (Siemens & Tittenberger, 2009; Veletsianos & Kimmons, 2012). Research has also indicated that lecturers' pedagogical beliefs about technology will inform their practice (Stein, Shephard & Harris, 2011; Song & Looi, 2012). Moreover, it is argued that a lecturer's perceived pedagogical beliefs will affect the quality of education and services at HEIs (Robinson-Neal, 2010). This is because of the possible inexperience or reluctance of lecturers to use social networking for learning (Ajjan & Hartshorne, 2008; Song & Looi, 2010). However, the decision of lecturers to adopt new and emerging technologies will have to be understood (Straub, 2009). Veletsianos and Kimmons (2013) claim that socio-cultural issues and the importance of maintaining a social boundary between lecturers and learners, as well as a desire to uphold the professional image of the lecturer, may prevent the adoption of social networking by lecturers in a pedagogical setting.

Ertmer et al. (2012) revisited the question of alignment between pedagogical beliefs and practice to see whether - despite the advances in hardware, software, Internet access, training and support - first-order barriers continue to constrain teachers' integration efforts. They found that teachers with student-centred beliefs tend to enact student-centred curricula, despite technological, administrative or assessment barriers. It is teachers' own beliefs and attitudes as regards the relevance of technology to students' learning which would appear to have the biggest impact on successful integration and use (Ertmer et al., 2012). Additionally, most teachers in the above study indicated that internal factors, for example, a passion for technology, or having a problem-solving mentality, combined with support from colleagues, administrators and personal learning networks, played key roles in shaping practice. These teachers were chosen for their expertise and interest in technology use, but the above authors reported that the strongest barriers observed, preventing other teachers from using technology, were their respective attitudes and beliefs, as well as their current levels of knowledge and skill.

Lecturers' perceptions of LMSs, relative to broader educational experience, were explored from the lecturers' own perspectives by Lai and Savage (2013) in one Canadian study. The above authors used in-depth interviews to elicit responses from lecturers in different academic contexts (Sciences, Social Sciences and Humanities), in order to examine the impact of an LMS on teaching quality. The lecturers perceived that LMSs did not encourage greater student-lecturer contact and did not help raise expectations in lecturers' communities. Instead, they actually considered face-to-face interaction with students as one of the most enjoyable and rewarding aspects of teaching, as it injected a personal touch into their work. They also believed that they were able to build trust and a connection with their students. Nevertheless, these lecturers were also aware that they needed to engage students by implementing collaborative learning tasks into their lectures.

The current study could potentially contribute to the existing literature by revealing whether lecturers' pedagogical beliefs about the adoption of technology to facilitate knowledge delivery are dependent on the provision of support and if this could contribute to useful pedagogical outcomes. More importantly, it is necessary to find out whether lecturers are able to retain their learner-centred beliefs when technology is integrated into the teaching and learning environment.

2.10.2. Lecturers' Perceptions of Their Role in Supporting Students' Technology Adoption

Technology has a potential impact on pedagogy and its integration into the classroom has become an important aspect of what is considered to be successful teaching. Consequently, technology has an effect on instructors' perceptions and attitudes regarding their role in the classroom. There are studies that have identified technology training in faculties as one of the main concerns (Zhoa & Cziko, 2001). The results of Zhoa and Cziko's (2001) study support other research, which suggests that while low-level use of technologically enhanced pedagogy is widespread, high-level use is less common (Ertmer, 2005, p.26). Objectively, however, it is not the effectiveness of the technology, but the teacher's perception of its effectiveness that will determine whether it is used (p.21).

One of the most popular training approaches, according to Zhoa and Cziko, "is having experts 'sell' to lecturers the mighty power of technology" (p.25). However, lecturers may feel that these experts are not as interested in the pedagogical effects of the technical tools. The perception is that trainers have different goals from lecturers, focusing upon the technology rather than the pedagogy. Past research has therefore clearly shown that training is most effective when it incorporates peer-to-peer training, manifesting in shared ideas and practices amongst lecturers (Brown, 2003; Curran, 2004; Ertmer, 2005; Mayo, Kajs & Tanguma, 2005).

Besides a lack of training and insufficient understanding of the pedagogy associated with technology use, faculties have also expressed concerns about the increased use of social media. They have cited a loss of control, a much bigger time commitment to preparation, and the possibility of information overload for students (Reuben, 2008). A study by Moran et al. (2011) found that the two most pressing concerns a faculty may have about the use of social media are privacy and integrity. They found that 80% of 1,920 lecturers from various disciplines reported the "lack of integrity of student submissions" as an "important" or "very important" barrier, and over 70% claimed that privacy concerns are an "important" or "very important" barrier. Other barriers identified in the above study included a lack of training, the amount of time taken up by the use of social media and a lack of institutional support.

To date, most studies exploring lecturers' perceptions and experiences of LMSs shed light on the perceived challenges of adopting and integrating such systems into courses. In particular, lecturers are frustrated by the sheer amount of time needed to ensure that LMSs are reliable and efficient (Morgan, 2003; West et al., 2006). A great deal of time is devoted to setting up courses on LMSs, organising material and uploading material online. However, lecturers also acknowledge how LMSs could potentially save them time after the initial investment in a course setup (West et al., 2006). Bair and Bair (2011) concur that technology could reduce the time spent on certain types of work (e.g. collecting and returning assignments electronically), but acknowledge that this also demands more effort when providing feedback for students' written submissions, e.g. having to download files, insert comments, mark track changes and then upload papers online (p.10). Such menial, yet consequential tasks could impede and detract lecturers from imparting knowledge and from actually teaching on a course.

Moreover, lecturers are uncertain and apprehensive about facilitating interaction online, as many are more familiar with face-to-face teaching. They become unsure about whether their ways of using LMSs are effective (West et al., 2006). Moreover, the LMSs used by most institutions are for publishing schedules, making announcements, or providing course materials and discussions, which suggests that the technology is being used only for delivering information and not for educational purposes. The use of

LMSs in this manner may inhibit the creativity of the lecturers and result in unproductive teaching and learning (Lane, 2009).

In one study, Georgina and Hosford (2007) examined a faculty in the US, in order to better understand whether there is a relationship between technological literacy and its integration into pedagogy. The study involved the lecturers' perceptions of technology skills and pedagogical practices. The findings indicate that technology alone does nothing to enhance pedagogy; successful integration is all about the ways in which technology tools are used and integrated into teaching. This of course means that lecturers must be trained in the use of the tools, not just given access to tools which integrate new software as part of an interactive teaching and learning strategy. These findings correspond to those of earlier studies (for example, Zhoa & Cziko, 2001; Curran, 2004; Ertmer, 2005; Mayo et al., 2005) and more recent studies (for example, Moran et al. 2011).

Similarly, Li (2007) noted that Taiwanese teachers have an insufficient understanding of the pedagogy associated with technology use, while Park and Son (2009), who conducted a study on Korean teachers, determined that a lack of knowledge of computers significantly affected teachers' decisions over technology use. Such a knowledge deficit, influencing teachers' decisions about whether to use technology, is likely to be a barrier to technology integration. It was consequently found that Taiwanese teachers generally use computers to access the Internet, for word-processing (Lawless & Pellegrino, 2007), for lesson preparation, and for PowerPoint presentations when lecturing students (Chen & Chen, 2008). Many teachers currently utilise lecture-based or demonstrative teaching activities in this way. Here, technology is a tool used purely for skills practice or to present material; that is, the classroom remains a teacher-centred environment.

Other studies have revealed that emerging technologies, such as blogs and social networking sites, are not regularly used and that students are not always skilled in their application, especially when downloading, saving, or converting online materials (Kennedy et al., 2006; Oliver & Goerke, 2007). Blogs, in particular, pose significant challenges to lecturers, because they play a key role in improving students' writing ability; increasing interaction between them and stimulating an interest in learning. Students have also expressed a wish for more detailed descriptive guidelines from their lecturers when blogs are used in classrooms. This creates tension amongst teaching staff, as they are caught between wanting to support and offering adequate pedagogic scaffolding, while equally encouraging independent thought, commentary and creativity amongst learners (Farmer et al., 2008). Thus, the challenge facing lecturers when using blogs in classrooms is to ensure that students are provided with sufficient instructions and constructive, timely feedback (Ali et al., 2013).

Some lecturers are now even using smartphones to provide support for their students. Nortcliffe, Middleton and Woodcock (2011) demonstrated that some lecturers use smartphone audio 'apps' to give intrinsic and extrinsic feedback, with their students appreciating feedback provided in this manner. The reason given by the lecturers for doing this was that they found the connectivity of smartphone audio 'apps' very 'liberating' when under pressure to provide feedback on assignments. They also believed that smartphones reduced their dependence on the tethered Internet connection of their laptops and desktop computers.

As far as digital textbooks or e-books are concerned, the perceptions of lecturers who had used such media were examined by Smith, Brand and Kinash (2013). The findings of their study conducted at a small Australian university indicate that all the lecturers interviewed were familiar with e-reading and had utilised various devices for this purpose. The lecturers reported that they actively incorporated digital resources into their teaching, including Blackboard tools, videos, links to websites, online manuals, mapping tools, and electronic dictionaries and translators, in order to support students in their effective use of technology in the classroom. They expressed their reasons for doing so in terms of student motivation and engagement, as well as in the interests of practical and authentic learning. The lecturers also acknowledged that time and effort were required for understanding technology, in order to be able to use it effectively. A lack of time dedicated to trying to understand the potential for digital books was cited as a limitation and barrier to adoption.

The literature reviewed in this section has helped build a picture of the experiences of lecturers using technology across a range of different contexts. However, further research is suggested to investigate whether technology integration is narrowly perceived; such a perception possibly hindering lecturers' understanding of the scope of technology in education. Hence, the current research examines Kuwaiti HE lecturers and their perceptions and beliefs concerning technology use to support teaching and learning.

2.10.3. Perceptions of Faculties/Teachers in Kuwait and Other GCC Nation-States of the Use of ICT

The review of the literature on perceptions of faculty members as regards ICT use includes research examining the views of school teachers, both from Kuwait and the adjoining Arab states, because there is a scarcity of research dedicated solely to HE instructors' perceptions of ICT use for teaching and learning.

Nevertheless, Albirini (2006) explored the attitudes of high school teachers of English as a Foreign Language (EFL) programmes in Syria to the new technology initiatives launched in Syrian education. In addition, the study also investigated the relationship between attitudes to computers and the five independent variables: computer attributes, cultural perceptions, computer competence, computer access and personal characteristics (including a computer training background). The respective researchers found that teachers generally had positive attitudes to ICT in education. The results of this quantitative study point to the importance of a teacher's vision and experiences of technology, and the cultural conditions surrounding its introduction into schools as regards shaping attitudes to technology and its subsequent diffusion into educational practice. The above research concluded that skills and a positive attitude are key factors in the likelihood of a teacher starting to use ICT in education. As the attitudes of teachers towards technology will greatly influence the adoption and integration of computers into their teaching, an understanding of the personal characteristics underlying teachers' adoption and integration of ICT into teaching is relevant. However, in order to acquire skills and develop positive attitudes, teachers must first receive training. This study is significant and like several other (Al-Ansari, 2006), it would seem to suggest a need for adequate and careful training, so that teachers become aware of the range of uses and possible benefits of ICT. Therefore, if given training, they are more likely to believe that technology can assist with learning and will thus recognise its importance.

Al-Ansari (2006) investigated patterns of Internet use in a faculty, including the purpose of its use, its impact on teaching and research, the type of Internet resources used, and the problems faced while using the Internet. In the above quantitative research, a questionnaire was used to collect data from faculties at four KU colleges, i.e. Arts, Social Sciences, Sciences and Engineering. The findings indicate that the vast majority of academic staff concerned used computers and the Internet. The teachers mostly accessed the Internet for e-mail communication, research using search engines, and publishing articles. Although this technology helped them save time, find up-to-date information and collaborate with their colleagues, they were concerned about issues such as low Internet speed, lack of time and lack of access from their homes.

The above-mentioned teachers also attached importance to training, which they believed would improve their skills in using the Internet. These findings suggest that the University needs to make vast improvements to its IT infrastructure, including providing distance access and formal training in the use of Internet resources. Previous research has shown that the provision of effective, timely and continuous training to improve ICT skills and manage a technology-rich classroom is essential (Hutchison & Reinking, 2011). In other words, staff development and teacher training are indispensable when integrating technology.

In another study from the region, Vrazalic et al. (2010) describes a collaborative research project, which empirically investigated the perceived barriers to e-learning for students studying at tertiary institutions in the UAE, using an online questionnaire. In the respective study, the authors present a comprehensive understanding of the application of e-learning methods and resources in the UAE's tertiary education sector. They analysed the association between e-learning barriers and the age and gender of the students. Ease of use, usefulness and satisfaction with e-learning were also examined in relation to e-learning barriers. The research findings indicate that although e-learning was relatively new to the UAE at that time, most tertiary institutions had allocated ICT resources as alternatives to the previous teacher-centred approach to learning and teaching. The results showed that when a faculty integrated technology into its teaching and the tertiary institutions encouraged the use of e-learning as an integral part of the learning environment, student learning was enhanced.

Alajmi (2011) investigated the requirements for readiness in relation to ICT implementation in government secondary school infrastructure, the curriculum and in terms of teachers' competence in Kuwait. The findings of this mixed methods study reveal that school infrastructure and the curriculum do not support ICT implementation, in spite of the reforms and action taken by the Ministry of Education. The results showed that the number of computers, printers and projectors, as well as the quality of Internet access and technical support, were inadequate. The interviews with teachers further revealed that the curriculum did not support ICT implementation. Most importantly, the study reported that schools lack strong management and a stable long-term vision. Moreover, the Ministry of Education and the Kuwaiti Government were found to be wanting in their provision of support for translating such educational reforms.

One significant finding from this is that school principals were not being given the authority to develop their schools, or to participate in planning and decision-making, Moreover, the Ministry of Education appeared to be using a top-down, centralised management style, which hindered the successful implementation of ICT. It may therefore be assumed that the schools investigated in the above study were not given the opportunity to exercise autonomy, be creative, or to solve problems using their theories - which, incidentally, are the three most important criteria for developing good quality teaching and learning via ICT (Lowther, Inan, Strahl & Ross, 2008). Teachers can only act as catalysts for ICT integration and assist students considered to be avid users of technology, if encouragement, equipment and necessary support for technology are made available to them.

Hamou et al. (2012) investigated the status of technology use within HE in the Arab states. They consequently argue that e-books in the area of e-learning have the potential to greatly reduce illiteracy and contribute positively to knowledge-based socio-economic development in the respective context. Although education appears to be a high priority in some countries, including in the oil-rich GCC countries, considerable ground needs to be covered, in order to make rapid progress in the popularising of e-books and e-reading devices.

Erguvan (2014) explored faculty members' perceptions of a specific Web-based instruction tool (Achieve3000) in a private HEI in Kuwait. The online tool involved, which focuses mainly on academic English skills, provides highly differentiated instruction, initiated with a level set for the beginning of term. The above researcher interviewed eight faculty members and the questions sought responses concerning their perceptions of using the Web-based instruction tool in Early Assessment Program practice. Their perceptions related to the strengths and weaknesses of the above Program; their opinions of its contribution to student learning, and their attitudes to Web-based instruction in general. The results revealed that the participants had positive views of differentiated instruction, which they believed to be one of the major strengths of the respective ICT tool.

In addition to the above, the instructors also recognised the positive impact of differentiated instruction on student motivation and learning and claimed that it added variety to classes. However, the tool also made the instructors question their role in the classroom. The general feeling amongst them was that it gave students a chance to plagiarise the work of others. However, evidence from the literature suggests that technology can increase students' motivation for learning, but only if it is implemented in a pedagogically meaningful way (Veermans & Tapola, 2004). Nevertheless, the results of the above study cannot be generalised to all institutions in Kuwait, as the perceptions of just eight participants from a private university were examined, exclusively in relation to one ICT tool.

2.10.4. The Impact of ICT on Education in Kuwait and the GCC States vis-à-vis the West

The literature reviewed in the earlier sections, pertaining to the use of technology within Kuwaiti education, reveals problems with ICT integration, which may have had an effect on students' and lecturers' academic and social lives. Such a situation could have existed in the West a decade ago, when promises were being made in the UK and Australia that technology would enable teachers and schools to become more 'learner-focused' (Hargreaves, 2004; Higham, Hopkins & Ahtaridou, 2007). However, one of the biggest differences is that in the Arab states, there is a lack of access to resources (Bingimlas, 2009). This is in fact one of the main barriers to educational technology. Bingimlas' study is set in Saudi Arabia, a GCC member state, where the situation is different: although information can be accessed, lecturers do not necessarily have the confidence or competence to use technology to make use of such resources.

The literature from the West provides evidence that LMS software (for instance, Moodle or Blackboard) is being used to integrate collaborative and interactive learning activities within classrooms. However, this is not apparent from the literature produced in the GCC countries. One similarity is that students frequently use IM, smartphones or Android tablets for communication, engaging in social activities through these media. Facebook and Twitter are also widely used in the Arab states, just as they are in the West. Nevertheless, the question is whether these can essentially improve learning outcomes. In addition, social networking sites, like ResearchGate, Academic.edu, Mendely.com and Zotero.org are not mentioned in any of the literature from the Middle

East. Neither are there any studies on how e-books have influenced learning and teaching in Kuwait or the other GCC states, with the exception of one report by Hamou et al. (2012).

From this it may be deduced that although Arab youth may use social media for creating, posting and discussing socio-political or even religious content, this arguably cannot be called student-generated content. Moreover, there is no evidence to suggest that lecturers are better able to engage students or improve attendance when technology is used in classrooms, than they are when using a purely traditional approach. Despite the fact that research from the West has shown that social networks and their sites enable students to search for information and resources and to collaborate with their peers (Anderson, 2010), studies from Kuwait/the GCC states have not been able to report similar findings.

In addition to the above, studies from the West have revealed how lecturers and teachers are expected to retain their learner-centred beliefs and implement constructivist-based teaching activities to meet student needs. However, assumptions made on the basis of results from some of these studies, where Western educators are creating learner-centred strategies and infusing such beliefs, may not always be true. This would suggest that even with all the technology available in the West, efforts made in educational research indicate that institutions and educators have yet to solve the 'problem' of technology integration (Price & Kirkwood, 2014). This is the case in the US, the UK and all across the international sphere (Bauer, 2005; Wang et al., 2004; Liu, 2010; Palak & Walls, 2009; Park & Ertmer, 2007; Redmond, 2011; Hermans et al., 2008; Mueller, Wood, Willoughby, Ross & Specht, 2008). To be precise, technology is not being used to support the kinds of instruction (e.g. student-centred) that are assumed to be the most powerful (Smeets, 2005; Ertmer & Otternbreit-Leftwich, 2010; Price & Kirkwood, 2014).

In spite of problems with ICT integration, social networking technologies have arguably become largely institutionalised in the West, with an established critical mass of users. There is certainly a close and mutually-reinforcing relationship between the Internet and education in that context. With the emergence of concepts such as ‘social learning’, ‘intelligent decision-making networks’ and ‘MOOCS’, educators, students and educational institutions increasingly rely on social media tools to create innovative approaches to education, as well as to build capacity and transfer knowledge. Social media technologies are already playing a growing role in formal and informal education, in on-demand training and in capacity-building. Nevertheless in the GCC states, students continue to lack the soft and transferrable skills, which are in demand in today’s labour market. This is due to poor ICT integration in HE (Mourtada et al., 2013). Moreover, these students have not been properly equipped with problem-solving, critical-thinking or communication skills, due to the rote-learning approach prevalent in secondary schools and within university curricula (Mourtada et al., 2013).

The difference between the West and the GCC states lies in the extent of the research on this topic. While most researchers agree that technology can change the teaching process, making it more flexible, engaging and challenging for students, little evidence exists to support these claims. Furthermore, it would appear that opinions on how best to establish such evidence also differ. An analysis of Western studies would reveal important evidence to support that emerging technologies impact educational outcomes by facilitating access, whereas in Kuwait/the GCC states, there is less evidence to suggest how these technologies impact educational outcomes by promoting new learning.

It is always assumed by researchers and critics that there are differences between the West and the Arab Gulf States, but these assumptions need to be proven, which one of the objectives of the present research is. One significant difference, already demonstrated, is that teacher-centric learning approaches, such as rote-learning and memorisation are still prevalent in most Arab states. These traditional pedagogical models are largely due to students being schooled in government-funded institutions, with a very limited format for learning resources (Mynard, 2003). Moreover, in the case of Kuwait, the education system was created to mimic Egyptian rote-learning systems, dating back to Pharaonic times (Muhammad, 2011). Furthermore, Kuwaiti educators are convinced that rote-learning is the optimal form of education. It is this traditional memorisation method, instead of critical-thinking skills, which has contributed to learners being unprepared for higher level learning and therefore unable to compete in a technology-driven, knowledge-based world (Wilkens, 2011). Furthermore, it is possible that teachers in Kuwait do not consider the use of technology to be effective for learning, because there is a prevailing notion that rote-learning is superior to students' 'powerful learning' experiences connected to technology use. It is not in fact known if there is a willingness to change this pedagogical belief. The results of the current study could provide more insight into this phenomenon.

While a fairly large body of literature has been devoted to addressing the impact of networked information on research and scholarly communication in developed countries, there is a comparative scarcity of literature dedicated to investigating the same issue in GCC countries. A number of studies within the Arab world have addressed the issues surrounding IT and its impact on education, but to date, no studies have been identified which examine how emerging technologies are used for communication and collaboration in these countries. Other questions which arise from a comparison between Western and Arab literature on the use of ICTs in HE are whether technologies are being backed by encouragement, ready access, training and support, or whether there is an enabling environment which provides access, reliable networks and a faculty ethos that values experimentation.

11. Discussion

There have been several studies on students' use of technology in the UK (Jenkins et al., 2006; Holley et al., 2007; Smith et al., 2007; Wheeler et al., 2008; Chapel, 2008; Howe et al., 2009; the Learner Experiences across the Disciplines [LEaD] Project, 2009; Clough et al., 2009; Bradley et al., 2009; Lee & McLoughlin, 2010; Toetenel, 2014). Students in the above context have demonstrated engagement in Web 2.0 technologies for social use and that they can clearly articulate their use of social networking sites, such as Facebook and YouTube, in other aspects of their lives. However, teaching staff correspondingly feel unable to engage in Web 2.0 development and use (Ward, Moule & Lockyer, 2009). Other studies have shown that lecturers lack ICT skills, confidence in using technological tools, and pedagogical teacher training (Moran et al., 2011; Toetenel, 2014).

The results of most the relevant studies show that teachers have positive attitudes towards integrating ICT, but a gap exists between the extent to which teachers enjoy using technology and the degree to which they use it in their classes. Therefore, there is also a gap between students' expectations of learning and teaching, teachers' ICT skills, and the need to improve the latter. If lecturers consider using technology, they may arguably change and improve their pedagogy in order to create a more learner-centred environment. Under such circumstances, lecturers are required to design learner-centred activities that will engage and motivate their students (Leadbetter, 2005, cited in Cobcroft et al., 2006; Blumberg & Everett, 2005; Blumberg, 2008). Studies from the US and the UK have revealed how lecturers and teachers are expected to retain their learner-centred beliefs and implement constructivist-based teaching activities to meet student needs. However, assumptions made on the basis of results from certain studies on how Western educators are creating learner-centred strategies and infusing such beliefs, may not always be true. Although so-called digital natives are 'technology savvy' (Harvey-Woodall, 2009), have access to computers, Android tablets and smartphones, as well as Internet access, and remain socially connected through technology, they have been found to lack motivation to learn in this way. Despite efforts on the part of governments and HEIs to integrate technology into classrooms, there is an absence of technology in the average classroom (Mouza, 2008).

Student-centred thinking may have created a growing interest in the use of a variety of active learning methods, both in and out of the classroom. However, collaborative learning, experiential learning and problem-based learning, as well as the theory and practice of student-centred pedagogy, are not without their problems. Research scholars suggest that many students still prefer personalised, teacher-centred teaching methods (Leming, 2003; Schug, 2003; Dimitrios et al., 2013). It could therefore be argued that the use of technology in the creation of student-centred classrooms may be considered ancillary to traditional methods, rather than as a key learning tool.

In short, a faculty can improve its pedagogy by adopting technology to satisfy the goals of a learner-centred classroom. This can take place by shifting the balance of power towards the learner and by thinking of teaching as the 'facilitation' of learning. If lecturers are to use technology to achieve this, some degree of change is required along any or all of the following dimensions: (a) beliefs, attitudes, or pedagogical ideologies; (b) content knowledge; (c) pedagogical knowledge of instructional practices, strategies, methods or approaches, and (d) novel or altered instructional resources, technology or materials (Fullan & Stiegelbauer, 1991). While "technology can make it quicker or easier to teach the same things in routine ways", it also makes it possible to "adopt new and arguably better approaches to instruction and/or change the content or context of learning, instruction, and assessment" (Lawless & Pellegrino, 2007, p.581). However, not all the theoretical perspectives offered in the literature are positive about learner-centred ICT teaching methods. Hence, there is a need to critically examine the reality of how technology use can influence students' academic lives.

From studies carried out in the West (the UK and US) and in other developed/developing nations on students' and lecturers' use of technology in education, two main assumptions can be made:

First, lecturers need to change their practice, so that they can meet the needs and expectations of their students. Issues related to the necessity for such changes will be central to any discussion of technology integration. As indicated above, the changes required for technology use and to facilitate learning include dimensions such as beliefs, attitudes and ideologies, combined with content and pedagogical knowledge. This is then complemented by novelty in terms of resources, technology and materials (Ertmer & Ottenbreit-Leftwich, 2010). It implies that lecturers' pedagogical beliefs need to be understood, in order to identify possible changes to classroom/instructional practices, so that greater collaborative relationships can be forged between students, teachers and other potential partners. In addition, these changes could foster independent learning and ICT-pedagogical innovations (Fullan, 1993; Hermans et al., 2008; Tondeur et al., 2008; Wong et al., 2008). Secondly, the use of technology can enhance learning by shifting the learning paradigm from content delivery towards learner-centred and discussion-led approaches.

This Literature Review discussed technology-enhanced learning developments in both the West and developing countries. However, it cannot be assumed that Kuwait and the adjoining Arab states have homogenous characteristics. These countries differ in their political circumstances; educational development and history; culture; language; religion; gender issues; population size; resources, and the contemporary influx of technology. These nations have consequently developed different learning alternatives to meet the demand for education. Furthermore, the role of technology in education within the respective zone differs from how it is manifested in the West and it is this difference (for example, the perceptions and attitudes of students and faculties to ICT use in HE in Kuwait/GCC countries) that will be discussed in the following chapter.

12. Conclusion

The literature reviewed in this thesis reveals a growing realism in recent studies, concerning the way in which students of all ages use the Internet in practice. However, although students may be frequent users of technology, it cannot safely be concluded that they will have the skills required to use technological tools for academic purposes; for example, in identifying and discovering research content. On the contrary, they may merely possess the skills to use these tools in their social lives.

The reasons for students failing to use technology in their learning could arguably be attributed to their teachers' attitudes to technology use, lack of ICT skills and poor integration of technology into learning and teaching. It may therefore be concluded that instructors tend to rely on traditional teaching methods and 'reflexively resist' curricular and instructional innovation (Ponticell, 2003, p.15). Although teachers might believe that technology will help them accomplish professional and/or personal tasks more efficiently, there are a variety of reasons why they may be hesitant to incorporate these tools into the classroom, including a lack of relevant knowledge (Lawless & Pellegrino, 2007); existing belief systems (Ertmer, 2005; Subramaniam, 2007), and any constraints or limitations regarding individual effort within the teachers' work context/culture (Roehrig, Kruse & Kern, 2007; Somekh, 2008).

Even though the literature reviewed provides useful perspectives of the various benefits and barriers that can enable or inhibit the integration of technology into learning and teaching, there is a need for more research. This would demonstrate to teachers and educational policy-makers in Kuwait, as well as to researchers in general, a better representation of the educational affordances of emerging technologies. It could be accomplished by investigating the impact of technology on the academic and social lives of students and lecturers in Kuwaiti HE.

Chapter Three: Research Design and Methodology

3.1. Introduction

This study explores the use of technology by students and lecturers in their social and academic lives. It focuses on how students use technology to connect informal learning to the formal learning environment and the factors influencing that use. However, there is a lack of research which adequately covers all the issues proposed in this study, particularly on how the identified factors interact in the Kuwaiti context. A review of the literature in the present study brought up a variety of issues concerning technology integration into instruction, along with an overview of the attitudes of students and faculties to technology integration; their use of instructional technology for their academic and social lives, and the challenges faced in this regard. However, in order to address these issues, including the benefits claimed for technology in learning, it is necessary to determine a research strategy from the point of view of methodology.

This chapter therefore addresses the following: the research questions and methodology, and the corresponding methods used. These include the sampling method, data collection instruments and data analysis. Furthermore, this chapter presents the philosophical basis of the research and reviews the various research designs applied in education research in general, exploring the strengths and weaknesses of each. The chapter also highlights and elaborates on the ethical issues faced while carrying out the present research. Finally, it explains the data analysis methods applied.

3.2. Research Aim and Questions

Two major factors were given consideration before adopting a research design and methodology for the current study; these being the research topic itself and the research questions (Saunders, Lewis & Thornhill, 2012; Yin, 2013). The aim of this study was to identify the perceptions of HE students and lecturers in Kuwait, as regards the use of technology in their academic and social lives. It was guided by the following research questions:

1a. How do Kuwaiti HE students use technology in their academic and social lives to connect informal learning to the formal learning environment?

1b. What are the factors influencing that use?

2a. How do Kuwaiti HE teachers use technology to support their teaching practice?

2b. What are the factors influencing that use?

3. What are the lecturers' pedagogical beliefs with regard to the use of technology to support student learning?

3.3. Research Design and Philosophical Position

Crotty (1998) suggests four key aspects, which should be considered in formulating a research design: the epistemology informing the research, the philosophical stance underlying the methodology in question (e.g. post-positivism, interpretivism and pragmatism), the methodology itself, and the methods and procedures integrated into the research design for the collection of data.

The choice of the appropriate research design/methodology necessitated developing a philosophical perspective. A researcher's philosophical assumptions can have a significant impact on the questions of 'What, how and why?' surrounding the study of a particular topic. The two major philosophical traditions are either a subjective (qualitative, phenomenological) or an objective (quantitative, positivist, experimental) research approach. In other words, an objectivist approach employs scientific methods to investigate social science phenomena, while a subjective approach applies what researchers have come to describe as positivism or interpretivism (Creswell, 2014).

The assumptions guiding researchers towards the choice of a particular philosophical position are ontological (the nature of reality) or epistemological (what can be construed as knowledge). It is essential to understand the nature of different research philosophies before adopting a particular perspective (Saunders et al., 2012). The ontological assumption of a researcher with a positivist or objectivist world view is that external reality objectively exists and must be discovered, while an interpretivist believes that reality is socially constructed. The epistemological stance of an objectivist is to construct scientific evidence through observation and measurement, while a researcher with a subjective philosophical approach will hold that knowledge cannot be discovered, but is rather subjectively acquired through experience.

It is thus argued that different philosophical assumptions will influence the way in which a research problem is approached and the way a piece of research is to be carried out (Saunders et al., 2012). However, the researcher in the current study did not wish to lean towards any single philosophical stance. In other words, the choice of methodology and methods were based upon more pragmatic assumptions with regard to ontology and epistemology. In other words, the present researcher did not seek to adopt an exclusively objectivist or subjectivist position and this is based on the understanding that an alternative philosophy may better suit the research problem in question. The researcher was also influenced by suggestions made in the relevant literature (for example, Tashakkori & Teddlie, 2003; Creswell & Plano Clark, 2011), where it is claimed that an alternative paradigm may be used to find answers to research questions.

3.4. The Paradigm Informing the Present Study

The two main paradigms or philosophical traditions that have dominated research to date are interpretivism/constructivism and positivism (Brannen, 2005). Positivism is the philosophical stance adopted by researchers on the premise that "working with an observable social reality and the end product can be law-like generalizations similar to those in the physical and natural sciences" (Saunders et al., 2012, p.129). As such, a paradigm seeks to predict and generalise. To be more precise, positivist studies tend to generate quantitative data through, for example, standardised tests, closed-ended questionnaires and descriptions of phenomena, using standardised observation tools. The data collected via these methods are then analysed statistically. However, critics of the positivist paradigm tend to target its assumption of the existence of objective reality and its simplification of complex issues. The difficulty of controlling experimental variables in such educational research is also widely noted.

On the other hand, interpretivism/constructivism is an influential paradigm in educational research; concerned with gaining knowledge of the world through the subjective experience of the research participants. It is "an epistemology that advocates that it is necessary for the researcher to understand the differences between humans in our role as social actors" (Saunders et al., 2012, p.129). Data collected in an interpretivist study are analysed inductively, rather than statistically. In other words, in interpretivism, reality is constructed through the negotiation of meaning.

There are three standpoints that ought to be considered by mixed methods researchers when choosing an appropriate paradigm. These are referred to as the a-paradigmatic stance (which implies that the researcher or researchers are proceeding without adopting a paradigmatic position, or else do not articulate it, despite its application); the multiple paradigmatic stance (from which a researcher can draw on more than one paradigm in a piece of research), and the single paradigmatic stance (encompassing both qualitative and quantitative research methods) (Patton, 1990; Teddlie & Tashakkori, 2003; Creswell & Plano-Clark, 2011). One problem with the a-paradigmatic stance and multiple paradigms is that it is not often clear which paradigms are to be mixed, or how this is to be achieved. Therefore, the present mixed methods study will adopt a single paradigm approach, which means that both quantitative and qualitative research methods are accommodated under a single paradigm. The adoption of a single paradigm or so-called 'realist' approach for all methods will enable the research findings to be integrated. This paradigmatic approach may be referred to as 'pragmatism'.

Pragmatism is claimed to be practical for providing more satisfactory responses to a research study aim, objectives and questions, focused on real-life situations (Ihuah & Eaton, 2013). Researchers who adopt a pragmatic approach attach more importance to research questions. Venkatesh, Brown and Bala (2013) argue that "Pragmatists believe in the dictatorship of the research questions. They place the greatest importance on the research questions and select a method and paradigm that fit with the research questions" (p.17). The ontological position of someone who adopts a pragmatic approach is that it is the researcher's view that is best suited to answer the research questions; while the epistemological position is that the interpretations of either subjective or objective data can be used to answer a research question. In other words, a researcher can merge views to help interpret data. This suggests that pragmatism is not committed to any one philosophy.

In their research, pragmatists focus purely on the 'What?' and 'How?' of the research problem concerned (Creswell, 2014, p.11). Pragmatism is also considered as the paradigm providing the essential philosophical framework for mixed methods research (Tashakkori & Teddlie, 2003). By adopting this middle-range philosophy, research can be conducted with a constructivist stance (such as through interviews and observations), while also adopting a complementary positivist stance (for example, through surveys/questionnaires). Moreover, pragmatism helps shed light on how research approaches can be fruitfully combined until the researcher obtains the required findings, without being "the prisoner of a particular (research) method or technique" (Robson, 1993, p.291). In short, research approaches should be mixed in ways that offer the best opportunities for answering important research questions (Johnson & Onwuegbuzie, 2004).

3.5. The Research Context

The selection of a mixed methods approach for this study was not only driven by the research aims and questions, but also by the context (Creswell & Plano-Clark 2007; Teddlie & Tashakkori, 2009). It is claimed that mixed methods approaches are powerful mechanisms that can interject context into a research inquiry (Venkatesh et al., 2013).

The context of this research is the College of Basic Education at the Public Authority for Applied Education and Training (PAAET) in Kuwait. To be more specific, the lecturers were drawn from amongst academic staff from 20 departments at the College of Basic Education, in order to examine how they use ICTs for teaching students, and how they influence them to use such technologies in their academic and social lives. The rationale for selecting this institution was based on the assumption that it is relatively rich in ICT, with the students and lecturers associated with it being perceived as using these resources effectively for social and academic purposes.

Mixed methods research can offer a holistic view of the circumstances under which technology use has a positive (or negative) influence on students' academic performance or lecturers' teaching. Moreover, it is anticipated that a mixed methods approach to research will reveal aspects in the respective context that are not characteristic of a developed country in the West. By using a mixed methods approach, the present researcher therefore intends to gain more understanding of particular features of the HE context, ethos and culture that could prove influential, as well as identifying specific processes through which ICT use is developed across the institution involved. In the current context, leveraging both qualitative and quantitative research is thus likely to shed light on how technology is used.

3.6. Choosing a Research Design

There are several different types of research design and a discussion of these strategies is required before identifying the most appropriate design for the current research. Research designs can be broadly classified as either quantitative (objective) or qualitative (subjective). However, there are numerous types of research design within these two main approaches.

There are several categories of research design in qualitative research; for example, ethnographic research, action research, case studies and Grounded Theory. This current study could be referred to as phenomenological, as it examines the perceptions of Kuwaiti HE students and lecturers concerning technology use in their academic and social lives. However, despite the fact that the study examines individuals, it is not narrative.

Although quantitative research designs can be categorised into many distinct approaches, namely descriptive, causal comparative, correlational and experimental (Creswell, 2014), a mixed methods explanatory design was implemented here, with the intention of analysing quantitative data using simple descriptive statistics, followed by Exploratory Factor Analysis (EFA) and principal components analysis (PCA), the latter being a data reduction method. In this way, an attempt was made to understand students' and lecturers' perceptions of technology use for academic and social purposes.

3.7. Rationale for Using a Mixed Methods Research Design

As mentioned earlier, this study uses a mixed methods design, through which data were collected using a range of methods (including observations, interviews and artefacts, such as lecturers' and students' diaries, as well as surveys). These were analysed and mixed during the research process, in order to gain a deeper understanding of the research problem. For an in-depth study of the effects of various factors (for example, perceptions, attitudes and pedagogical beliefs) on teaching and learning in technology-rich environments and real situations, a mixed methods approach or methodology was correspondingly deemed appropriate. Besides, the philosophical perspectives discussed earlier and opted for in the current study warranted the use of a mixed methods approach.

As explained above, a mixed methods approach allows for the collection of both objective and subjective data. The use of a qualitative research model in this case was founded on the basic philosophical assumption that individuals, together with their actions and experience, are a significant factor in the context being studied. The reason for not exclusively employing an objectivist stance was that it has been increasingly considered inappropriate for studying social phenomena. However, the inclusion of a quantitative phase within the research model permitted the collection of a considerable amount of data from a large number of participants at low cost. The rationale justifying the combining of objective and subjective data must nevertheless be preceded by a clear understanding of quantitative and qualitative research.

Quantitative research methods are important for measuring educational phenomena, while qualitative research is vital for capturing the context of educational phenomena and the human and social aspects of education (Greene, 2007, Creswell, 2014). By integrating quantitative and qualitative data, and adopting a pragmatic stance, the present researcher’s intention was to thoroughly observe, reconstruct and analyse the possible effects of emerging technologies on teaching and learning. A mixed methods research design was adopted, as the researcher wished to use multiple approaches when endeavouring to answer the research questions (Johnson & Onwuegbuzie, 2004).

The rationale for mixing quantitative and qualitative methods here was that neither of the two approaches were deemed to be sufficient in themselves to capture the trends and details in the complex issue of students and teachers using technology for learning and teaching. Therefore, both approaches were used in combination to complement each other, allowing for a more complete analysis (Tashakkori & Teddlie, 2003; Greene, 2005). Alternatively, the objective of mixed methods research is not to replace either of these approaches, but rather to draw from the strengths and minimise the weaknesses of each; both in single research studies and across studies (Johnson & Onwuegbuzie, 2004). Categorically, mixed methods research is considered to be the third paradigm, helping to bridge the schism between quantitative and qualitative research (Johnson & Onwuegbuzie, 2004). Several reasons may be highlighted for combining the two methods. In the present study, the intention was to compare and triangulate data and understand the research problem from multiple perspectives (Greene, 2005; Bryman, 2006; Plano Clark, 2010; Yin, 2013).

This research warrants the generation of different research questions to find answers to core problems. Consequently, ‘How?’ and ‘What?’ questions were combined in the formulation of these questions, with the intention of collecting quantitative and qualitative data. Moreover, it is believed that a variety of different research questions and combinations of questions is best and most fully addressed using mixed research solutions; hence the application of a mixed methods research design in this study. It is an approach based on a pragmatic philosophy, which stipulates that a researcher must use an approach or combination of approaches that will appropriately address the various research questions involved.

The justification for adopting an explanatory mixed methods approach for this study is the balance between inductive (data-driven) and deductive (theory-driven) reasoning. An interpretivist paradigm essentially involves deciding on the balance between previous literature, existing theory and primary empirical data, collected first-hand by the researcher. In adopting a pragmatic stance, the researcher demonstrates an eagerness to challenge the status quo promoted in the literature and seeks to acquire new knowledge, while still acknowledging certain aspects of current theory and knowledge. Here, prior literature was used to examine the topic, identify gaps and provide a reference point during data analysis, in order to critically evaluate other researchers' interpretations of the empirical findings identified in the field.

Also in this study, the same research questions were used to collect complementary data, which were then analysed to complement the two data sets. This approach allowed the researcher to address complex research questions and to collect a richer and stronger array of evidence than would have been possible with the adoption of a single method (Bryman & Bell, 2011). In so doing, the researcher did not attempt to replace quantitative or qualitative research, but was rather able to amplify the strengths of each approach, while at the same time compensating for their weaknesses (Johnson & Onwuegbuzie, 2004; Cohen, Manion & Morrison, 2011). This enabled rich information to be captured – perhaps not possible using a single methodology. It therefore permitted in-depth inferences related to the phenomena examined in this study (Cohen et al., 2011).

In addition, a mixed methods research approach was considered appropriate in this case, as a means of examining and discussing new and innovative forms of learning that deploy emerging technologies, and to determine whether the use of technology and student-centred teaching methods in a classroom can lead to a more meaningful learning experience for students. In other words, a mixed methods approach was employed with the aim of providing a holistic understanding of this phenomenon, for which extant research in Kuwait and the GCC states is scarce, questionable and misleading.

3.8. Research Designs in Mixed Methods Research

Interviews, focus groups, observations, diaries or field notes may all be used to collect data in qualitative research, while surveys (or questionnaires) are commonly used for data collection in quantitative research. Such research instruments are deployed in this study, as they do not undermine its aims and objectives. However, it was also necessary to choose an appropriate mixed methods research design.

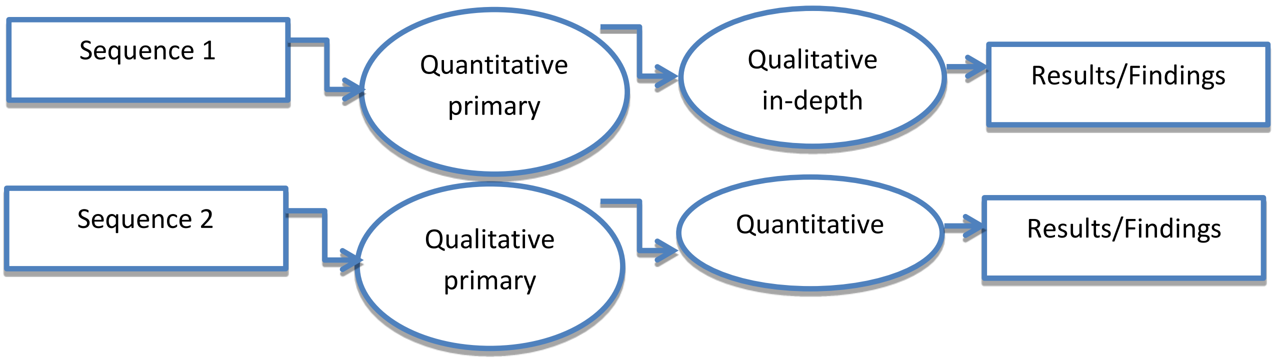


Figure 3.1: Sequential phases - Mixed methods research designs

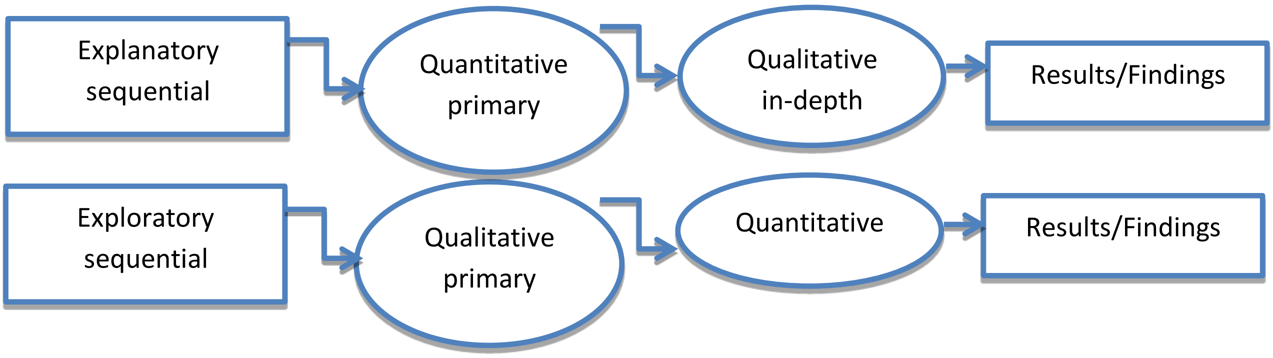


Figure 3.2: Explanatory sequential and exploratory sequential phases

Figures 3.1 and 3.2, above, illustrate the sequence of the research, suggesting that exploratory and explanatory research designs can in fact be applied sequentially. Exploratory designs that facilitate the exploration of research problems, starting with qualitative research to explore the participants' experience of the phenomena being studied (Ponce & Pagán-Maldonado, 2015), were not used in this study; since the researcher's intention was to initiate the research by collecting quantitative data, followed by qualitative data to help explain or elaborate on the quantitative results, an explanatory design was used. The objective underlying the use of this explanatory design was to study or describe the research problem in depth (Ponce & Pagán-Maldonado, 2015).

As shown in Figure 3.3, multiple sources of data were used here, combining quantitative and qualitative methods. These data were then integrated at the interpretation and reporting level. The qualitative data and analysis refined and explained the statistical results by exploring participants' views in more depth. Priority was given to this qualitative phase, because it was concerned with in-depth explanations of the results obtained in the first phase of the study, which was quantitative in nature.

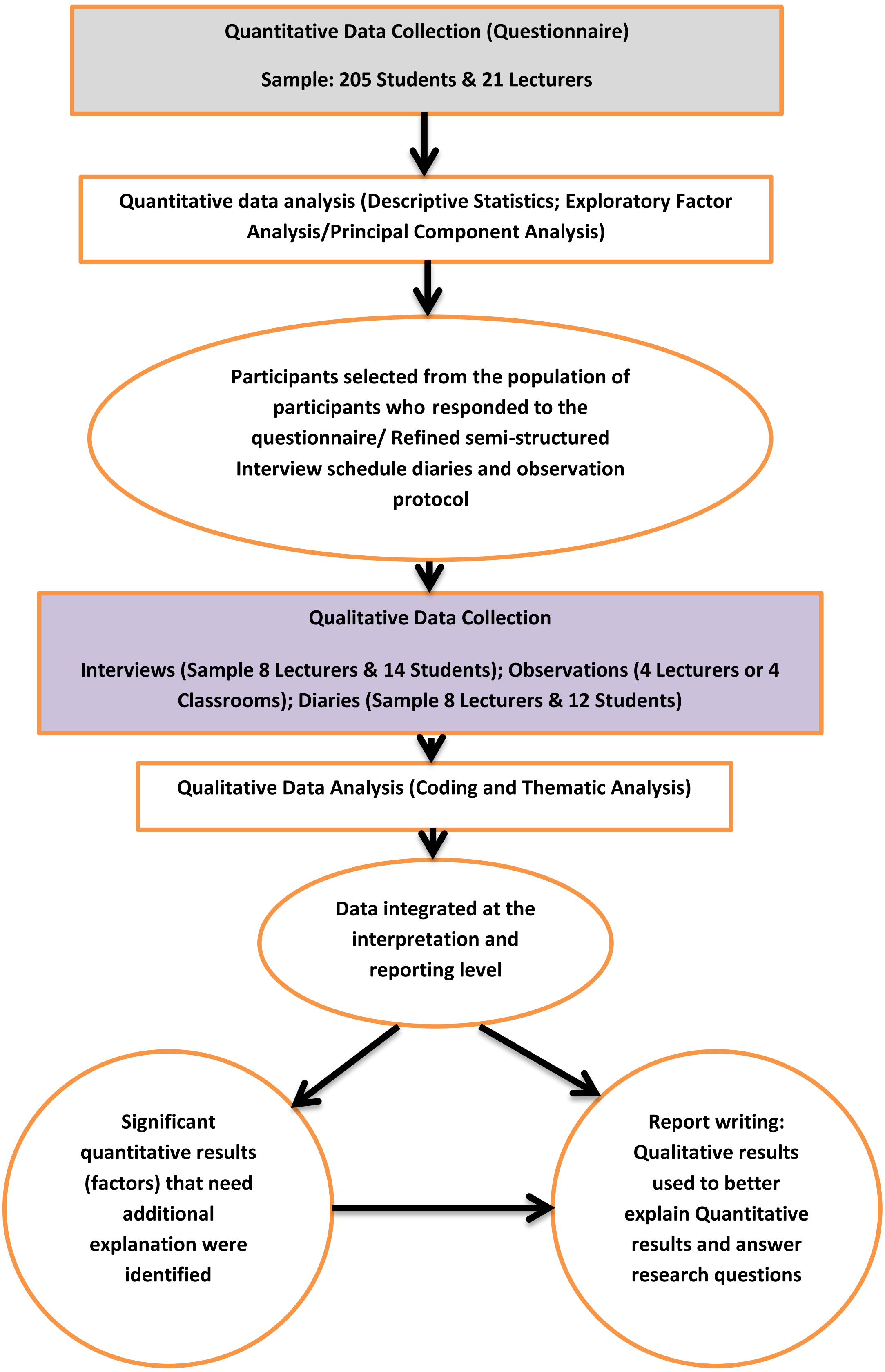


Figure 3.3: Data integration in a mixed methods sequential explanatory design

Although no attempt was made to supplant either quantitative or qualitative research, the collection and integration of multiple sources of data meant that each approach was reinforced by the other, with their weaknesses thus being mitigated (Johnson & Onwuegbuzie, 2004; Cohen et al., 2011). A pragmatic stance was thereby adopted by the researcher, enabling the acquisition of new knowledge, while acknowledging the importance of the information found in the existing literature. Moreover, multiple sources of data were triangulated to establish greater credibility in the findings. This triangulation entailed a comparison between the interviews, diary entries and observation data, and the survey data.

In the current study, survey questionnaires were used to measure the properties and objective aspects of the problem, while interviews, diaries and observations were implemented to try and understand and describe the subjective aspects (see Table 3.1, below). This involved starting with the quantitative findings, following which qualitative research instruments were used to better explain the results of the survey questionnaire (see also Figure 3.3, above).

3.9. Methods - Data Collection and Data Sources

In the present study, multiple sources of data were collected as a way of triangulating the credibility of the findings and uncovering multiple interpretations of the phenomena. With regard to triangulation, the use of multiple data sources to establish greater credibility in the findings involves establishing "converging lines of inquiry" (Yin, 2013, p.98). As mentioned earlier, data were therefore collected using classroom observations, surveys and interviews, in order to answer specific research questions, as outlined in the following Table (Table 3.1, below).

Table 3.1: Use of research instruments to answer specific research questions

Research Questions		***Participants***	***Research Method***
1	How do Kuwaiti HE students use technology in their academic and social lives to connect informal learning to the formal learning environment	Students	Interview/Observation/ Diaries
1(a)	What factors influence that use?	Students	Survey
2	How do Kuwaiti HE teachers use technology to support their teaching practice?	Lecturers	Interview/Observation/ Diaries
2(a)	What factors influence that use?	Lecturers	Survey
3	What are the lecturers' pedagogical beliefs with regard to the use of technology to support student learning?	Lecturers	Survey/Interview/Diaries

3.9.1. The Survey Questionnaire

The rationale for using surveys for data collection in this study was the fact that they are structured and can provide a researcher with a baseline set of information. This would reveal how students and lecturers use emerging technologies for academic purposes and their social lives. Surveys therefore align with the post-positivist view and complement interpretive data collected through in-depth interviews. The purpose of survey research is to provide data which can be generalised from a sample to a population, so that inferences can be made about the characteristics, attitudes and behaviour of that population. The justification for using questionnaires as a data collection instrument in this instance was based on previous studies examining the application of technologies in HE; for example, Swan and O'Donnell (2009), Taylor and Clark (2010), Laxman (2011) and Flavin (2012).

In the survey questionnaire for the present study, a five-point Likert scale was integrated as a measurement instrument. A Likert scale is a valid measure for research attempting to gather opinions on education (Sullivan & Artino, 2015). The lecturers' questionnaire consisted of 14 statements (Appendix 1a), while the students' questionnaire comprised

37 statements (Appendix 1b). All these items dealt with feelings, beliefs and opinions about technology use/technology integration in HEIs.

The survey items were selected from validated questionnaires, because they were considered appropriate for measuring the concepts relating to this study and therefore appropriate for answering the research questions. The items in the lecturers' survey (Appendix 1a) and the student survey (Appendix 1b - Items A: 1-9) were adapted from Innovative Technologies for an Engaging Classroom (iTEC), a teachers' survey and a students' Power League activity (Oldfield, 2012). Items B: 1-8 in the student survey were adapted from The Social Media Learning Scale (SML.v.1.0), created by Knezek, Mills and Wakefield (2011), while Items C: 1-10 were taken from the Information and Communications Technology Learning (ICTL v1.0) survey, created by Mills and Knezek (2011) and validated by Mills, Knezek and Wakefield (2013). The final section of the student survey (D: 1-10), relating to the use of technology for social purposes, was adapted from Pew Internet and American Life Project's 'Social Networking Websites and Teens Survey' (Lenhart et al., 2010).

The iTEC instrument was chosen because it is the largest pan-European test of learning and teaching using ICT. It was funded by the European Commission, having been commissioned in 2011 by the European Commission's Directorate General of Communications Networks, Content and Technology. Its purpose is to benchmark access, use and attitudes to ICT in schools in many countries within the European Union (EU) (Oldfield, 2012). Power League is another online tool designed to stimulate discussion; it requires students to place items within a theme in order of preference. This was used here in conjunction with iTEC. The aim of the Power League activity was to gather and analyse students' perceptions of what they would prefer to see in future classrooms, with particular emphasis on the use of technology (Oldfield, 2012).

The iTEC and Power League instruments provided a mechanism for capturing a wide range of teachers' attitudes and perspectives, in order to help shape the process of scenario development and ensure that this important perspective contributed directly to these scenarios (Oldfield, 2012). Social Media Learning Scale Information was also selected, as it has previously been validated, although the adaptation of a validated tool can actually reduce its validity. This instrument is nevertheless considered useful for measuring participants' disposition towards learning with ICT social media tools, as well as gathering their perceptions, attitudes and self-reported daily technology use (Mills & Knezek, 2011). Meanwhile, the ICTL survey was selected because it has been validated to help address questions related to how students prefer to utilise ICT for information-seeking, information-sharing and knowledge acquisition (Mills & Knezek, 2012). On the other hand, the rationale for adapting questions from the Pew Internet and American Life Project's 'Social Networking Websites and Teens Survey' was based on them satisfying the requirements of the present research on the use of technology for social purposes.

Nevertheless, although all the selected instruments had previously been validated, the survey items were further developed after reviewing earlier studies, in order to demonstrate content validity. Moreover, they were also submitted to a panel of experts for review and then pilot-tested on selected students and lecturers who were not part of the research sample.

3.9.1.1. Validating the Questionnaire

Factor Analysis was applied to validate and construct the questionnaire. The rationale underpinning this choice of Factor Analysis was the need to investigate the validity of the questionnaire, as opposed to actually analysing the questionnaire itself. Factor Analysis consists of a series of steps to identify the most important factors of students' and lecturers' perceptions of technology use. These include running correlations between variables, creating a Correlation Matrix and carrying out tests for factorability, such as the Kaiser-Meyer-Olkin (KMO) Test of sampling adequacy, Bartlett's Test to identify relationships between variables, and Cronbach's Alpha to measure the internal consistency or reliability of questionnaire items. Scree plots were then created to interpret the variance explained by each factor in the analysis.

As mentioned above, factorability tests were carried out using the KMO Test of sampling adequacy and Bartlett's Test. The KMO measure of sampling adequacy "represents the ratio of the squared correlation between variables to the squared partial correlation between variables" (Field, 2009, p.647). This measure suggests that any component with an eigenvalue greater than 1.00 can be retained and interpreted. For the purpose of this research, a minimum value of .6 for determining factorability was considered (Tabachnick & Fidell, 2007). As the KMO value fell between 0.7 and 0.8, it was assumed that the correlation patterns were relatively solid (Table 3.2, below). Therefore, the Factor Analysis was deemed to produce a clear and reliable result.

Bartlett's measure was implemented to identify any relationships between the variables. This measure is generally used if the value of significance is less than 0.05. In this instance, the data indicated a highly significant result from the Bartlett's Test ($p < 0.001$).

KMO Range	Recommendations
0.90 to 1.00	Marvellous
0.80 to 0.89	Meritorious
0.70 to 0.79	Middling
0.60 to 0.69	Mediocre
0.50 to 0.59	Miserable
0.00 to 0.49	Unacceptable

Figure 3.4: Suggested KMO values (*Source: Field, 2009*)

Table 3.2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.776
Bartlett's Test of Sphericity	Approx. Chi-Square	2095.068
	df	666
	Sig.	.000

In order to measure the internal consistency or reliability of the items, Cronbach's Alpha was also utilised. Items are considered to have an acceptable level of internal consistency, if the Alpha value is greater than 0.7 (Nunally, 1978; Streiner & Norman, 2008). Other researchers advocate that an α of 0.8 is reliable (Field, 2009). This questionnaire proved to be very reliable, since α= .839 (see Table 3.3, below).

Table 3.3: Cronbach's Alpha

Reliability Statistics	
Cronbach's Alpha	Items
.839	37

3.9.1.2. Translating the Questionnaires

The questionnaire items were also translated into Arabic. Translating questionnaires is a cultural as well as a linguistic issue, because ideas must be converted from one language to another (Fiolo et al., 2014). The services of an independent translator were employed to translate the questions from English into Arabic and these were then translated back into English by another expert. The reason for adopting this strategy was to ensure that the richness, meaning and cultural flavour of the source were not lost in translation; for example, research-related terminology, the appropriateness of the wording, nuances and idiomatic expressions (Halai, 2007). The result of this process not only produced a complete translated version of the questionnaire, but also enabled cultural and linguistic validation of the translated instrument.

3.9.1.3. Survey Population/Sample

The survey questionnaires were administered with the aim of collecting a wide range of data and providing evidence of patterns amongst the population being studied. In this initial stage, participating students and lecturers from within the College of Basic Education at PAAET voluntarily completed the survey instrument. However, determining the sample size was a complex process, as this study involved a combination of qualitative and quantitative research approaches.

Sample size (the members of a study population selected for a study) is important for several reasons. Surveys are mainly used in quantitative research, but can also be applied in mixed methods research. In quantitative research, size is an essential factor in the selection of a sample that will represent the population and enable the results to be generalised to the target population (Omair, 2014). It is argued that a study with a small sample size may be a waste of time, as it will not produce worthwhile results or advance knowledge; although a study with a very large sample size can equally result in time and resources being wasted (Lenth, 2001). More importantly, large sample sizes are claimed to unnecessarily expose subjects to the risks involved in taking part in a study, however minimal these may be (Lenth, 2001).

In quantitative studies, it is common for researchers to consider certain key factors when determining the required sample size, for instance the confidence level (set at 95%), smaller confidence intervals (for example 5%), and the required margin of error/accuracy acceptable for a study (Omair, 2014). Based on these theoretical assumptions, there are claims that the minimum acceptable sample size is 10% of a population (Gay & Diehl, 1992).

Nevertheless, Onwuegbuzie and Collins (2007) argue that most debates concerning sample sizes have a tendency to contradict each other and are misleading. For instance, small samples are associated with qualitative research and large samples are associated with quantitative studies. However, the above authors also suggest that it can be equally appropriate to use small samples in quantitative research and large samples in qualitative research, as long as the researcher can justify this. Another false dichotomy is that random sampling techniques can be used in quantitative studies, while non-random sampling methods are associated with the qualitative paradigm. In fact, it is argued that both random and non-random sampling can be equally used in quantitative and qualitative studies (Onwuegbuzie & Collins, 2007).

There are numerous sampling strategies that may be adopted by mixed methods researchers, but these especially include either probability or purposive sampling methods (Teddlie, Tashakkori & Johnson, 2008). With regard to sample size in mixed methods research, if probability (random) sampling is used, a sample of 50 is considered adequate for establishing representativeness (Teddlie & Yu, 2007). In spite of the pragmatic approach of the present researcher, whose intention it was to survey a fairly substantial sample size within the time and according to the resources available, a random sampling technique was used. The objective was to ensure that the sample represented the population being studied. Questionnaires were sent out to all 20 departments within the College of Basic Education. 4800 students were enrolled at the College of Basic Education at the time of the study, with 351 faculty members employed (see Table 3.4, below). Out of this large sample, only 205 students finally consented to take part and completed the questionnaires. On the other hand, 5% (N=21) of the lecturers were chosen to complete the questionnaires. In this case, the only criteria for inclusion imposed by the researcher were that the respondents had experience and interest in using technology in classrooms. The participants returned the completed questionnaires and department heads forwarded them to the researcher.

Table 3.4: Sample size - Students and lecturers from the College of Basic Education selected for the survey

College of Basic Education	*Number of Students*			*Number of Faculty Members*		
	Male	*Female*	*Total*	*Male*	*Female*	*Total*
Total students/faculty members	*1720*	*3080*	*4800*	*185*	*221*	*351*
Study sample	*69*	*136*	*205*	*9*	*12*	*21*

3.9.1.4. Questionnaire Data Collection Process

The survey questionnaires were not administered via e-mail to the students and lecturers, but rather distributed to them prior to the commencement of lectures. The lecturers were asked to allow the students 10 minutes to complete the questionnaires, while the lecturers themselves were asked to complete their questionnaires after the interviews. The completed questionnaires were then collected at the end of the classes.

3.9.2. Interviews

While the survey questionnaire was highly structured, allowing participants to respond to prompts by selecting appropriate responses from predetermined answers (for example, Likert scales and multiple-choice responses), the interviews were semi-structured and consisted of open-ended questions. This was in order to elicit responses from the participants, encouraging them to provide details and clarification. Structured survey questionnaires and semi-structured interviews are often used in mixed methods studies to generate confirmatory results, despite differences in these methods of data collection, and in their analysis and interpretation. Furthermore, in-depth interviews are conducted to gain some understanding of participants' views in relation to the baseline data. The interview is one of several possible tools for primary data collection. Any purposeful discussion between two or more people, aimed at collecting valid and reliable data may be considered as an interview (Saunders et al., 2012). A structured interview involves a predetermined set of questions, which are not flexible and cannot be restructured. However, an unstructured interview is an opposite approach, where the interviewee is able to informally and freely express his or her own points of view, without any direction at all from the interviewer. In between these two extremes, a semi-structured interview is moderately controlled; it is in fact a non-standardised interview and according to King (2004), is often referred to as a 'qualitative research interview'. In this study, therefore, semi-structured interview questions were formulated.

In order to provide a clear rationale for the use of interviews and questionnaires in this mixed methods research, the characteristics of both the above-mentioned research instruments need to be critically examined. While questionnaires are usually viewed as a more objective research tool that can produce generalisable results, due to the large sample sizes, results can be threatened by many factors, including faulty questionnaire design; sampling and non-response errors; biased questionnaire design and wording; respondent unreliability, ignorance, misunderstanding, reticence or bias; errors in coding, processing and statistical analysis, and the faulty interpretation of results (Harris & Brown, 2010). Moreover, questionnaire research can be considered as depending heavily on instruments and is thus detached from daily life, with evaluation methods creating an inauthentic or false sense of accuracy (Bryman, 2008).

However, despite any shortcomings which may be highlighted, interviews also have several advantages. For instance, the presence of the researcher means that complex questions can be explained to the interviewees, if necessary (Phellas, Block & Seale, 2012). In addition, there is more scope for asking open questions, since respondents do not have to write down their answers. Moreover, the researcher can pick up on non-verbal signals (for example, facial expressions, gestures, and the tone and pitch of the voice). From these non-verbal signals, researchers can obtain additional information and meaning, over and above spoken (verbal) communication. They will also gather relevant information from the way in which participants respond to different questions. Yet another advantage is that the interviewer can control the context and environment in which the interview takes place (Phellas et al., 2012). For instance, the interviewer can ensure that the questions are asked and answered in the correct order and that the interview takes place in an appropriate setting, conducive to accurate responses.

Conversely, as mentioned earlier, interviews are not without their limitations. For example, face-to-face interviews generally take longer to conduct than self-completed questionnaires and participants are likely to be put off by this, therefore giving up halfway through (Phellas et al., 2012). The costs associated with face-to-face interviews can also limit the size and geographical coverage of a survey. Moreover, interviewers may introduce bias, which is likely to affect the reliability of the responses. Such bias could emerge from the way in which questions are asked, or the personal characteristics of the interviewer, or else the respondents' desire to give socially acceptable responses (Phellas et al., 2012).

However, despite the weaknesses of both questionnaires and interviews, these are important means of obtaining direct responses from participants about their understanding, conceptions, beliefs and attitudes; hence, these methods cannot and should not be discarded (Harris & Brown, 2010). While questionnaires can provide evidence of patterns across large populations, qualitative interview data often gather together more in-depth insights on participants' attitudes, thoughts and actions (Harris & Brown, 2010).

Questionnaires and interviews are seen as having differing and possibly complementary strengths and weaknesses. For example, the questionnaire is viewed as a more objective research tool, which can produce generalisable results from the large sample sizes it permits, whereas interviews are considered as more subjective research instruments. They allow researchers an understanding of how people construct a sense of their world. However, the two instruments were not used concurrently in the present study; the interviews followed the survey, as the goal was to expand upon the questionnaire findings by obtaining richer, additional and complimentary information.

The primary objective of the interviews was in fact to match participants' quantitative descriptions (devoid of their perceptions, inclinations, sensitivities and sensibilities) with their qualitative interpretations. In other words, the interviews were intended to provide more depth and breadth for the questionnaire responses. Subjective interviews not only provide a context for quantitative results and expand on participants' interpretations of relevant questionnaire items, but also offer new information on survey questions, which may not otherwise be obtained (Ballou, Roff & Anderson, 2010).

3.9.2.1. Development of the Interview Questions

In this study, a list of questions was developed to guide the interviews, based on specific themes connected to the research questions (Interview Questions for Lecturers: Appendix 1(c) and Interview Questions for Students: Appendix 1 (d)). The questions were developed based on the main research questions in the study and the literature reviewed. Broad areas of knowledge relevant to answering the research questions were drawn upon to develop the interview questions. Probes were also included to elicit more detailed and elaborate responses to the questions formulated.

The interviews were conducted face-to-face and one by one, with a non-standardised approach and Arabic as the primary language. As mentioned earlier, the rationale for using interviews as a data collection instrument stemmed from their application in previous studies on technology implementation in HE; for example, Allan, Clarke and Jopling (2009), Taylor and Clark (2010), Waycott, Bennett, Kennedy, Dalgarno and Gray (2010), Laxman (2011) and Flavin (2012).

3.9.2.2. The Interview Sample

A purposive sampling technique was used to select the interviewees. Decisions about how many respondents to interview were guided by pragmatic questions of time and cost (Shah, 2012). Purposive sampling is a type of sampling, where individuals are purposefully selected, based on the assumption that they possess the relevant knowledge to provide important information (Teddlie & Yu, 2007). Initially, the aim was to select 12 lecturers; however, only eight of these consented to take part. These were purposively selected from the College of Basic Education, after the questionnaires had been completed and returned. The participants in the qualitative phase were selected from among those who had completed the questionnaires. The lecturers were then asked to recommend students for interview, especially those who used technology for their learning and social lives. They consequently helped identify 14 students.

The present research participants were selected after examining the sample sizes recommended in the literature (Creswell, 2013; Mason, 2010). Creswell (2013) argues that the sample size will depend on the approach adopted by the researcher and recommends 4-5 cases as sufficient for a case study; 20-30 participants for Grounded Theory methodology; 1-2 cases for narrative inquiry, and 3-10 participants for qualitative phenomenological research. Mason (2010) carried out a review of qualitative sample sizes in PhD dissertations and found that sample sizes ranged from 10-40. These recommended sample sizes provided valuable direction for the current study and resulted in the selection of eight lecturers and 14 students.

As mentioned earlier, the sample was selected based on the knowledge that the participants were technology users (see Appendix 5 for information on the technologies used by the students). However, there are two other general considerations to be borne in mind, when determining sample size for qualitative studies: saturation or redundancy, and the sample size required to represent variation within the target population (Onwuegbuzie & Collins, 2007). Saturation or redundancy refers to selecting a sample large enough to allow for the identification of consistent patterns, until concepts or themes become redundant. These criteria were not applied in determining the sample size for the present study. Instead, the key point was that the sample would simply be large enough. This would enable the researcher to hear most or all of the potentially significant opinions concerning the research topic. However, in order for these valuable opinions to be heard, the subjects needed to be knowledgeable and this was one of the main criteria for selecting the lecturers and students in this study. The rationale for selecting faculty members was based on their perceived experience in the respective field (see Appendix 5a), and in their use of technology for teaching and obtaining a wide range of information.

3.9.2.3. Interview Data Collection Process

One of the most important factors considered before conducting the interviews in the present study referred to the setting. All the interviews were arranged by consulting with the participants and after mutually agreeing to meet at a convenient and comfortable location, which would also provide privacy for the participants. Moreover, this location needed to be free of distractions, be easily accessible for the respondents and possess a facility for audio- or video-recording.

Trustworthiness is crucial for ensuring and enhancing the rigour of qualitative research (Squires, 2009). To ensure trustworthiness, the audio-recordings were transcribed into Arabic text and then translated into English by the researcher. The researcher did not want to employ the services of a translator at this early stage, due to the fear that the trustworthiness of the qualitative research would be threatened (Squires, 2009). The translated text was then re-translated into Arabic by an external translation agency and a member check was carried out by presenting the back-translated script to a lecturer at the College of Basic Education, Kuwait. This exercise was carried out to ensure that the meaning did not get lost during or through the translation process (Filep, 2009).

All the interviews were digitally recorded and this formed the basis of the data analysis. The interview data were recorded on mobile devices, such as phones and tablets, with the participants’ permission. In addition, the data, especially non-verbal cues, were handwritten as notes and kept in a book designated for that purpose. Thus, the transcription of the raw data included word-for-word quotations of the participants' responses, as well as the interviewer's descriptions of their characteristics, level of enthusiasm, body language and overall mood during the interviews. In other words, the notes taken during the interviews complemented the recorded data.

3.9.3. Observations

This method involves simply observing what happens to a single participant or group of individuals in a particular setting (such as in a classroom environment). In the present study, classroom observations were also carried out to gather more detail on how technology was actually being used by the lecturers and students. Furthermore, observation is a pre-planned research tool, purposefully carried out to serve research questions and objectives. By using this method, a researcher observes interaction and events in a classroom as they naturally occur (Burns, 1999). Observations therefore involve collecting qualitative information about human actions and behaviour in the context of social activities and events, and within a real social environment, such as during classroom teaching and learning (Cohen et al., 2011). In the present research, observations were used to support the researcher while conducting the interviews, especially when discussing with the lecturers what had transpired in the classroom when ICT was integrated for teaching. This was to gain some idea about the technologies actually available in the classroom within the respective context. In other words, the rationale for the observations was to substantiate or corroborate the interview findings and diary entries.

There are in fact two main observation strategies: participant observation and non-participant observation (Bryman, 2008; Cohen et al., 2011). Participant observation involves the researcher directly participating in and integrating into the group under study, while at the same time noting the other participants' actions and behaviour. The observer, as a participant, can inform the participants in a study about his or her participation in the social activity (Bryman, 2008; Cohen et al., 2011). In contrast, a non-participant observation technique only involves the researcher in the capacity of observer, merely watching and recording classroom activities, without any involvement (Bryman, 2008; Cohen et al., 2011). In this study, the researcher used a non-participant observation technique.

Non-participant observation is observation that involves limited interaction with the people being observed. Here, the present researcher wished to study how the students and lecturers interacted and behaved in classrooms where ICT was used for teaching. The benefits of non-participant observation are that through immersion and prolonged involvement in a setting, the researcher can develop a rapport with the participants and foster free and open communication with them. This facilitates an in-depth and rich understanding of a phenomenon, situation and/or setting, as well as the behaviour of the participants within it. Observation is therefore an essential part of gaining an understanding of naturalistic settings and participants' perspectives.

Aside from the above, it must be borne in mind that observations are usually conducted using a protocol. The Teaching Dimensions Observation Protocol (TDOP) (Hora, Oleson & Ferrare, 2013) was applied for the classroom observation in this instance. TDOP was originally developed as part of an empirical study on the determinants of post-secondary teaching practices. Data obtained using TDOP can be used for a variety of purposes, including research on classroom practice, programme evaluation, faculty development and institutional assessments (Hora et al., 2013). There are other protocols, namely the UTeach Observation Protocol and Teaching Attributes Observation Protocol

(TAOP), which have not yet been applied to the observation of lecturers in HE. The reason for choosing TDOP in this case was that it had previously been tested and validated by Hora and associates (Hora et al., 2013).

3.9.3.1. Observation Population/Sample

Lecturers and classrooms were selected for study after the researcher had met with the relevant department heads. The lecturers were chosen from among those who had consented to be interviewed. They then helped identify the classroom sessions where technology would be optimally used. Thus, for the observation, four lecturers were selected; each being given the opportunity to choose two classroom sessions in which to be observed. Students were not specifically determined for observation, as they were already an integral part of the respective classrooms. These classroom sessions were of 30-45 minutes' duration.

3.9.3.2. Observation Data Collection Process

Observations were carried out to discern whether there were any differences between the technologies used by the students and the teachers, whether inside or outside the classroom (e.g. laptops, smartphones and Android tablets). Instances of student and teacher movement in the classroom; student and teacher vocalisations; student interactions with ICT and other resources; student and teacher positioning, and lesson organisation were especially taken into account. The observations also included looking at how comfortable the above sample were in using the respective technology, especially those components they were exposed to in the classroom, such as teacher-controlled interactive whiteboards, multimedia content and video-streaming presentations. Classroom interaction, student engagement and instructional practices were all carefully observed.

The observations began with pre-observation interviews with the lecturers, who were asked basic questions about their intentions behind using ICT in lessons. After the lessons, post-observation interviews were carried out with these same lecturers, whereby they were asked about the students' behaviour exhibited during the observation and when using ICT in class.

The pre-observation interviews incorporated questions on the topic/subject and on whether the lecturers had a written lesson plan. They were also asked about the technology they would use for the lessons. Moreover, the post-observation interviews primarily involved questions on the lecturers' beliefs concerning students' behaviour and learning in the observed lesson. Specifically, these questions enquired whether the lecturers thought the students stayed on-task and they were asked to list the factors affecting the lesson and students' behaviour when ICT was incorporated. The lecturers were also asked what they thought the students had learned through the use of ICT in the lesson observed.

The observation consisted of four levels: the first concerned what had transpired in the classroom; the second pertained to what the researcher had observed, and the third level involved recording the observation. Finally, notes were taken (Kawulich, 2005). From the pre-observation interviews, it was apparent that all the lecturers had a written lesson plan. The technologies integrated laptops, the Audience Response System and PowerPoint. Moreover, the lesson plan consisted of the delivery of a short lecture, using online materials or PowerPoint, group discussion and a quiz.

Detailed field notes about lecturers' practices, the technology tools used and student engagement were consequently taken during the observations. The participants were observed in a closed setting and as the researcher was not a participant observer, it was considered appropriate to use field notes to complement the audio-recordings during data collection, as they precisely indicated who was saying or doing what in the classroom. Field notes can capture unstructured observations; for example, the ways in which lecturers manage their classes/lessons.

A few deviations were made from the adapted observation schedule – TDOP (Hora et al., 2013), as mentioned earlier. For instance, the scales and scores in the original protocol, used to measure abstract concepts, were replaced by an abbreviated form of each item, in order to capture the lecturers' behaviour. Besides, the data were not analysed in the way prescribed by the original developers of the schedule. This is because observations are qualitative in nature and numerically coded data (data translated into numbers) are not necessary for such analysis.

3.9.4. Documentary Analysis (Students' and Lecturers' Diaries)

Documentary analysis is a means of collecting qualitative information from a primary or original source of written, printed or recorded material, in order to address research questions (Creswell, 2008). Documents can provide evidence of authentic activities undertaken by human beings in social organisations and within human thought. The documents scrutinised in this study included the lecturers' and students' diaries.

Diaries are data collection tools that can promote an understanding of participants' reflections on a phenomenon of interest (Duke, 2012). The benefits of diaries are that they minimise the problems of 'recall', because the events/phenomena are recorded (i.e. data are generated) as and when they occur. Moreover, they are an economical method and the resulting rich data can be used for triangulation. Moreover, the use of diaries can help identify the actual behaviour of the participants, which might not always be possible to detect during classroom observations (Duke, 2012). However, the disadvantages are that diary entries may be haphazard and it is difficult to confirm the accuracy of the data involved.

3.9.4.1. Diary Sampling Framework

Eight lecturers were approached in person to keep diaries. These lecturers were chosen from among those who had consented to be interviewed and agreed to be observed during the classroom sessions. Three out of the eight were then asked to nominate four students each to keep diaries.

3.9.4.2. Diary Data Collection Process

A semi-structured diary schedule (Appendices E and F) was designed to elicit information on the students' perceptions of how the lecturers used technology in the classroom and the impact of these technology-based teaching strategies. The diaries used were not only sufficiently well-structured to generate good-quality data, but were also designed for making comments and reflections. The diary schedule helped the students and lecturers make notes to record their reflections and personal reactions to their experiences of using technology for academic and social purposes. The participants kept diaries after a week of lessons taught using different technologies.

3.10. Ethical Implications

3.10.1. The Researcher's Role

The inclusion of a qualitative phase within the mixed methods research design applied in the current study resulted in the researcher being more involved in a continued and intensive experience with the participants. This led to several strategic, ethical and personal issues (Locke, Alcorn & O'Neil, 2013). I, the researcher, built a rapport with the participants, which could have unduly influenced my interpretations. However, care was taken to avoid exerting an overt influence or exclusively collecting information considered convenient and easy to collect. Due to these concerns, I also took pains to clearly identify any bias caused by my relationship with the participants and the relevant culture, which could have shaped my interpretation of the study results. For example, my experiences could have influenced me to focus on specific themes and actively look for evidence to support the claims, or else to draw favourable or unfavourable conclusions about the participants. It was necessary for me to make a mindful decision to focus on the participants' own accounts and care was taken to avoid imposing my own views during the interviews. In addition, I was aware of the fact that there is no clear distinction between subjectivity and objectivity when carrying out research in an authentic setting:

> Researchers always view through their lens. There are no objective observations, only observation socially situated in the worlds of the observer and the observed. Subjects, or individuals, are seldom able to give full explanations of their actions or intensions. All they can offer are accounts, or stories, about what they did and why. (Denzin & Lincoln, 1994, p.12)

I therefore built up an understanding by questioning, observing and interpreting the participants' actions and opinions, despite being aware that my beliefs, values and experiences could affect the information obtained. Regardless of my own values and beliefs, however, no attempt was made to let these influence the research process; for example, when translating the questionnaires and interview transcripts, or when interpreting the findings. Finally, in order to protect confidentiality, numbers were assigned to students and the names of lecturers were replaced with pseudonyms.

3.10.2. Research Issues

Prior to the commencement of a study, researchers are expected to pre-empt some of the ethical issues that may arise beforehand, whether at the outset, during data collection and analysis, or when reporting, sharing and storing data (Mertens & Ginsberg, 2009; Salmons, 2010; Creswell, 2013). These issues not only apply to qualitative and quantitative approaches, but also to mixed methods research and may occur at any stage of an investigation. Some of these issues and the ways in which the problems were addressed in this case are described below.

Prior to the start of the research, ethical permission was obtained from the University of Exeter University. Approval from PAAET in Kuwait was sought and received, given that this was the government body sponsoring the research programme, as well as the research setting. As the interviews were conducted on the college campus, the researcher visited the site, especially the classrooms, cafeteria and lecturers' recreation rooms. In addition, consent was obtained from the participants. All the participants agreed to be interviewed, as the site was safe and conducive to formal and informal meetings. Moreover, the site chosen did not raise any questions of power or influence in the study.

A meeting was held with the study participants prior to the data collection, whereby the researcher explained the purpose of the study and the sequence in which data would be collected. This first step helped the participants understand the purpose and procedures of the study. However, they were not coerced into signing consent forms. The researcher was aware that when gathering data - in other words, collecting in-depth information through interviews, observations and diaries, thus acquiring personal information from real people - it was important to be ethical in the process and treat the participants with respect (Creswell, 2015). As a result, their gender, age and culture were considered and respected during the research. As the researcher is also from Kuwait, there was a clear understanding of the norms and traditions that prevail in Kuwaiti society. However, the population in this instance comprised non-vulnerable adults and the issues discussed were not sensitive. All the participants were treated equally and the researcher used the local vernacular (Arabic) and honoured local social customs, in order to build trust.

Moreover, as the interviews and observations were to be audio-recorded, the researcher obtained prior consent to this from the participants. The purpose of obtaining consent (informed consent) from participants and meeting them individually was to clarify the potential benefits of the study to them, as well as their right to a copy of the results. They also needed to be reassured that the research report would be free of bias towards any particular group (such as with regard to age, ethnicity, sexual orientation, race, gender, etc.) (Terrell, 2011). Besides, care was taken to remain truthful and accurate during the data collection and analysis, with no recourse to deceptive practices (Creswell, 2015). For example, although questions were used to elicit information, follow-up questions were not put to the participants and this consequently avoided potentially leading responses (Greene, 2005).

Interview transcripts were also handed out to those participants who requested them, together with an additional consent form for permission to use personal data. This was done "to ensure that the interviewees feel comfortable and that their willingness to co-operate is never abused' (Bowden, 2005, p.31). Adequate thinking time was given to the respondents before answering the questions (Jackson, 2013) and they were assured of their liberty to refuse to answer any question, to which they did not feel they could respond. This ensured trust between the researcher and the respondents.

The researcher was consequently ethical in surveying, interviewing, observing and using participants' documents (diaries) and ensuring that they had the right to autonomy: they were briefly informed of the aims and content of the research and that their participation was voluntary, with their confidentiality and privacy being respected (Terrell, 2011; Creswell, 2015). This was done by rendering the research participants anonymous by removing all identifying information from the research data and assigning a pseudonym to each participant, for use during the data analysis and when reporting the findings.

In the findings, therefore, the researcher refrained from misrepresenting authors, evidence, data, findings and inferences (Lincoln, 2009; Creswell, 2013). The information collected; for example, raw data, statistics, software files, and results were stored safely using a cloud computing application. Finally, copies of the report were given to the participants and other stakeholders.

3.11. Relationships between the Data Collection Methods

The questionnaire survey explored the frequency of some of the problems noted in the observation and some of the participants' perceptions of using ICT. The interviews then provided an opportunity to explore the participants' perceptions and the pedagogical beliefs of the lecturers more closely. The classroom observations of the lecturers and students followed the completion of the questionnaire and the interviews. The questionnaire and interview results were in fact analysed immediately, before the observations took place, with the interviews being planned for October.

There were many items included in the questionnaires, interviews, observations and diary schedules. All the elements of the four research instruments mentioned above must be understood as concepts contained within the research questions. The questions in the respective instruments were designed to ensure a good relationship between these concepts and their indicators. Care was also taken to clearly render the concepts easy to understand.

Both participant observation and qualitative interviews involve a researcher encountering the population and events under study with a relatively open mind about what might prove to be relevant to the research problem being addressed. Although the instruments in question here are qualitative in nature, a structured approach was nevertheless adopted. This meant that the researcher ascertained in advance what kind of event or response would be counted as relevant to the research problem (Phellas et al., 2012).

As the data collection included four sources – questionnaires, interviews, observations and diaries - there were multiple opportunities for triangulation. This was accomplished by comparing the students' and lecturers' responses to the interview questions with the surveys, and with information from the lesson observations and diaries.

3.12. The Pilot Study

Piloting a research instrument, especially survey questionnaire items, interview questions or observation schedules developed by other researchers is the final step in designing a questionnaire or interview/observation schedule. Such tests are carried out with a small number of participants, prior to conducting the actual research. The literature suggests that questionnaires be tested on individuals whose demographic characteristics are similar to those of the respective participants; or else a researcher may use friends or colleagues to respond to the questions (Phellas et al., 2012). Pilot tests are expected to reveal unforeseen issues; for example, ambiguous words, a lack of clarity in the questions, etc. They also give an idea of how long it will take to complete the questionnaire or interview and will highlight any elements, which may need to be eliminated on the grounds that they are incapable of generating usable data (Phellas et al., 2012). Once the problems have been identified, researchers can make subsequent revisions, before disseminating the survey instrument in a larger study.

It is suggested that piloting should occur with experts, together with a small sample of the target population (Clark & Libarkin, 2011). In the current study, the instruments were reviewed by lecturers, fellow PhD students at the researcher's university and family members. In particular, the pilot-testing of the questionnaire revealed that novices (fellow students and family members) noticed certain aspects missed by the experts and this illustrates how novices and experts interpret questions differently (Clark & Libarkin, 2011).

Furthermore, the survey instrument was pilot-tested on participants who did not take part in the main study. These comprised both lecturers and students at the College of Basic Education. The goal of this pilot study was solely to validate the instrument and test its reliability. The results then helped establish the questionnaire's stability, internal consistency, reliability, and face and content validity. Based on the pilot test results, some changes were made to the survey items.

3.13. Data Analysis

This section details the ways in which the quantitative and qualitative data were analysed.

3.13.1. Quantitative Data Analysis

As stated earlier, quantitative data were collected using a survey questionnaire. The survey data were entered into the Statistical Program for Social Sciences (SPSS 22), employed here for the statistical analysis. The analysis of the survey data involved the use of descriptive statistics to calculate the frequency, as well as the mean and standard deviations of the collected data. These statistics were applied to the research questions relating to lecturers' and students' perceptions of the application of technology in teaching and learning, and the extent to which the lecturers integrated ICT into teaching and learning processes.

After generating descriptive statistics, Factor Analysis was employed to measure the variables and finally, PCA was used to identify and extract factors. As the current study solely investigates students' and lecturers' perceptions, a one-tailed test was considered appropriate for the Factor Analysis. Factor Analysis was also used to explore the reliability and validity of the questionnaire, namely to enhance the validity and reliability of the items.

To elaborate on the above, Factor Analysis was used to measure the independent variables in the current study. It included running correlations between variables; creating a Correlation Matrix and carrying out tests for factorability, such as the Kaiser-Meyer-Olkin (KMO) Test of sampling adequacy, Bartlett's Test for identifying the relationships between variables (Table 3.2, above), and Cronbach's Alpha to measure the internal consistency or reliability of the items (Table 3.3, above). As stated earlier, scree plots were implemented to interpret the variance explained by each factor in the analysis. Moreover, PCA was applied in the extraction of data, which were then rotated to maximise high correlations between factors and variables and to minimise low correlation. The broad purpose of Factor Analysis and PCA was to summarise the data, so that relationships and patterns could be easily interpreted and understood.

A correlation was run between the students' and lecturers' perceptions of technology and all questionnaire items. In this Matrix (Appendix 3a/3b), the variables are clustered together, according to their correlations. This approach allowed the researcher to observe high and low correlations between the variables. From the Correlation Matrix, it may be seen that the determinant was lower than 0.00001, suggesting computational problems with the Factor Analysis. It may be concluded that the data were not appropriate for Factor Analysis, because of multi-collinearity and therefore, no sound conclusions could be drawn in such a way.

It was assumed that the Matrix would show at least some correlations of r=3 or greater for using the data and conducting the Factor Analysis. Therefore, only items with a correlation greater than r=3 were considered. The variables that failed to correlate with others are highlighted in green (Appendix 3a/3b), while all significant correlations are in red font (Appendix 3a/3b).

A Component Matrix (Appendix 3a/3b), containing the unrotated factor loadings or correlations between the variables and factors, showed correlation values ranging from -1 to +1. The next step involved rotating these components. The rationale for rotating the factors was to improve interpretation, since unrotated factors are ambiguous (Yong & Pearce, 2013). Rotation was performed after extraction to maximise high correlations between factors and variables and to minimise low correlations (Tabachnick & Fidell, 2007). Moreover, varimax rotation was deployed to minimise complexity and maximise the variance of each of the factors.

A scree plot that graphs the eigenvalue against the factor numbers also suggested retaining the 11 factors (Appendix 3a). Each point on the plot represents a specific factor. Only those factors with values above the point where the curve levels out were retained, demarcated by a line. Thus, 11 factors were retained, substantiating the eigenvalue ruling. Meanwhile, all factors below the break point were eliminated (Yong & Pearce, 2013).

Overall, Factor Analysis was used to identify the factors representing relationships between the group variables and not for testing hypotheses. PCA helped to identify and extract the factors; ascertaining which variables could be attributed to a factor, as well as giving that factor a name or theme, so that these labels or constructs reflected the theoretical and conceptual intent. The factors extracted in this study represent the critical factors of technology use for learning, viewed from the perspectives of students and lecturers in their academic and social lives.

3.13.2. Qualitative Data Analysis

An inductive approach was used, as not much is known about how students and lecturers use technology in HEIs in Kuwait. In other words, the intention was to generate new theory emerging from the data. The research questions pertaining to the qualitative phase of the research narrowed the scope of the study. Thematic content analysis was applied in the analysis of the interview transcripts; identifying themes within those data and gathering together examples of them from the text. Diaries were also analysed in this way. The analysis of the diary data was carried out to identify individuals' typical experiences and the differences in their opinions, as well as the processes underlying changes in their experiences (Bolger, Davis & Rafael, 2003). In order to identify these differences and experiences, the data were analysed thematically using NVivo computer-aided qualitative data analysis software. This software helped in coding and categorising the themes. The rationale for using thematic analysis was that it can identify patterns of meaning across a dataset, in response to research questions

(Braun & Clarke, 2006). One of the advantages of thematic analysis is that it is theoretically flexible, which suggests it can be used within different frameworks and to answer quite different types of research question. It is moreover appropriate for analysing questions/responses related to people's experiences, or individuals' views and perceptions (Braun & Clarke, 2006). The thematic analysis consisted of six phases, as suggested by Braun and Clarke (2006):

1) The first step involved getting acquainted (familiarising oneself) with the data, reading and re-reading it and making notes to record initial ideas.
2) Next, initial codes were generated by highlighting specific aspects of the interview responses and diary logs.
3) The next step involved searching for themes by gathering all coded data related to each potential theme.
4) The themes were then reviewed.
5) The reviewed themes were refined and renamed.
6) Finally, a report was produced, which included a selection of rich, compelling excerpts from the interview transcripts and diary logs.

The interview transcripts and diary logs were read and re-read, and notes were made to code the data. The data were then analysed using NVivo. The rationale for using NVivo was that it is considered to be a useful tool by researchers for coding information, theory-building and testing (Hutchison et al, 2010). Since the software is complex, however, only the basic NVivo tools were used for this analysis. The thematic analysis focused on identifying the key themes that emerged when students and lecturers narrated or revealed their perceptions of using technology for academic and social purposes. These initial themes were then organised, compared, reviewed and scrutinised to see if they were related. Redundant themes were subsequently isolated and either combined with others or discarded, if found to be insignificant.

The observation sessions were analysed by transcribing the respective collected data (Observation schedule and notes), based on the researcher's intuitive interpretation (Kvale, 1996). Narratives are transcribed experiences. Every observation in this study had a narrative aspect, which the researcher sorted and reflected upon, before enhancing it and presenting it in a revised format. The main idea was to reformulate observed scenarios as stories.

The collected data were then organised into a narrative, so as to tell the story of the classroom sessions; that is, by using the information against the items in the observation schedule, such as the field notes and audio-recording. The lecturers were asked to verify the responses/observations made, in order to ensure the trustworthiness of the data. Besides, the data were not analysed as prescribed by the developers of the original schedule (Hora et al., 2013). This was not only because they were qualitative in nature, but because there was no need to numerically code the data (translate the data into numbers).

3.14. Summary

This chapter revisited the research aims and questions, as well as articulating the philosophical assumptions underpinning the research and the adoption of a single paradigm approach. It then presented the context of this research and elaborated on the choice of research design. After providing the rationale for the choice of a mixed methods research design and outlining the methods used for collecting data, the chapter culminated with the procedures adopted for analysing the data. The factors identified by the EFA of the questionnaire and the themes that emerged from the thematic analysis of the interviews, diaries and observations were also presented.

Chapter Four: Findings

4.1.Introduction

This chapter presents the results of the analysis, taking into consideration the research questions and providing answers to them. These research questions were addressed using a mixed methods approach. The present study therefore applied various research instruments to find answers to the respective research questions. A brief summary of each approach adopted is tabulated below.

Table 4.1. Research questions, instruments and data analysis

Research Questions		*Instruments*	*Data Analysis*
1	How do Kuwaiti HE students use technology in their academic and social lives to connect informal learning to the formal learning environment?	Interview/Observation/Diaries	Thematic analysis
1a	What factors influence that use?	Survey	Descriptive statistics/Exploratory Factor Analysis (EFA)/principal component analysis (PCA)
2	How do Kuwaiti HE teachers use technology to support their teaching practice?	Interview/Observation/Diaries	Thematic analysis
2a	What factors influence that use?	Survey	Descriptive statistics/EFA/PCA
3	What are the lecturers' pedagogical beliefs with regard to the use of technology to support student learning?	Survey/Interview/Diaries	Thematic analysis

Questions about the factors influencing students and lecturers in the direction of using technology in the classroom were quantitatively analysed. This analysis was carried out using descriptive statistics and EFA. The survey data were analysed using SPSS 22, EFA and PCA and this enabled the statistical reduction of data, so that the most important factors of students' and lecturers' perceptions of technology use could be identified.

Questions on how the students and lecturers use technology for learning and teaching, and lecturers' pedagogical beliefs about the use of technology to support student learning were analysed thematically with NVivo 11. The qualitative data thus generated subjective data and complemented the more objective questionnaire data.

The findings from the quantitative surveys, qualitative interviews, observations and diaries and how those findings converged to build an inclusive picture of technology use at the College of Basic Education in Kuwait are presented in the following sections.

4.2. Findings from the Quantitative Data

This section presents the results of the questionnaire data analysis. Descriptive statistics, Factor Analysis and PCA were applied to analyse the survey data.

4.2.1. Students' Data

Descriptive statistics were used to compute the frequency, mean values and standard deviations of the construct items. This use of descriptive statistics helped the researcher to meaningfully describe and summarise the raw data, which consisted of 37 items (see Table 4.2, below). The item numbers correspond to their order in the survey instrument.

Table 4.2: Descriptive statistics – Student responses

#	Items	N	M	SD
A01	[It] motivates me to learn more.	205	4.42	.673
A02	The inability of a technology to fully support the Arabic language does not discourage me from using it for learning.	203	3.65	1.015
A03	It does not improve my academic performance.	205	3.91	.865
A04	It improves my personal skills (e.g. initiative, persistence).	205	4.25	.704
A05	It improves my social skills (e.g. teamwork, communication).	205	4.21	.848
A06	It does not improve my intellectual skills (e.g. problem-solving skills).	205	3.51	1.170
A07	It improves my critical-thinking skills (e.g. evaluating a resource for bias).	205	3.98	.829
A08	It improves my skills in using technology (e.g. use of online resources).	205	4.52	.670
A09	I do not receive support from my lecturers or the technical staff when I face difficulties.	205	3.06	1.161
B01	I feel a sense of community.	205	4.03	.945
B02	Learning becomes interactive.	204	4.16	.790
B03	Posting questions to my peers does not help me better understand my readings.	205	3.36	.985
B04	I am able to obtain feedback more quickly from my peers.	204	4.35	.678
B05	I do not receive feedback from my instructor any more quickly.	203	3.13	1.026
B06	I am unable to communicate effectively.	205	3.60	.906
B07	I can connect with my peers more easily than I can face-to-face.	205	3.92	1.212
B08	When permitted to contribute through social media, my ability to participate in classes is not increased.	201	3.31	0.992
C01	I would like to become a participating member of an online community.	205	3.81	1.014
C02	I cannot explore current topics of interest.	205	3.66	.944
C03	I am unable to share interests and reflections online.	204	3.61	1.006
C04	I will be able to enrol in classes to continue my education.	204	3.92	.841
C05	I cannot use Internet communication or other technology tools for self-expression.	205	3.52	1.002
C06	I can learn many things by interacting with other Internet users.	203	4.17	.988
C07	I can use Internet communication technology tools when I want to learn about something new.	205	4.41	.702
C08	I do not learn better in a traditional classroom setting.	200	3.22	1.051
C09	I can learn more when I regulate my own learning experience and seek information on things I want to learn about.	204	4.16	.753

C10	I can post information that might be of interest to other people.	205	4.27	.767
D01	Keeping in contact with friends and family becomes easier.	204	4.13	1.022
D02	Face-to-face social interaction becomes limited.	205	3.78	1.048
D03	I can stay in touch with friends and family I rarely see in person.	205	4.40	.784
D04	I am unable to focus on my assignments.	205	3.06	1.114
D05	I can post information that might be of interest to my friends and family members.	205	4.34	.741
D06	I will be able to communicate with people better than I do in face-to-face encounters.	204	3.65	1.170
D07	I can use it to release some of the pressure I face when doing assignments.	205	4.22	.794
D08	I can better balance the relationship between social media and academic study.	205	3.92	.884
D09	I have become physically inactive.	204	2.62	1.216
D10	I have become totally disengaged from real life.	205	3.37	1.261

Note: N=Respondents/M=Mean/SD=Standard deviation

The descriptive statistics demonstrated that there was considerable variation in the responses for each item on the scales. Meanwhile, Cronbach's Alpha had already shown that all the scales on the survey had high internal consistency (See Chapter Three, Table 3.2). However, the results of the descriptive analysis were not representative of the entire population and therefore, further analysis was required. This involved Factor Analysis of the 37 survey items.

4.2.1.1. Factor Extraction and Retention

In the previous chapter, Factor Analysis was initiated after factorability tests (KMO; Bartlett's measure) had provided support for the validity of the questionnaire. The next step, therefore, was to make the decision over which factors to retain, as this is a critical component of Exploratory Factor Analysis. The number of components extracted was equal to the number of variables analysed, meaning that the researcher needed to decide just how many of these components were truly meaningful and thus worthy of being retained for rotation and interpretation (Yong & Pearce, 2013).

It was initially expected that only a few of the initial components would account for a meaningful level of variance and later components would largely only account for trivial variance. The Correlation Matrix (Appendix G) had already reduced some of the variables to a smaller number of more manageable variables. Some of the variables with no significant contribution (less than r=3) were thereby eliminated. The Correlation Matrix showed that each item measured some aspect of the students' perceptions of technology use. Moreover, some of the items captured several unique aspects of technology use, which were not addressed by other items. The variance accounted for by successive factors is presented in Table 4.3, below.

Table 4.3: Principal component analysis (PCA)

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.902	18.655	18.655	6.902	18.655	18.655	4.114	11.120	11.120
2	2.885	7.798	26.453	2.885	7.798	26.453	2.837	7.668	18.788
3	2.033	5.494	31.948	2.033	5.494	31.948	2.460	6.649	25.436
4	1.774	4.795	36.743	1.774	4.795	36.743	2.014	5.442	30.878
5	1.552	4.195	40.938	1.552	4.195	40.938	1.922	5.194	36.072
6	1.419	3.834	44.772	1.419	3.834	44.772	1.754	4.742	40.814
7	1.338	3.616	48.388	1.338	3.616	48.388	1.664	4.498	45.312
8	1.223	3.305	51.693	1.223	3.305	51.693	1.662	4.492	49.804
9	1.149	3.106	54.799	1.149	3.106	54.799	1.467	3.965	53.769
10	1.132	3.061	57.86	1.132	3.061	57.860	1.380	3.729	57.497
11	1.024	2.769	60.629	1.024	2.769	60.629	1.159	3.132	60.629
12	0.987	2.667	63.296						
13	0.945	2.555	65.851						
14	0.904	2.443	68.293						
15	0.887	2.397	70.691						
16	0.837	2.261	72.952						
17	0.793	2.143	75.095						
18	0.743	2.009	77.104						
19	0.723	1.953	79.057						
20	0.676	1.827	80.884						
21	0.644	1.740	82.623						
22	0.624	1.687	84.31						
23	0.59	1.595	85.905						
24	0.555	1.501	87.406						
25	0.518	1.401	88.807						
26	0.491	1.326	90.133						
27	0.458	1.238	91.371						
28	0.433	1.170	92.541						
29	0.396	1.070	93.61						
30	0.383	1.034	94.645						
31	0.351	0.950	95.594						
32	0.334	0.903	96.497						
33	0.313	0.845	97.343						
34	0.282	0.763	98.106						
35	0.257	0.694	98.799						
36	0.236	0.638	99.438						
37	0.208	0.562	100.000						

PCA (see Table 4.3, above) shows eigenvalues that are variances of factors. These help determine how many factors to retain (Yong & Pearce, 2013). In the first set of columns, after the initial eigenvalues were computed, the initial number of factors was equal to the number of variables. In the second set of columns (eigenvalues), the variance in successively extracted new factors may be found, expressed as a percentage of total variance. The PCA of all 37 variables initially yielded 11 factors.

Table 4.4: Rotated components

Item	Variables	Component 1	2	3	4	5	6	7	8	9	10	11
A01	Motivates me to learn more					0.562						
A02	Inability of technology to fully support Arabic language does not discourage me from using it for learning	0.426										
A03	Does not improve my academic performance											
A04	Improves my personal skills (e.g. initiative, persistence					0.777						
A05	Improves my social skills (e.g. teamwork, communication)			0.452		0.42						
A06	Does not improve my intellectual skills (e.g. problem-solving skills)						0.703					
A07	Improves my critical-thinking skills (e.g. evaluating a resource for bias			0.49								
A08	Improves my skills in using technology (e.g. use of online resources)	0.493										
A09	Do not get support from my lecturers and technical staff when I face difficulties		0.676									
B01	I feel a sense of community			0.756								
B02	Learning becomes interactive			0.672								
B03	Posting questions to my peers does not help me understand my readings better						0.676					
B04	I am able to get faster feedback from my peers				0.435							
B05	I am not able to get faster feedback from my instructor		0.62									
B06	I am unable to communicate effectively		0.646									
B07	I am able to connect with peers more easily than I can face-to-face									0.76		
B08	I am unable to increase my participation in classes when I am allowed to contribute through social media								0.446			
C01	I would like to be a participating member of an online community.											
C02	I cannot explore current topics of interest	0.433										
C03	I am not able to share interests and reflections online		0.75									
C04	I will be able to enrol in classes to continue my education										0.77	
C05	I cannot use Internet communications and other technology tools for self-expression		0.458						0.403			
C06	I can learn many things by interacting with other Internet users	**0.45**										
C07	I can use Internet communication technology tools when I want to learn about something new	0.683										
C08	I do not learn better in a traditional classroom setting											-0.863
C09	I can learn more when I regulate my own learning experience and seek information on things I want to learn about	0.503										
C10	I can post information that might be of interest to other people	0.644										
D01	Keeping in contact with friends and family has become easier				0.525							
D02	Face-to-face social interaction has become limited					0.417						
D03	I can stay in touch with friends and family I rarely see in person				0.674							
D04	I am unable to focus on my assignments								0.597			
D05	I can post information that might be of interest to my friends and family members	0.581										
D06	I will be able to communicate with people better than I do in face-to-face encounters			0.463						0.436		
D07	I can use it to release some of the pressure I face when doing assignments	0.701										
D08	I can better balance the relationship between social media and academic study	0.597		0.423								
D09	I have become physically inactive							0.788				
D10	I have become totally disengaged from real life							0.711				

An excessive number of factors subsequently appeared and so the researcher decided to only use those with high factor loadings. In order to achieve this, the components were rotated. The rotated components (see Table 4.4, above) show the values of these factors.

The factors were rotated for ease of interpretation. The items were then clustered into six groups, defined by the highest loading on each item (see Table 4.5, below).

The next step involved revisiting the descriptive data, combining it with the Factor Analysis performed, individually scrutinising each item related to the factor, labelling the factors identified, and answering the research questions. Factors are completely abstract and made up of numerical units that are not apparent or obvious. These measures are therefore only useful, if they are given an identity (Beavers et al., 2013). The factors in the present study were therefore interpreted according to the researcher's judgement, with each of the six factors being assigned a meaning. These meanings were derived from the factor loading patterns obtained by exploring the significant loadings for each factor. Variables with higher loadings, together with what these loadings represented, were crucial in interpreting the factors. The revisited descriptive statistics consequently allowed the use of a percentage distribution of responses to the variables within each factor.

Table 4.5: Clustering the components

Factor	Item	Questionnaire Item	Factor Loading
1	A08	It improves my skills in using technology (e.g. use of online resources).	0.493
	C06	I can learn many things by interacting with other Internet users.	0.450
	C07	I can use Internet communication technology (ICT) tools when I want to learn about something new.	0.683
	C09	I can learn more when I regulate my own learning experience and seek information on things I want to learn about.	0.503
	C10	I can post information that might be of interest to other people.	0.644
	D05	I can post information that might be of interest to my friends and family members.	0.581
	D07	I can use it to release some of the pressure I face when doing assignments.	0.701
2	A09	I do not get support from my lecturers and technical staff when I face difficulties.	0.676
	B05	I am not able to get faster feedback from my instructor.	0.620
	B06	I am unable to communicate effectively.	0.646
	C03	I am not able to share interests and reflections online.	0.75
3	A07	It improves my critical-thinking skills.	0.49
	B01	I feel a sense of community.	0.756
	B02	Learning becomes interactive.	0.672
4	B04	I am able to get faster feedback from my peers.	0.435
	D01	Keeping in contact with friends and family has become easier.	0.525
	D03	I can stay in touch with friends and family I rarely see in person.	0.674
5	A06	It does not improve my intellectual skills (e.g. problem-solving skills).	0.703
	B03	Posting questions to my peers does not help me understand my readings better.	0.676
6	D09	I have become physically inactive.	0.788
	D10	I have become totally disengaged from real life.	0.711

Factor 1: Empowering Students

The group of items showing high loadings on the first component was identified as 'Empowering students', illustrated in Table 4.6(a), below.

Table 4.6(a): Empowering students

	Item	Variable	Agree	Strongly agree
Factor 1	A08	Improves my skills in using technology (e.g. use of online resources)	34.1%	60.0%
	C06	I can learn many things by interacting with other Internet users	39.5%	43.9%
	C07	I can use Internet communication technology tools when I want to learn about something new	38.5%	51.7%
	C09	I can learn more when I regulate my own learning experience and seek information on things I want to learn about	46.8%	35.6%
	C10	I can post information that might be of interest to other people	44.9%	42.4%
	D05	I can post information that might be of interest to my friends and family members	42.4%	47.3%
	D07	I can use it to release some of the pressure I face when doing assignments	45.4%	40.0%

These items suggest that technology not only supports learning, but also helps students to improve their skills and develop independent learning. Table 4.6(a) shows that most of the students either agreed or strongly agreed with all the items constituting Factor 1.

It is evident from these student responses that they were able to improve their skills, interact socially online, regulate their own learning, and seek and post information on their own, all with the use of technology. However, despite the fact that the students may have wished to achieve success and although the technologies used may have fostered their learning, unprecedented pressure could also have been generated. Therefore, the students were consequently found to use technology for social activities and this was explained as a way of releasing the pressure that they felt as a result of their academic activities. Given that the students were able to switch between academic and social activities in this way, it could be ascertained that technology had empowered them.

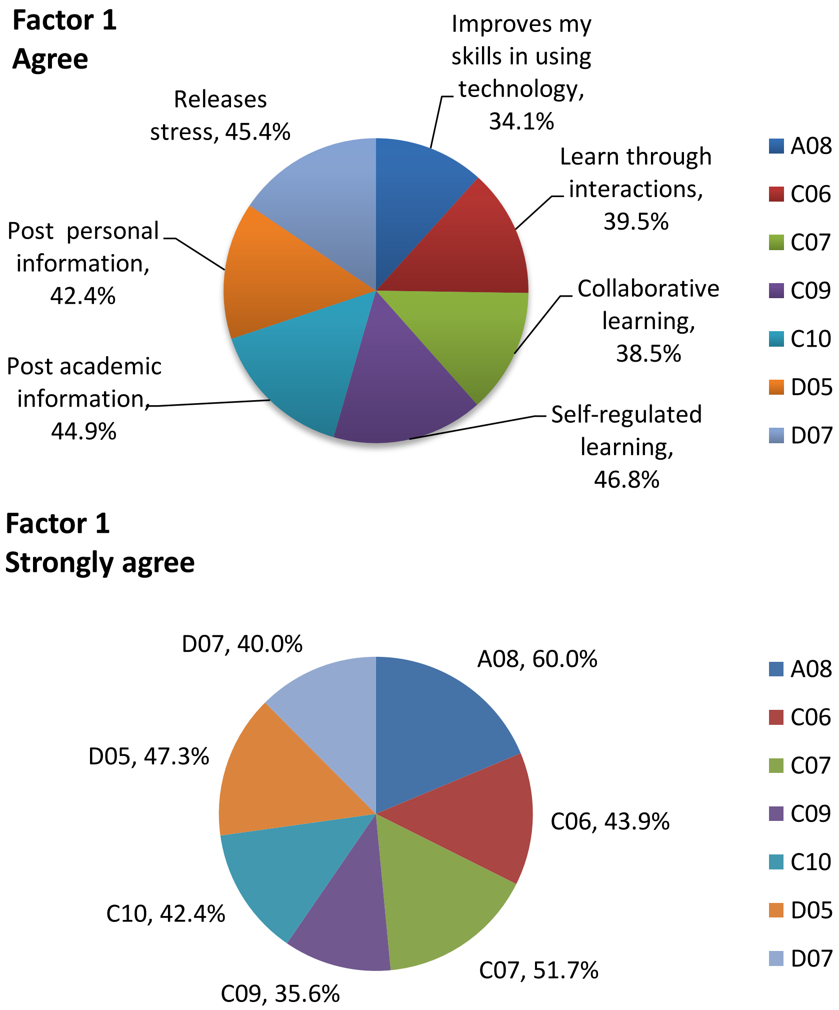


Figure 4.1: Empowering students

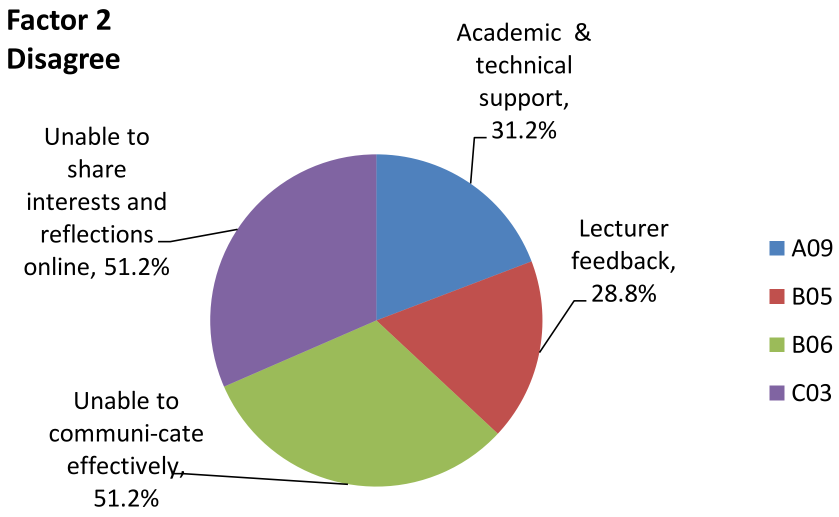
Factor 2: Facilitating Informal Learning

Factor 2 consisted of four variables (see Table 4.6(b), below). The variables associated with this Factor are linked with the negative effects of technology use, although some of the responses were positive. The students' responses (Disagree n=64, 31.2%; Strongly disagree n=18, 8.8%) showed that they had received some support from lecturers who had integrated technology into the curriculum and from technical staff, whenever they had problems with the hardware or software (Figure 4.2, below). However, support was inadequate, as can be seen from the students' negative responses (Agree 18%; Strongly agree 12.7%). They claimed (Disagree n=59, 28.8%; Strongly disagree n=16, 7.8%) that they did not receive prompt feedback from their lecturers. However, most of the students were able to communicate and share their interests online.

Table 4.6(b): Facilitating informal learning

	Item	Variable	Disagree	Strongly disagree
Factor 2	A09	I do not get support from my lecturers or the technical staff when I face difficulties	31.2%	8.8%
	B05	I am not able to get faster feedback from my instructor	28.8%	7.8%
	B06	I am unable to communicate effectively	51.2%	12.2%
	C03	I am not able to share interests and reflections online	51.2%	14.1%

The lack of support and absence of prompt feedback appeared to have compelled the students to seek other ways of acquiring knowledge; for example, by communicating with peers and sharing ideas and concepts via technology.



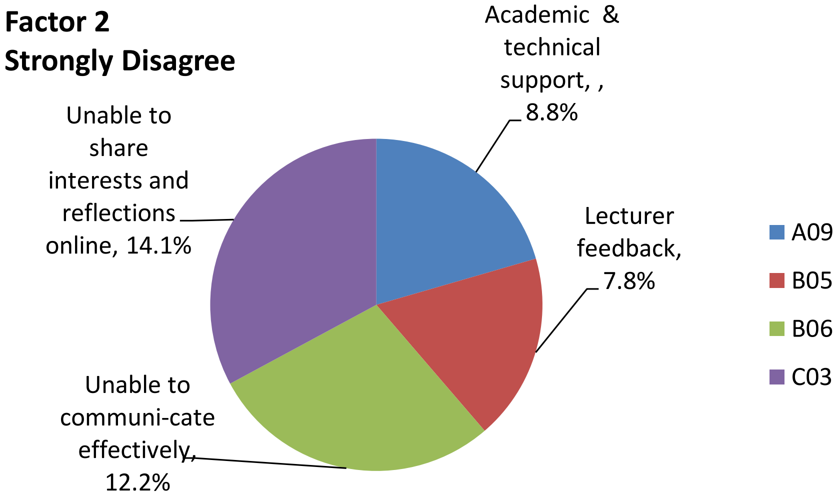


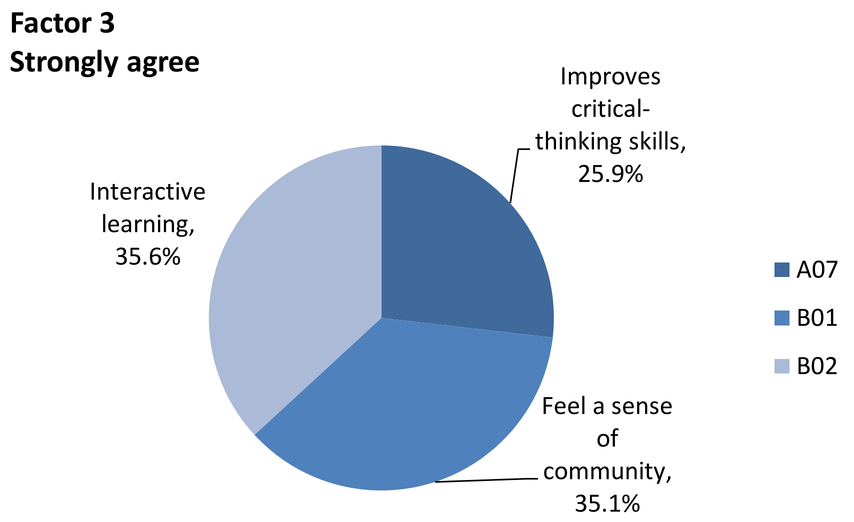
Figure 4.2: Facilitating informal learning

Factor 3: Enhanced Student Engagement

The third component is referred to here as 'Enhanced student engagement'. The use of online learning tools was found to enhance student engagement, while the students also affirmed that technology had improved their 'critical-thinking skills' (Agree 53.2%; Strongly agree 25.9%), allowing them to become part of a 'community' (Agree 42.9%; Strongly agree 35.1%). They also perceived that learning becomes 'interactive' (Agree 46.8%; Strongly agree 35.6%) in such environments. These results are illustrated in Table 4.6(c) and Figure 4.3, below.

Table 4.6(c): Enhanced student engagement

	Item	Variable	Agree	Strongly agree
Factor 3	A07	It improves my critical-thinking skills	53.2%	25.9%
	B01	I feel a sense of community	42.9%	35.1%
	B02	Learning becomes interactive	46.8%	35.6%



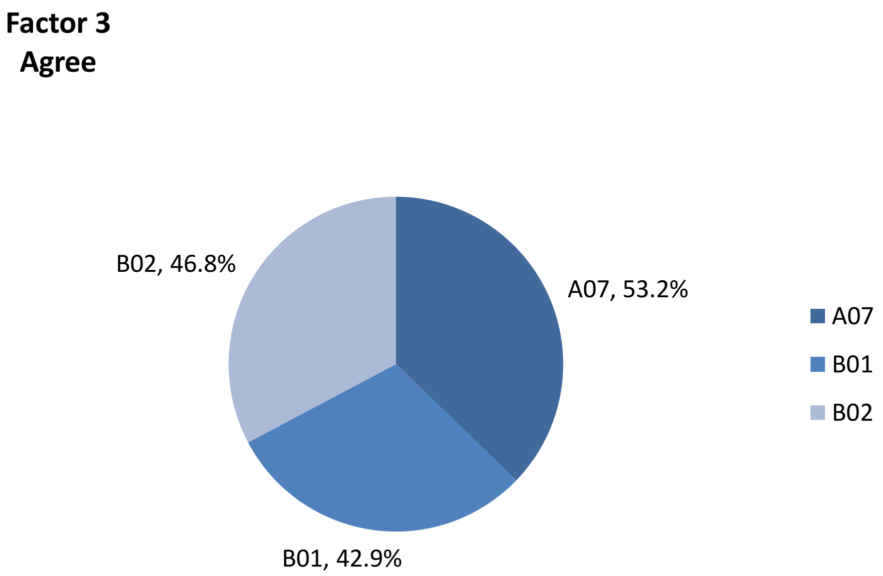


Figure 4.3: Enhanced student engagement

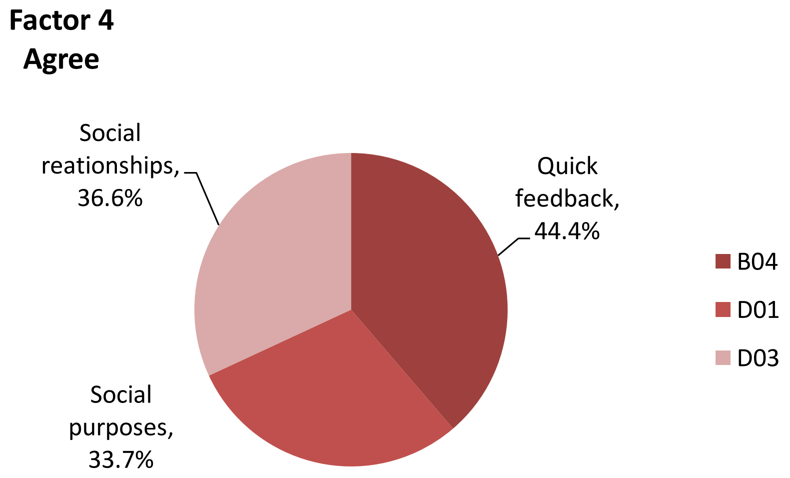
Factor 4: Expediency

Although the students were unable to obtain prompt feedback from their lecturers, they reported that they received timely responses from their peers (Agree 33.7%; Strongly agree 45.4%). This is demonstrated in Table 4.6(d) and Figure 4.4, below.

Table 4.6(d): Expediency

	Item	Variable	Agree	Strongly agree
Factor 4	B04	I am able to get faster feedback from my peers	44.4%	45.9%
	D01	Keeping in contact with friends and family has become easier	33.7%	45.4%
	D03	I can stay in touch with friends and family I rarely see in person	36.6%	54.1%

Technology, especially in the form of mobile devices, is commonly known to create and foster relationships. The results suggest that technology enabled the students to keep in contact with friends and family and they attributed this affordance to the expediency of the technologies involved.



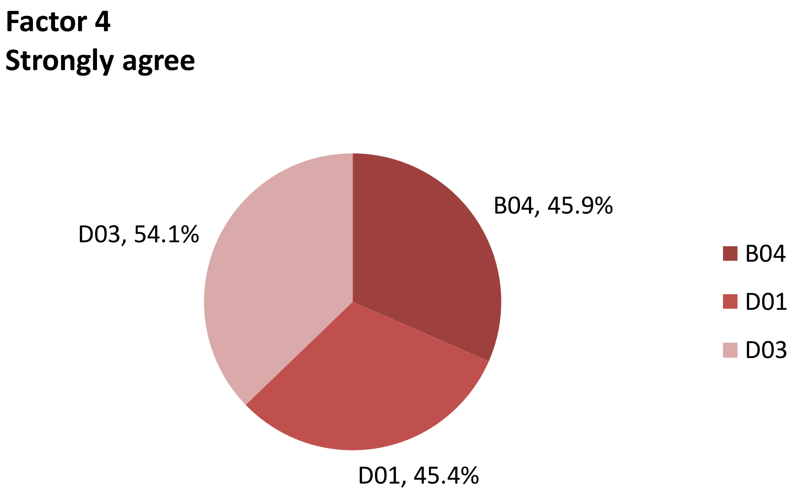


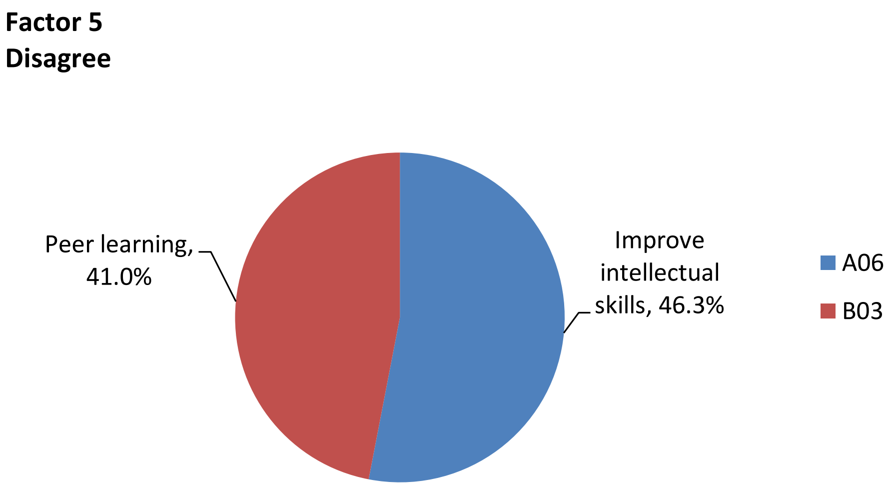
Figure 4.4: Expediency

Factor 5: Intellectual Stimulation

The students were able to improve their problem-solving skills and interact with their peers for the purpose of attaining educational goals. The majority of the students disagreed that technology does not improve academic skills (Disagree n=95; Strongly disagree n=35), while over 50% disagreed that they interacted with their peers, as illustrated below in Table 4.6(e) and Figure 4.5.

Table 4.6(e): Intellectual stimulation

	Item	Variable	Disagree	Strongly disagree
Factor 5	A06	It does not improve my intellectual skills (e.g. problem-solving skills)	46.3%	17.1%
	B03	Posting questions to my peers does not help me understand my readings better	41.0%	9.3%



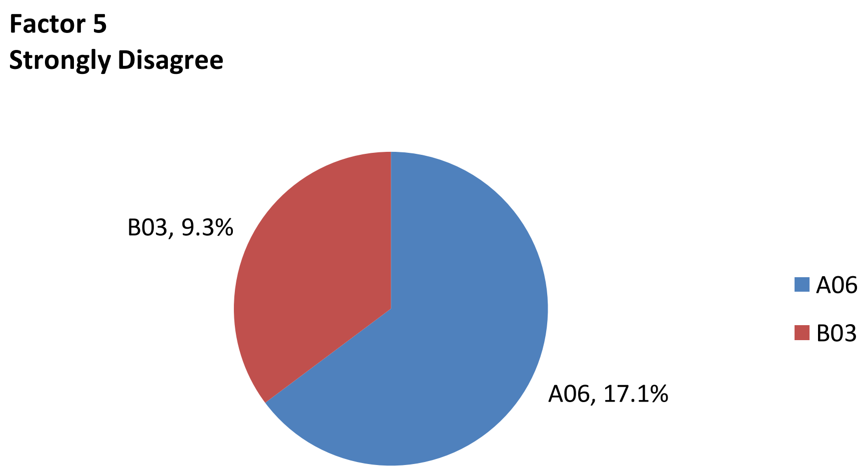


Figure 4.5: Intellectual stimulation

These results suggest that the students were collaborating with other learners, in order to become more absorbed in their learning activities. The use of technology had therefore engaged them in relevant and intellectually stimulating academic work.

Factor 6: A Sedentary Lifestyle

The students were equally divided in their responses concerning the adverse effect of technology use on their levels of physical activity (Agree 22%; Strongly agree 26.8%) and the ensuing detachment from their social lives (Disagree 33.2%; Strongly disagree 21%), as can be seen in Table 4.6(f), below.

Table 4.6(f): A sedentary lifestyle

	Item	Variable	Agree	Strongly agree
Factor 6	D09	I have become physically inactive	22.0%	26.8%
			Disagree	Strongly disagree
	D10	I have become totally disengaged from real life	33.2%	21.0%

These responses suggest that the students who used technology for a large proportion of their time considered that it led to a sedentary lifestyle

This initial phase of the survey investigated the factors influencing students' use of technology for learning and social purposes. The findings reveal that the majority of the participants were aware of the benefits of learning through the use of technology. The findings also suggest that students face several challenges when attempting to use technology for this purpose.

4.2.2. Lecturers' Data

The descriptive statistics, along with the corresponding items, or a collection of categorical variables (N=14) are given in Table 4.7, below. The item numbers correspond to their order in the survey instrument.

Table 4.7: Descriptive statistics

Item #	Questionnaire Items	N	M	SD
A01	In general, how do you rate your skills in using digital technology?	21	3.33	0.796
A02	Proportion of time on average spent using technology in lessons, including preparation and social use	21	4.24	0.700
A03	How does this compare to typical technology usage amongst lecturers within your college?	21	2.86	0.91
B01	When a new technology is introduced, I have sufficient technical support in my classroom	21	3.43	1.434
B02	I like to have evidence of the educational value of a new technology or activity before using it	21	4.48	0.512
B03	I find it difficult to see how I can integrate digital technology that I have not used before into my teaching	21	2.76	1.136
B04	Assessment requirements limit my use of digital technology	21	2.95	0.921
B05	The use of digital technology supports the delivery of the curriculum	21	4.71	0.463
B06	Using digital technology will increase my workload in the short term	21	2.62	1.203
B07	Using digital technology will increase my workload in the long term	21	3.71	1.102
B08	I would like more training in how to effectively use digital technology for learning	21	4.57	0.598
B09	I participate in a supportive lecturer network around digital technology	21	3.95	0.669
B10	I have sufficient access to hardware and software in my classroom	21	3.67	1.238
B11	Students in my class help me use digital technologies during lessons	21	2.71	1.146

Note: N=Respondents/M=Mean/SD=Standard deviation

The researcher acknowledges that throughout the analysis, there is the possibility of data representing themes and issues, which extend beyond the scope of the research questions. Therefore, in order to examine the data from a broad perspective, EFA was used to identify factors and better interpret the data.

4.2.2.1. Factor Extraction and Retention

Using PCA (see Table 4.8, below), six factors were extracted, with eigenvalues above 1.0. The variance accounted for by successive factors is presented in the following Table.

Table 4.8: Principal component analysis (PCA)

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.657	26.118	26.118	3.657	26.118	26.118	2.498	17.845	17.845
2	2.279	16.281	42.399	2.279	16.281	42.399	2.401	17.148	34.993
3	2.024	14.458	56.857	2.024	14.458	56.857	1.874	13.385	48.378
4	1.414	10.103	66.96	1.414	10.103	66.96	1.764	12.598	60.976
5	1.339	9.561	76.521	1.339	9.561	76.521	1.64	11.716	72.692
6	1.057	7.55	84.072	1.057	7.55	84.072	1.593	11.379	84.072
7	0.834	5.956	90.028						
8	0.414	2.959	92.986						
9	0.256	1.828	94.814						
10	0.246	1.756	96.57						
11	0.21	1.497	98.066						
12	0.154	1.1	99.167						
13	0.081	0.581	99.748						
14	0.035	0.252	100						

The above Table shows six factors, but these are considered excessive for 14 variables. The factors were therefore rotated to discover whether there were any variables that loaded twice or whether there were any negative loadings. After the components were rotated, three variables (A01, A02 and B03) were found to have loaded twice or more and so were discarded (highlighted in Table 4.9, below). Likewise, the variables, B11, A03 and B09, with significant negative loadings, were also discarded. Descriptive data were then combined with the Factor Analysis data, which resulted in a further reduction in the number of variables and factors.

Table 4.9: Rotated component matrix

Item	Variables	Component 1	2	3	4	5	6
A01	In general, how do you rate your skills in using digital technology?	0.500			0.535		
A02	Proportion of time on average spent using technology in lessons, including preparation and social use	0.498			0.449	0.427	
A03	How does this compare to typical technology usage amongst lecturers within your college?				**-0.787**		
B01	When a new technology is introduced, I have sufficient technical support in my classroom		0.875				
B02	I like to have evidence of the educational value of a new technology or activity before using it						0.674
B03	I find it difficult to see how I can integrate digital technology I have not used before into my teaching	0.673		0.474			
B04	Assessment requirements limit my use of digital technology	0.773					
B05	The use of digital technology supports the delivery of the curriculum					0.752	
B06	Using digital technology will increase my workload in the short term			0.936			
B07	Using digital technology will increase my workload in the long term					0.800	
B08	I would like more training in how to effectively use digital technology for learning						0.899
B09	I participate in a supportive lecturer network around digital technology				**-0.675**		
B10	I have sufficient access to hardware and software in my classroom		0.809				
B11	Students in my class help me use digital technologies during lessons	**-0.897**					

The clustering of the components based on the frequency of the responses led to the generation of three factors, as illustrated in Table 4.10, below.

Table 4.10: Clustering and labelling the components

Factor	Item #	Questionnaire Item	Factor loading	Descriptive statistics	Factor label
1	B01	When a new technology is introduced, I have sufficient technical support in my classroom	0.875	Disagree 28.6% Strongly disagree 28.6%	Support and access
	B10	I have sufficient access to hardware and software in my classroom	0.809	Disagree 47.6% Strongly disagree 23.8%	
2	B05	The use of digital technology supports the delivery of the curriculum	0.752	Agree 28.6% Strongly agree 71.4%	Constructive challenges
	B07	Using digital technology will increase my workload in the long term	0.8	Disagree 57.1% Strongly disagree 19%	
3	B02	I like to have evidence of the educational value of a new technology or activity before using it	0.674	Agree 52.4% Strongly agree 47.6%	Usability concerns
	B08	I would like more training in how to effectively use digital technology for learning	0.899	Agree 33.3% Strongly agree 61.9%	

The variables that comprise Factor 1 suggest limitations when technology is used. The lecturers implied that they did not receive adequate technical support and did not have sufficient access to technology, which led to this Factor being labelled, 'support and access'. Variables, such as 'technology supports the delivery of the curriculum' and may '…increase my workload in the long term' are indicative of the 'constructive challenges' (Factor 2) faced by lecturers. The final component was labelled, 'usability concerns', as it was indicated that the lecturers needed research-based evidence of the educational values of technology and more training in this regard.

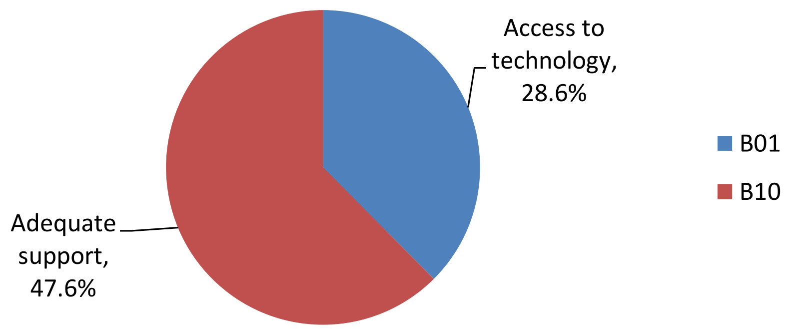
Factor 1: Support and Access

The lecturers claimed that they did not have adequate support for technology use. In fact, most disagreed (Disagree 28.6%; Strongly disagree 28.6%) that they had received such support. Yet another challenge faced was gaining access to technology; for example, hardware and software. However, support and access are crucial for technology integration and the absence of these elements can be detrimental to student learning. Table 4.11(a) and Figure 4.6, below, illustrate the results for this Factor.

Table 4.11(a): Support and access

	Item	Variables	Disagree	Strongly disagree
Factor 1	B01	When a new technology is introduced, I have sufficient technical support in my classroom	28.6%	28.6%
	B10	I have sufficient access to hardware and software in my classroom	47.6%	23.6%

Factor 1
Disagree



Factor 1
Strongly disagree

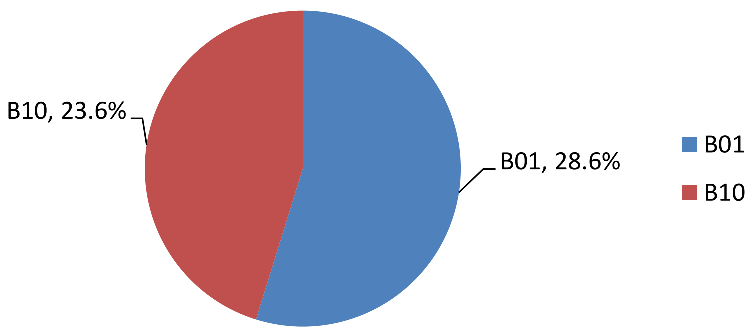


Figure 4.6: Support and access

Factor 2: Constructive Challenges

The lecturers were not only faced with the challenge of a lack of support and access to technology, but also needed to exert extra effort in the form of, for example, increased workload, in order to be able to use the available technologies to support the delivery of course materials and lessons. Nevertheless, the lecturers agreed (Agree 28.6%; Strongly agree 71.4%) that technology was essential for curriculum alignment and delivery, as illustrated in Table 4.11(b), below.

Table 4.11(b): Constructive challenges

	Item	Variables	Agree	Strongly agree
Factor 2	B05	The use of digital technology supports the delivery of the curriculum	28.6%	71.4%
			Disagree	Strongly disagree
	B07	Using digital technology will increase my workload in the long term	57.1%	19.0%

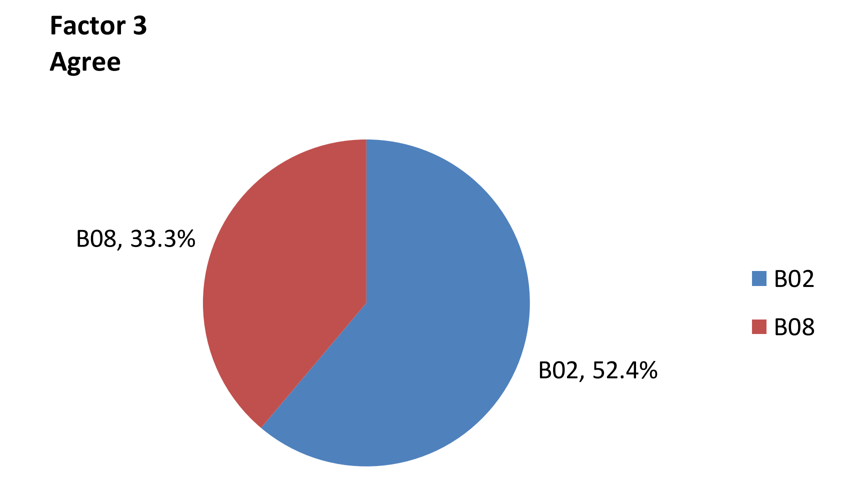
The lecturers declared that there was a constructive challenge and appeared to take responsibility for improving student learning.

Factor 3: Usability Concerns

Another challenge faced by the lecturers related to concerns over the usability of technology. The lecturers agreed (Agree 52.4%; Strongly agree 47.6%) that they wanted more evidence of the educational value of a new technology or activity before applying it in the classroom. They also stated (Agree 33.3%; Strongly agree 61.9%) that they needed to be able to use the technology more effectively for learning, as demonstrated in Table 4.11(c) and Figure 4.7, below.

Table 4.11(c): Usability concerns

	Item	Variables	Agree	Strongly agree
Factor 3	B02	I like to have evidence of the educational value of a new technology or activity before using it	52.4%	47.6%
	B08	I would like more training in how to effectively use digital technology for learning	33.3%	61.9%



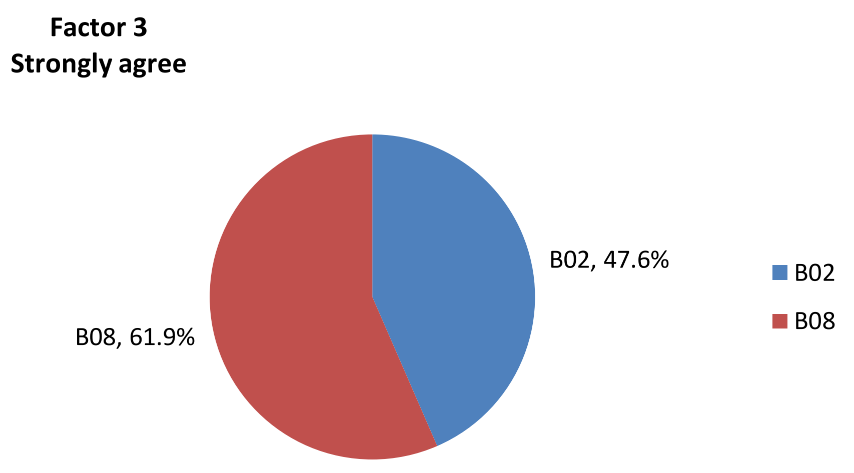


Figure 4.7: Usability concerns

This phase of the survey has investigated the factors motivating lecturers to use technology for learning and teaching. The findings reveal that the majority of the participants were aware of the benefits of integrating technology into teaching practice and that they had sufficient knowledge and skills to do so. However, the findings also suggest that the lecturers were faced with a number of problems or barriers to using technology in their teaching. Most of these barriers involved the absence of support, increased workload, lack of skills in technology use, and the consequent need for more training for lecturers, in order to enable effective technology integration. Nevertheless, the survey findings revealed areas, where there were opportunities for development. One significant finding was that the lecturers believed in technology's potential to support flexible and creative models of curriculum delivery.

Although the survey and methods of analysis provided a summary of the participants' frequency of response and identified the factors influencing technology use, they also form the basis of additional inquiry, with key informants being interviewed individually, observed in class, and assigned to keep a diary.

4.3. Findings from the Qualitative Data

This section presents the results of the qualitative data analysis and includes findings from the interviews, diaries and classroom observations. It focuses on explaining the results of statistical tests, obtained in the quantitative phase.

4.3.1. The Student Interviews

The semi-structured interview questions helped explain and elaborate on the statistical results. Thematic analysis of the qualitative data using NVivo yielded 115 nodes, 194 references, 18 categories and 36 themes. The following chart (Figure 4.8, below) does not show all nodes under their full hierarchical titles or categories. These nodes were therefore exported into an Excel spreadsheet (see Appendix 3).

Themes were subsequently identified from the 115 nodes and these were examined and narrowed down to a smaller and more manageable number. Some of the ways in which the themes were identified involved looking out for their repetition, for terms that sounded unfamiliar (or which were used in unfamiliar ways), or for metaphors (Ryan & Bernard, 2003).

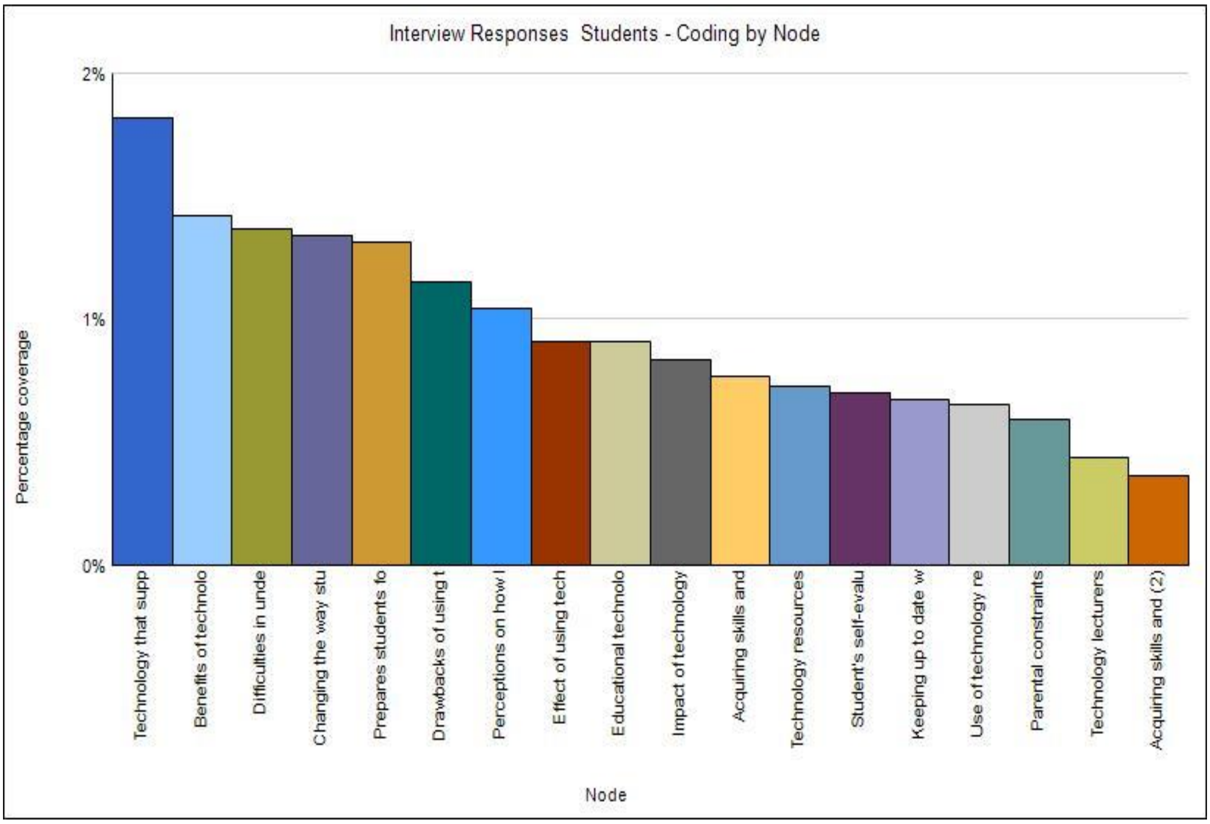


Figure 4.8: Coding by node: Students' responses

The 36 themes occurring in the students' responses are tabulated below (see Table 4.12).

Table 4.12: Initial themes - Students' interview responses

Categories		Initial themes	Definition of themes	Examples of quotes
1	**Technology that supports learning**	**Size matters**	Preference for smaller devices	*I depend so much on my IPad... it is user-friendly and has several applications… Not to mention… it is lightweight and portable and can be used anywhere*
		Mobile devices	Preference for mobile technology	*I use technology, for example, social media using my mobile phone from home and elsewhere to connect with some teachers and students at college*
		Convenience and usability	Affordances of mobile technology	*I can sort out the homework using my laptop and mobile phone, and communicate with my colleagues and teacher.*
		Accessibility	Internet availability	*I use technology… [a] laptop and tablet in most areas and from almost anywhere, as long as there is access.*
2	**Educational technologies /facilities available**	**Basic facilities**	Rudimentary amenities	*…desktop PCs and display screens', 'overhead projectors, display screens, and laptop chargers' , and 'laptops, presentation equipment, video-conferencing facilities, etc.*
		Bring Your Own Device (BYOD) situations	BYOD is a term currently being used for situations where students bring their own tablets, phones and laptops, expecting to use these to gain access to educational data	*All students bring their laptops.*
		Mediocre infrastruct-ure	Physical and organisational structures and facilities that are not outstanding in quality	*The number of these (technological) devices is very limited and there is a rotational system in the use of the equipment*

3	**Technology used by the lecturers**	**Bring Your Own Device (BYOD) situations**	BYOD is a term currently used for situations where students bring their own tablets, phones and laptops, expecting to use these to gain access to educational data	*The teacher always uses his laptop, the presentation display device and headphones, which he brings into the classroom as assistive teaching tools.*
		Basic technologies	Rudimentary amenities	*The teacher uses display screens and television sets.*
4	**Benefits of technology/ Impact on the institution**	**Enhancing learning motivation and experience**	Makes the educational experience more powerful and effective	*Technology helps me to understand better than reading... In addition, it breaks the routine... The teaching style makes me understand the lesson and benefit at the same time*
		Independent learning	Induces and inspires learners to learn autonomously	*I use technology for searching articles… I mean online journals. It slowly dawned upon me that I was becoming an independent learner... encouragement from my lecturer makes me believe he is doing it because he wants me to gain from the benefits of technology*
		Engaging with content	By participating actively in learning and seeing value in what they learn in a supportive environment	*By using technology, I am able to interact with course content. Maybe this could be the reason that the college must have integrated technology in classrooms…*
5	**Acquiring skills and knowledge for using technology for learning**	**Teachers as facilitators**	Teachers who guide and encourage students to take the initiative and lead their own learning	*It gave me the opportunity to discover things that are new…I was able to collate information and make assumptions. I was ably guided by my teachers in this regard.*
		Self-directed learning	Learners who not only take the initiative but also the responsibility for learning on their own without assistance	*I consider myself a digital native… I have been using technology, for example phones, laptops, IPods, IPads, Xbox, etc. for quite some time now. The skills I developed playing games have helped me academically.*

6	**Acquiring skills and knowledge for using technology for social purposes**	**Hands-on technologies**	Technology that enables leaners to construct knowledge or learn by doing through experiments	*During my school years I spent a considerable amount of time using the apps, chatting with friends, my parents, relatives, etc. Maybe it was happenstance learning.*
7	**Use of technology resources as learning tools**	**Web-based/online resources**	Electronic databases that are educational in nature	*I use the Google search engine and read all the information that can help me understand the lesson… The information is so diverse and useful, but because there is so much of it, I just select what is useful for me*
8	**Drawbacks of using technology for learning**	**Increases anxiety levels**	An increase in stress levels, or a sense of apprehension caused by high pressure situations	*Technology diverts attention from class activities and makes students wait for reminders and announcements from teachers*
		Shallow learning	Learning superficially without trying to think about the underlying significance of an online learning situation	*I don't believe that technology supports learning. It is just good for collecting information that is available online. I am not certain if some of this information is genuine.*
9	**Technology resources that make students feel confident**	**Dependent on student learning styles and preferences**	The way in which students characteristically acquire, retain and retrieve information	*I prefer using laptops - although my lecturer uses overhead projectors for presenting his lecture - as I am more confident learning on my own.*
10	**Difficulties in understanding the technical aspects of technology**	**Builds students' self-efficacy**	Technology that helps learners to believe in themselves	*I face difficulties in dealing with modern applications, because the rapid development in modern applications and services needs constant follow-up and assistance from technical support staff.*
		Peer support	Support from a person with knowledge and the experience to mediate instruction	*I used to face difficulties with technology for learning, but I get constant assistance from peers and lecturers.*

11	**Perceptions on how lecturers use technology to support learning**	**Student-centred approaches**	Approaches that allow students to make decisions, and take control over their learning	*The lecturer allows classroom discussion and we are encouraged to exchange ideas with him and amongst ourselves.*
		Lack of training	Lecturers are unable to tackle issues, as they are unfamiliar with and/or unqualified to use technology	*Lecturers understand that they have to prepare students for the future, but they do not have the capability to incorporate critical-thinking or problem-solving skills. They need support.*
12	**Keeping up-to-date with technology developments**	**Taking the initiative**	A strong sense of self to take action	*I keep my fingers on the pulse and keep myself informed of the latest developments by using Google Reader, which notifies me of the launch of new technologies.*
13	**Prepares students for the future**	**Unmet student expectations**	Bewilderment students feel and the disconnect between their expectations and reality	*Curriculum design has to be changed to meet student expectations. I am still struggling with technology and understand that it is a necessity if I want to succeed in the future.*
		Disempowered students	The feeling among students that they are deprived and the belief that the environment is not supportive	*Technology should be used to enhance critical thinking, problem-solving skills and collaboration… not just because lecturers are compelled to use it by the management.*
14	**Changing the way in which students learn**	**Supports flexibility in learning processes**	Meets the needs of learners and offers choices by allowing them access at any time or place and in any space	*Technology has changed the way I learn… especially when I use translation apps for translating English into Arabic. This helps me to better understand what I learn.*
		Peer learning	Learning through active participation with fellow learners	*The videos posted by peers on YouTube, or the scientific films and documentaries shown in class by the lecturers can potentially help me become well-prepared to answer the questions on exam day.*
		Fosters collaborative learning	Building communities that motivate, encourage and facilitate learning through discussions and	*For all my courses and assignments, I use Dropbox, a cloud computing tool to store and share my academic work with other students.*

			active learning approaches	
15	**Impact of technology on learning**	**Fosters social interaction**	Technology rich environments support sociability by creating a social space that is crucial for participatory learning	*I join in discussions and interact with colleagues… It is so interesting to be an active participant in the learning process.*
		Enhancing motivation to learn	Encourages learners to pursue and achieve academic goals	*I try to take advantage of all the educational tools and technologies that are at my disposal… It certainly has a positive impact, as my academic performance has improved.*
16	**Effect of using technology for social communicat ion**	**Reduces social involvement and psychological well-being**	Does not simulate interpersonal encounters, resulting in learners who cannot function socially	*Technology strengthens social ties.*
		Depersonal-isation	Learners who lack individuality or who become disconnected from others and from their own selves in their surroundings	*Technology affects academic performance in terms of the time it demands. I spend a large amount of time playing games. I don't use it to contact my family. It affects my studies.*
		Sedentary lifestyle	A lifestyle without adequate levels of physical activity	*Although it is a good tool for social communication, I feel it has an adverse effect on students' academic lives. for example, causes obesity due to a lack of physical exercise.*
17	**Parental constraints**	**Parental per missiveness or restrictive-ness**	Parental styles which are either lenient or authoritarian in nature	*My mother always advises me to use the technology appropriately… Her main concern is that I may access unwanted sites.*
18	**Student's self-evaluation of technology skills**	**Positive self-esteem and confidence building**	Proactive positive self-imaging; maintaining a positive mind-set	*I have basic computer operating skills and understand the fundamental concepts. I use emails. I am of the opinion that I have good skills.*

4.3.2. The Lecturers' Interviews

Following the interviews with the lecturers, the transcripts were analysed using NVivo 11. Thematic analysis conducted with this software yielded 74 nodes, 122 references, 12 categories and 21 themes.

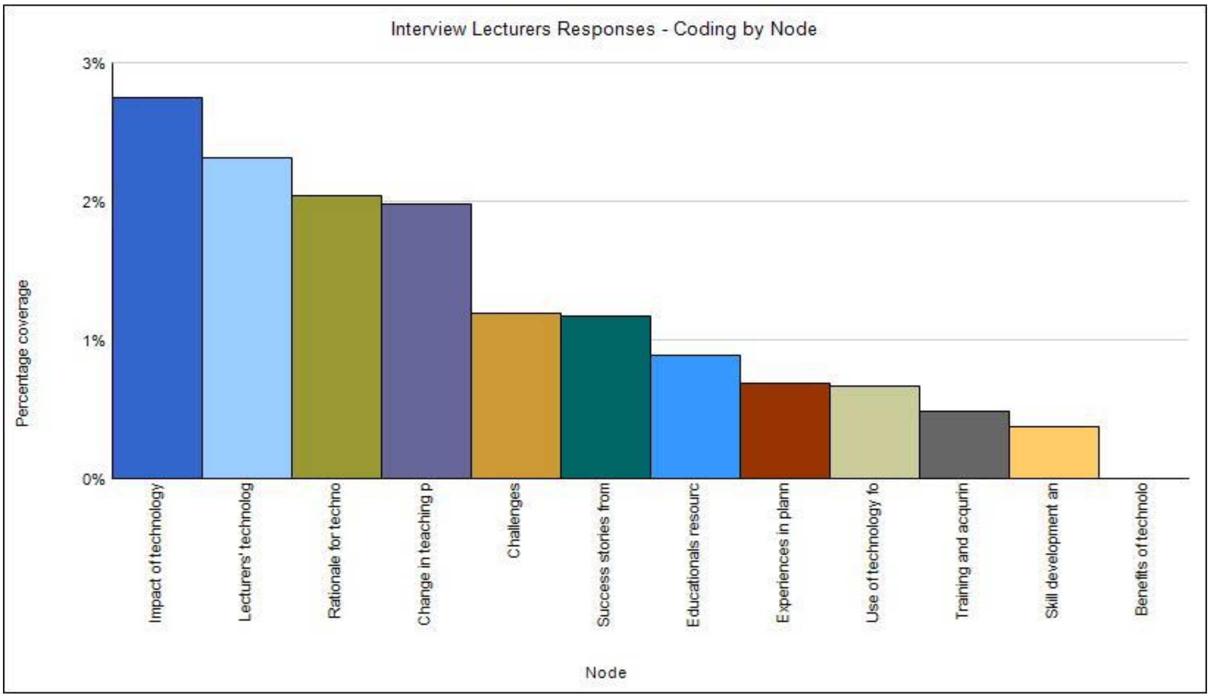


Figure 4.9: Coding by node - Lecturers' responses [see Appendix 2(h) for all 75 nodes]

Excerpts from direct quotes corresponding to the themes were then used in the Data Analysis Report, which included the initial themes and definitions (see Table 4.13, below).

Table 4.13: Initial themes - Lecturers' interview responses

Categories		Initial themes	Definition of themes	Examples of quotes
1	**Lecturers' technology usage and experience**	**Desire to keep abreast of new technologies**	A strong sense of self to make decisions	*I use Canvas to engage with the students and interact in real-time.*
2	**Rationale for technology adoption**	**Preparing students for the future**	Empowerment of students to meet the challenges of tomorrow	*The adoption of technology stems from the need to prepare students for the labour market, because in today's world, most jobs require candidates to have ample knowledge of how to use technology.*
		Attempting to meet student expectations	To close the gap by aligning learners' expectations with realities	*I find the majority of students receptive to the idea of using technology, since it aims to relay information and make it easily accessible for learners… Another aspect is that it is an unconventional style of learning that draws the students' attention.*
		Support	Availability and provision of assistance	*There is a lot of encouragement on the part of my colleagues in the department when it comes to the use of technology.*
		Engaging and monitoring students	Allows learners to participate in or become involved in learning and keeps track of their progress	*Students increasingly value technological tools and engage with various devices. I use technology to engage students.*
		Students' learning preferences	Fitting technology in and around the learner's lifestyle	*I felt the students were getting bored with traditional lectures. I also felt that as a phonologist, I should help my students practice transcription the right way… through listening.*
3	**Challenges**	**Frustration**	Anger and disappointment with the situation	*The problems start to emerge during technical glitches, which may force me to change the lesson plan*
		Feeling disempowered	Makes lecturers less powerful or confident as they believe that the environment is not supportive	*It can be really shocking to see the lecture rooms modernised and equipment upgraded without consulting the teaching staff members, who are the ones to use technology on a daily basis.*

		Inattentiveness of policy-makers	Lack of support from a government that exhibits a lack of attention	*The government as well as the educational institutions in Kuwait do not take these technologies seriously and that's why students see technology as an additional burden, rather than a positive contributing factor of their educational journey.*
4	**Experiences in planning or managing lessons**	**Being creative**	Embracing originality by looking for new ways of planning lessons	*One such experience was related to the use of WhatsApp for the Phonetics and Phonology class.*
5	**Educational resources that teachers are confident with**	**Curriculum-aligned**	Using resources that meet the needs of students	*I use mobile apps, because I have the ability to try them at home. By integrating the apps into the curriculum, students are able to access, communicate and reflect upon the information presented.*
6	**Success stories from technology adoption**	**Engaging and helping to instil confidence in students**	Ability to attract, involve and motivate students to learn	*Mobile apps, such as WhatsApp, which I use for the Phonetics and Phonology class are either cheap or completely free, which makes them easy to obtain. I have used these and seen that students who had been very depressed earlier, because they did not understand phonetics, left the class with confidence.*
		Sustainable feedback practices	Providing prompt responses and comments to students in order to improve learning	*I use emails to provide feedback to students on assignments. When I started teaching at the college I used traditional teaching methods. I provided feedback directly to students and those who did not fare well were not happy with it because of the presence of other students in the classroom. On the other hand, when I sent feedback via email they felt pleased.*
7	**Impact of technology on teaching and learning**	**Changes in the roles of lecturers**	Changes in lecturers' attitudes	*I have become a facilitator rather than an individual who provides information and knowledge to students.*
		Taking responsibility for student learning	Introducing learners to the necessary skills for taking independent action	*If the technology fails to achieve the target, then this would indicate that we as teachers have failed in selecting the right material.*

8	**Use of technology for social purposes**	**Lecturers' digital transition and social relations**	Attempting to move over to digital technology, in order to improve the quality of social interaction	*I read fiction and journal articles and do the reading on my iPad; I hardly ever use paper resources.*
9	**Changes in teaching practices**	**Constructivist teaching beliefs**	Actively involving learners in the construction of knowledge by transferring control over the learning to their students	*Through instruction, coaching, and support, teachers can help students develop greater personal self-discipline. By making students responsible for their own learning, they become self-directed learners. They also improve their classroom habits and practices.*
10	**Benefits of technology**	**Meeting student expectations**	Closing the gap by aligning learners' expectations with realities	*I think the use of technology in the lecture room and explanation during the lesson has been consistent with what the students think*
		Flipped classrooms	By reversing traditional classrooms lecturers deliver instructional content via technology outside the classroom.	*I also record some of the lecture sessions and email the Web links to students who were unable to attend classes*
11	**Skills development and difficulties**	**Lack of skills and support**	Lack of professional development	*Yes, I am very keen on developing my technological skills… For example, right now, I need professional help.*
12	**Training and acquiring skills**	**Lack of training**	Lecturers' inability to tackle issues, as they are unfamiliar with and/or unqualified to use technology	*I feel I need to acquire more skills and knowledge in using new and emerging technologies.*

4.3.3. The Students' Diaries

The semi-structured diary schedule was designed to elicit information on how students perceived the use of technology by their lecturers in the classroom and the impact of these technology-based teaching strategies. The students' responses to the first three questions on the subject and content of the lesson, the interactive techniques adopted by the lecturers, and the resources used by the latter corresponded to what was reported by the lecturers:

Table 4.14: Students' responses to the first three questions

Students	Lecturer	Subject and content of the lesson	Interactive technique adopted	Resources lecturers used
S1,S2,S3,S4	A	Contemporary Politics	Power point presentation	Laptop, overhead projector
S5,S6S7,S8	B	Break-even analysis	Audience Response System	Laptop, video projector
S9,S10,S11,S12	C	Grammar-Vocabulary	YouTube	Laptop, projection systems

The thematic analysis of the diary transcripts yielded 40 nodes, 66 references and 9 themes. Details of the analysis and themes that emerged are presented in Table 4.15, below.

Table 4.15: Initial themes - Students' diary notes

	Categories	Themes	Definition of themes	Examples of quotes
1	**Students' beliefs concerning the strategy adopted (teaching and technology)**	**Disruptive teaching practices**	The use of specific techniques designed to increase learning performance through student-centred approaches, encouragement, engagement, interaction and active participation in the learning process	(a) *By presenting the lesson using PowerPoint, the lecturer seemed to encourage students to focus more on the topic, ask questions, and obtain feedback.* (b) *The strategy used by the lecturer, namely the Audience Response System, increases student interaction and collaboration, which in turn results in enhanced learning*.
2	**Student outcomes**	**Actionable response**	Giving students the opportunity to discover if they have understood a concept correctly or clarifying any misconceptions about a topic; at the same time acknowledging student success	(a) *Pricing and mathematics are complex areas. The regular use of the Audience Response System has enhanced my understanding of break-even analysis. I am happy with the feedback, which is real-time feedback for both students and lecturers. This has helped me better understand the lessons*.
		Increased self-efficacy amongst the learners	Use of technology to increase students' belief in their own capabilities	(b) *Language and grammar are interesting but also difficult. I was able to perform better in the tests after viewing the videos developed and uploaded by the lecturer on YouTube.*

3	**Contribution of technology to students' understanding of concepts**	**Enhanced critical thinking**	Increases learners' ability to engage in reflective and independent thinking	(a) *By analysing questions and receiving other students' responses, which the Audience Response System enables, I was better able to make sense of the questions and subsequently select the correct answers*. (b) *The use of an Audience Response System helped me become an independent learner. I was able to understand the different concepts and interconnect the two. It has enhanced my problem-solving skills*
4	**Difficulties encountered by the students**	**Failure to engage with content**	Students are unable to actively participate in learning or see value in what they learn	(a) *I prefer PowerPoint presentations, as lecturers can use more slides to provide more content. However, with the Audience Response System, less content is addressed. It is only suited to question and answer sessions*.
		Technical glitches	Technological problems or lack of technical support	(b) *When I access YouTube either during the class session or after, the videos buffer and I don't blame YouTube. This is an issue the college has to resolve by providing tech. support.*
5	**Positive aspects of technology-based instructional strategies**	**Enhances self-efficacy**	Technology that helps learners to believe in themselves	(a) *I am able to access lecture notes in advance, as my lecturer sends me a copy of the presentation by email a day before the lecture. The combination of the notes and the presentation allows me to learn better.* (b) *The Audience Response System allows me to anonymously check that my answers are correct by comparing them with those of my fellow students*.

6	**Student learning benefits from the activity**	**Independent learning**	Learners who not only take the initiative, but also the responsibility for learning on their own without assistance	(a) *When the Audience Response System is used, I can respond to questions independently without being judged by others. It allows privacy and I can participate in the learning process, without having to listen to what others may say about my responses. At the same time, if my answer is correct I feel better.* (b) *I can solve both language and grammar related problems on my own, immediately after the video. This is an ideal way of learning a difficult subject.*
7	**Use of technology for social purposes**	**Increasing online presence**	Intention of students to project themselves socially, establish relationships, nurture existing relationships, actively participate in a virtual environment and discover online spaces	(a) *I take advantage of social networking sites on my IPhone for socialising. I use laptops when I want to post my opinions on Arab blogs or websites.* (b) *I am a Facebook fan. I also like Twitter. I use both on my laptop and tablet to keep myself abreast of the latest trends in fashion, football and current affairs.*

4.3.4. The Lecturers' Diaries

The themes that emerged from the thematic analysis of the entries made by the lecturers are presented in the Table below.

Table 4.16: Initial themes - Lecturers' diary notes

Categories		Themes	Definition of themes	Examples of quotes
1	**Lecturers' beliefs about the strategy adopted (teaching and technology)**	**Constructivist teaching strategies**	Use of technologies to engage learners in authentic learning activities. Teachers guide students in constructing meaning through stimulation	(a) *Engaging learners through interactive presentations.* (b) *The aim is to engage the learner, mostly via question and answer sessions. I give real life/practical examples, show appropriate videos, or tell a related story. PowerPoint enables pausing to make important suggestions/remarks.* (c) *When students watch videos (YouTube), they are able to construct meaning and understand important concepts. Videos help explain things simply and clearly.*
2	**Student outcomes**	**Peer instruction**	An interactive teaching method that is used by the faculty, who position interactive technology as an essential part of the classroom environment, in order to improve student learning outcomes	(a) *Students were unable to learn much about current events in a short period of time by poring over text books. When interactive technologies were used to explain what is transpiring around the globe, and when visuals were used, the students discussed these with each other and understood concepts easily. This was evident from the outcomes of weekly Web exercises and classroom quizzes.* (b) *Video content has a positive effect on language learning. The sensory input, audio and visuals, made the students more attentive. The video input may have had most impact on students; especially if followed by discussions in which all students are involved. As a result, they are able to retain in their memory large amounts of information about what they*

				have seen, heard and discussed.
3	**Contribution of technology to students' understanding of concepts**	**Promotes deep learning**	Students who are motivated and challenged draw on their knowledge to complete new tasks. Deep learning enables students to make sense of what they learn	(a) *The classroom activity involved students looking for information on the immigration crisis in Europe. Although I had used Power Point to highlight the issue, the students were also able to find other ways of finding information about the situation… they used CNN news, Yahoo news and AOL to independently educate themselves. They were totally immersed when they were looking for the information.* (b) *I incorporated YouTube videos, accompanied by discussion questions. The approach helped students to visually understand the concept. I understood from them that they had combined audio and video, which helped simplify difficult grammar concepts.*
4	**Difficulties encountered by the lecturer**	**Limitations of technology-based instructional strategies**	Drawbacks of using strategies that do not have an impact on student learning	(a) *Unable to present large amounts of text-based material when using PowerPoint. Students want more information, but like every technological tool, PowerPoint also has its limitations.* (b) *I initially had to put PowerPoint slides online, so that students could access them from home. However, I had to discontinue this practice as some students stopped attending all the classes* (c) *At first, yes. I needed to teach the students how to use the app, how to manage. Many students just downloaded the app and waited for the rest of the class to learn all about it. This takes a lot of time and a lot*

				of teaching. But once this part is over, it becomes easy.
5	**Positive aspects of technology-based instructional strategies**	**Authentic learning experiences**	Learning opportunities designed by lecturers that allow students to explore, discuss, and meaningfully create a useful shared outcome. The activities involved real-world tasks	(a) *PowerPoint use promoted active learning. After having read the text in the slides, the students focused on the notes they had made and were involved in discussions with other students.* (b) *Achieving student interaction, creating a learning environment that increases participation and combining teaching with evaluation and assessment.* (c) *The students enjoyed the lesson, as they had a better learning experience. The technology seemed to energise the classroom. They seemed to be more organised, especially in the way they made notes*
6	**Students' learning gains from the activity**	**Promotes interactive engagement**	Use of a wide range of activities that engaged students who think creatively, discuss, exchange feedback, and reflect upon the learning process	(a) *PowerPoint may do more to promote active learning… and active learning can improve students' performance in quizzes and tests… especially in the case of introductory undergraduate science courses, which are difficult for the students.* (b) *Technology alone cannot get students involved in classroom activities… it depends on the teaching style of the lecturer and the way the technology is used… I believe that only the use of discussions after presentations can make students active learners.*

7	**Lecturers' accomplishment**	**Student-centred approaches**	Actively involving learners in the construction of knowledge by transferring the control over the learning to their students.	(a) *I allowed students the opportunity to choose the app they wanted… understanding the values of the learners, and allowing them to take charge of activities. So, instead of lecturing all the time, I focused solely on supervising the activity and facilitating the learning process.*
		Empowered learners	Making students feel that they are learning in a supportive environment	(b) *I was pleased that I was able to keep students attentive and engaged; for example, using a video may help to draw attention to a specific concept and maintain students' attention on that concept throughout the duration of the video.*
8	**Lecturers' choice of technological options**	**Alternative options**	Introducing learners to new technologies and innovative teaching strategies	(a) *I'll probably check on the downloading of the app ahead of time. I would constantly search for new apps.* (b) *Using interactive videos… Students usually read the textbook, but in my opinion they will be able to understand better using their listening and visual skills… At present, I am busy preparing a ten- minute video introducing students to the contents of the lecture in a concise manner… This enables students to build an idea about the video and its content before coming into the lecture room… I will record these video clips myself, as it requires a lot of effort, but I am on it right now.*

9	**Lecturers' choice of technology for social purposes**	**Lecturers' digital transition and social relations**	Attempts to move over to digital technology, in order to improve the quality of social interaction	(a) *Outside the classroom, I use messaging apps and Google apps. It helps family members contact me. Or I can use my mobile phone or Smart watch to remind me of my schedule*. (b) *I am a very sociable person and as I am always busy preparing for lectures, technology has shaped the way I connect with colleagues, relatives and friends.*

4.3.5. Classroom Observations

In order to analyse the observed data, an outline of the information was created and tabulated (see Table 4.17, below).

Table 4.17: Observation schedule

Dimension: Teaching Methods		Lecturer 1		Lecturer 2		Lecturer 3		Lecturer 4	
NO = Not observed, M = Minimal, TSE = To some extent, VIO = Very indicative of the observation		Session 1	Session 2	Session 1	Session 2	Session 1	Session 2	Session 1	Session 2
Student-centred	Interactive lecture	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
	Students working in groups/discussion	TSE	TSE	TSE	TSE	TSE	TSE	TSE	TSE
	Whole class discussion	VIO	VIO	VIO	VIO	TSE	TSE	VIO	VIO
Teacher-centred	Students completing work alone at their desk/chair.	NO	NO	NO	NO	NO	NO	NO	NO
	Absolute control	NO	NO	NO	NO	NO	NO	NO	NO
Lecture with demonst-ration of topic or phenomena	Lecture without technology	NO	NO	NO	NO	NO	NO	NO	NO
	Lecture with technology to convey course content	VIO	VIO	TSE	TSE	TSE	TSE	M	M
	Lecture with handwritten visuals	NO	NO	NO	NO	NO	NO	NO	NO
Dimension: Pedagogical Strategies		Lecturer 1		Lecturer 2		Lecturer 3		Lecturer 4	
NO = Not observed, M = Minimal, TSE = To some extent, VIO = Very indicative of the observation		Session 1	Session 2	Session 1	Session 2	Session 1	Session 2	Session 1	Session 2
Use of notes/Android tablets/ laptops	Lecturer allows the use of any technology the student chooses and does not prescribe any particular type	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
	Lecturer writes, posts, or verbally describes the lesson outline	NO	NO	NO	NO	NO	NO	M	M
Lecturer interven-tion	Less intervention and letting things develop	VIO	VIO	TSE	TSE	TSE	TSE	M	M

	Orchestrating activities	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
	Positive reinforcement	NO	NO	NO	NO	NO	NO	NO	NO
Students are encourage d to participate	Students act as the primary speakers or lecturers in the classroom	VIO	VIO	VIO	TSE	TSE	TSE	TSE	TSE
	Greater reliance on full class discussion/collaborati on	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
Students are encour-aged to find their own meaning	Students use technology for meaningful activities	VIO	VIO	VIO	TSE	TSE	VIO	TSE	TSE
Students are encour-aged to reflect on what and how they learn	Students write about their learning in journals	VIO	VIO	VIO	TSE	TSE	VIO	VIO	VIO
	Students approach the lecturer about anything that they do not understand or fail to grasp	TSE	TSE	TSE	TSE	TSE	TSE	M	M
	Students are able to compare their work/monitor their progress	VIO	VIO	VIO	VIO	VIO	VIO	M	M
Assess-ment	A test/quiz is administered	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
	Students use technology to answer questions that explicitly seek content-related knowledge from them	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO

Dimension: Cognitive Demand		Lecturer 1		Lecturer 2		Lecturer 3		Lecturer 4	
NO = Not observed, M = Minimal, TSE = To some extent, VIO = Very indicative of the observation		Session 1	Session 2	Session 1	Session 2	Session 1	Session 2	Session 1	Session 2
Recalling and retaining inform-ation	Lecturers provide either written or verbal information, or information transmitted using online tools	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
	Students recall basic facts in response to a verbal question, or to a question posted on an online tool	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
Problem-solving	By immersing students in active, investigative learning	VIO	VIO	VIO	VIO	TSE	TSE	TSE	TSE
	Through participation in practical problem-solving activities	VIO	VIO	VIO	TSE	TSE	TSE	TSE	TSE
	Through a focus on experiential learning	VIO	VIO	VIO	TSE	TSE	TSE	TSE	TSE
Fostering creativity	Providing students with hands-on opportunities to generate new ideas when using technology	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
	Providing situations and opportunities for students to answer questions using technology for research and for practical trial-and-error challenges	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
	Allowing students to take ownership of a problem and learn through their mistakes	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE

	Allowing students to self-correct mistakes	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
Appropriate connections made to real-world contexts	Allowing students to use technologies to connect to global and diverse classrooms, in order to view real-world examples and learn from them	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
	A sufficient number of examples of real world or contextual applications of concepts and skills is presented	TSE	TSE	TSE	TSE	TSE	TSE	NO	NO
Dimension: Student-Teacher Interaction		Lecturer 1		Lecturer 2		Lecturer 3		Lecturer 4	
NO = Not observed, M = Minimal, TSE = To some extent, VIO = Very indicative of the observation		Session 1	Session 2	Session 1	Session 2	Session 1	Session 2	Session 1	Session 2
Students asking questions	Students seeking clarification of a concept	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
Lecturers asking questions	Checking for understanding (e.g. "Does that make sense?") and pausing to indicate an opportunity for students to respond	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
Lecturers' responses	Students' ideas and questions are welcomed and solicited by the lecturer	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
	Students' questions are answered or discussed	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
Students' responses	Students respond to questions posed by the lecturer	VIO	VIO	TSE	TSE	TSE	TSE	TSE	TSE

Students' interaction with each other	Pairs or groups of students chat with each other about a topic	TSE	TSE	TSE	TSE	TSE	TSE	TSE	TSE
Dimension: Student Engagement		Lecturer 1		Lecturer 2		Lecturer 3		Lecturer 4	
(Very High >75%; High -between 50 & 75%; Medium - between 25 & 50%; Low <25%)		Session 1	Session 2	Session 1	Session 2	Session 1	Session 2	Session 1	Session 2
Actively taking notes		75%	75%	75%	75%	75%	75%	75%	75%
Looking at the instructor/course materials		75%	75%	75%	75%	75%	75%	75%	75%
Using technology		75%	75%	75%	75%	75%	75%	75%	75%

Based on the results presented above, the findings are discussed in the following sections.

4.3.6. Findings: Research Question 1

How do Kuwaiti HE students use technology in their academic and social lives to connect informal learning to the formal learning environment?

The themes that emerged from the qualitative data analysis, which included interviews, observations and diaries, were used to answer this research question.

Convenience and Usability

The students interviewed stated a preference for mobile devices, since such devices are small, "*accommodated many features*" (Student 1) and were highly portable. The main features indicated for these devices were 'convenience' and 'usability', as phones and tablets can be accessed from anywhere and at any time. Therefore, the theme that emerged from the responses to Question 1 was 'convenience and usability', which was merged with another theme, 'size matters'. Mobile technology is in fact known for its innate usability and convenient portability. Most of the students seemed to have recognised this convenience and ease-of-use. According to one student, mobile devices are "*lightweight and portable*" (Student 5). One student remarked:

> One of the most important technology [tools] I use to enhance learning is YouTube, which I access using my tablet. (Student 4)

The convenience and usability of the above-mentioned tools and devices were reiterated by several students; one particular response being:

> I use technology, for example, social media using my mobile phone from home and elsewhere to connect with some teachers and students at college. (Student 8)

The observational data confirm the findings from the interviews and documentary analysis of the diaries. The findings reveal that the students relied heavily on multiple technological devices and resources to complete academic tasks. In other words, the students were bringing their mobile phones and tablets with them to the classroom and using these devices to personalise and improve their educational experience.

Basic Technologies and Facilities

The interview findings show that the students were using the 'basic technologies' provided by the College of Basic Education. Therefore, they had to use their own technological tools, creating 'bring your own device (BYOD) situations'. These themes were merged to create the single theme, 'basic technologies and facilities'. According to the students, the technologies available at the College of Basic Education were not extensive, consisting solely of "*desktop PCs and display screens*" (Student 1), "*overhead projectors, display screens, and laptop chargers*" (Student 7), and "*laptops, presentation equipment, video-conferencing facilities, etc.*" (Student 9). Moreover, although there was Internet access in all departments, the complaint was that:

> The number of these (technological) devices is very limited and there is a rotational system in the use of the equipment. (Student 4)

Therefore, the students were using their own devices, such as laptops, tablets and mobile phones. One student reported that "*all students bring their laptops*" (Student 10), which led to the emergence of the theme, 'bring your own device (BYOD) situations'. The observation data suggest that the students practiced BYOD because they were familiar with their own equipment. The findings from the data gathered in the classroom indicate that the lecturers allowed the students to decide on the technology or materials (for example laptops, tablets or mobile phones) that they preferred to use in the classroom. This demonstrated that the lecturers permitted the unstructured use of technological devices, which was very indicative of the observation (VIO) in the eight classroom sessions involving the four lecturers. The lecturers had allowed the students to use their own devices, because they understood the educational value of mobile phones and tablet computers to facilitate their learning. One important reason for permitting these devices in class was to provide a means of giving feedback on the students' progress.

Self-directed Engaged Learning

The sub-themes 'enhancing learning motivation and experience', 'independent learning', 'self-directed learning', 'actionable response' and 'engaging with content' from the thematic analysis of interview data and diary entries were merged to form the main theme, 'self-directed engaged learning'. The students' interview responses to the question on the benefits of technology and its impact on the respective institution suggest that technology can enhance learning environments by increasing learners' motivation and engagement. Some of the responses to the interview questions included:

> [Technology helps] to understand better than reading... In addition, it breaks the routine... The teaching style makes me understand the lesson and benefit at the same time. (Student 1)

> Technology facilitates the process of understanding the lecture. (Student 5)

The student suggests that lectures followed by online research helped in understanding what was being taught. Another theme that emerged was 'independent learning' or 'self-directed learning'. During the interviews, one student responded as follows:

> I use technology for searching articles… I mean online journals. It slowly dawned upon me that I was becoming an independent learner... encouragement from my lecturer makes me believe he is doing it because he wants me to gain from the benefits of technology. (Student 11)

Some students were also of the opinion that they had acquired skills on their own. For instance, one student responded during the interview:

> I do not find any difficulty in using technology, as I have been using a tablet since 2010. I also use mobile phones… I developed these skills on my own… watching my brothers in action at home. (Student 5)

Another believed that he was able to use technology well because of being born during a period, when there was widespread adoption of digital technology:

> I consider myself a digital native… I have been using technology, for example phones, laptops, IPods, IPads, Xbox, etc. for quite some time now. The skills I developed playing games have helped me academically. (Student 10)

The students had evidently realised that the rapidly-developing 21st century world of work and knowledge requires individuals to be capable of self-directed learning. The students noted in their diaries that they had received prompt feedback, developed problem-solving skills and were able to learn on their own. One of the notes read:

> Students need feedback to better understand a lesson or a topic, while lecturers need feedback to improve teaching. (Student 4)

Feedback and the use of appropriate technology seemed to have engaged the students. These responses are similar to those of the entries made by students in their diaries.

> I am happy with the feedback - real-time feedback for both students and lecturers. This has helped me understand the lessons well. (Student 7)

Similar views were expressed in writing by another student:

> The Audience Response System was suitable for responding and obtaining the results immediately. It is a totally different experience. It is quite unlike classroom tests and I don’t have to wait anxiously for the results. (Student 6)

These statements suggest that the students were happy with the feedback and prompt responses from the system and the lecturers. In this way, they were able to ascertain whether they had correctly understood a concept. They could also clarify misconceptions about the topic. From these responses, the theme of ‘actionable response’ emerged.

Another diary entry stated that the technology made them autonomous learners:

> When the Audience Response System is used, I can respond to questions independently without being judged by others. It allows privacy and I can participate in the learning process without having to listen to what others may say about my responses. At the same time, if my answer is correct I feel better. (Student 7)

The above response suggests that the students were also able to solve problems on their own and therefore self-regulate their learning. One more student was of the opinion that:

> I can solve problems on my own, [both] language and grammar-related, immediately after the video. This is an ideal way of learning a difficult subject. (Student 10)

As independent learners, the students were also able to engage with content or more specifically, with the learning process. One student who did so jotted in the diary:

> I believe that technology encourages deeper thinking, and allows learners to process content and then express it in different forms. The lecturers are aware of the benefits of technology, of how students engage with technology and are therefore more involved in creating and presenting content. (Student 9)

Although they were independent learners, the students gave credit to their lecturers, who used innovative ways of harnessing their students' interest to help them grasp academic content. Yet another student affirmed this in the following diary entry:

> The use of the Audience Response System helped me become an independent learner. I am now able to understand the different concepts and interconnect the two. It has enhanced my problem-solving skills. (Student 7)

The students who engaged with the content were actually interacting through online resources:

> I am able to interact with the course content. Maybe this was the reason the college integrated technology into classrooms. (Student 10)

Engagement is the key to effective teaching in HE. Getting students to engage with content in fact enables them to reach a place of understanding. In such environments, students have enough space to learn at their own pace. Overall, the students suggested that technology provides immediate information, lets learners explore and gives instant feedback.

The aforementioned statements suggest that the students had the ability to engage in reflective and independent thinking. Moreover, independent learning depends on constructive interaction between students and lecturers. Through their statements, the students implied that they were able to take the initiative and accept responsibility for their own independent learning.

Teachers as Facilitators

When the students were asked how they had acquired skills and knowledge for using technology in their learning, most responded that their lecturers had played a key role in teaching them these skills. Some of the responses indicating lecturer involvement were: *"I get encouragement from the teacher to use technology"* (Student 2) and *"at the college, I developed practical skills"* (Student 1). These responses show changes in the attitudes of the teachers, who appeared to assume the role of facilitators. This behaviour was also very revealing during the observations. According to the students, the lecturers had facilitated intellectual exchange with them. For instance, the students mentioned in their diaries that the appropriate integration of technologies by their lecturers, such as the Audience Response System, allowed them to:

> Improve my ability to make sense of the question and the subsequent selection of a correct answer. (Student 5)

The teachers as facilitators had encouraged the students to use the technologies, which had helped the students to engage in dialogue. One of the diary entries reveals that the students were able to shed their inhibitions and:

> …actively discuss misconceptions and construct knowledge. (Student 6)

The observation data appears to supplement and corroborate the information obtained from .interviews and diaries. It was observed that the lecturers had allowed the students to engage with their tasks and let things develop on their own. This suggests that the lecturers' pedagogical role must have included facilitating and guiding discourse and in doing so, the lecturers seemed to have adopted socio-constructivist instructional methods.

Gaining Real-world Experience

This theme was derived by merging the sub-themes, 'hands-on technologies' and 'Web-based/online resources', which were created after analysing the interview data, together with 'enhanced critical thinking', following an analysis of the students' diaries. The students reported that they had acquired their skills and knowledge relating to the use of technology for academic and social purposes on their own. Moreover, the students interviewed felt that they had not necessarily had to acquire skills in using social software:

> The use of social networks, such as Facebook, Twitter and WhatsApp, etc. does not really require very good skills. (Student 1)

One of the students reiterated:

> During my school years, I spent a considerable amount of time using the apps, chatting with friends, my parents, relatives, etc. Maybe it was happenstance learning. (Student 7)

Whether they had acquired these skills on their own, applying capabilities they had developed using the gadgets, or whether this was by 'happenstance', it shows the perseverance of these learners in adopting technology:

> Nobody goes to training institutes to acquire technological skills for chatting or watching videos online… I mean for using Smartphones or tablets. I acquired these skills by persevering in using new gadgets. (Student 9)

Yet another student indicates how he had acquired the respective skills, thus:

> I have had access to technology and social media, such as YouTube, Facebook, Twitter and Instagram for several years and I really do not know how I acquired the skills. Of course there was no training. (Student 6)

According to one interviewee, the rationale for acquiring the skills was to use the technology appropriately for academic purposes:

> I use my IPad to read online articles, and I also use it to log into the department website, where I can search for links and material related to the curriculum… Most of the time, I retrieve any messages or instructions left by the teacher on the website or by email… It is quite beneficial for me... (Student 1)

One student responded during the interview that the ability to access online resources was crucial for acquiring knowledge:

> I use the Google search engine and read all the information that can help me to understand the lesson… The information is so diverse and useful, but because there is so much of it, I just selected what was useful for me… (Student 4)

Meanwhile, the diary notes of another student showed that learners can acquire real-world knowledge by critically analysing information when technology is used:

> By analysing questions and receiving other students' responses, which the Audience Response System enables, I was better able to make sense of the questions and subsequently select the correct answers. (Student 5)

This response suggests that the students' critical thinking skills were enhanced when technology was used in the classroom. It also illustrates that the students wanted to gain real-world experience; that is, performing hands-on work and getting a better grasp of technology and related concepts. Using technology in fact enhances 'learning by doing', otherwise known as experiential learning.

Builds Students' Self-efficacy

The theme, 'builds students' self-efficacy' was generated by merging 'peer support' (a sub-theme from the interview data analysis) and another sub-theme, 'enhances self-efficacy', which emerged from analysing the diaries.

When the students were questioned during the interviews about the difficulties they had faced in understanding the technical aspects of using technology for learning and social purposes, they replied that they had received support from their peers and lecturers:

> I used to face difficulties when using technology for learning, but I get constant assistance from peers and lecturers. (Student 8)

> I don't have any issues with the applications used in classrooms… The teacher… also offers support and help on how to use technology… I don't think there are any issues in using technology for social purposes. (Student 4)

It is evident from the above responses that the students sought motivation from teachers or peers when using technology for learning and they only needed this when seeking to engage in learning activities. When using technology for social purposes, the students were more innovative and had greater self-belief.

Nevertheless, a lack of self-belief was evident when using technology for learning:

> The difficulties I face are usually associated with technical issues... Usually, the instructions are given in the English language, which I do not speak fluently. I don't have any problems when using phones or tablets for social interaction or for entertainment purposes. (Student 2)

This seems to suggest a need to enhance students' perceptions of self-efficacy. However, the technical support staff and lecturers did appear to help build self-efficacy in the students:

> I face difficulties in dealing with modern applications, because the rapid development in modern applications and services needs constant follow-up and assistance from technical support staff. (Student 1)

> I have difficulties at times, but I have lecturers who offer support. (Student 5)

Although the lecturers supported the students, the findings from the observations show that they did not seem to exercise absolute control over the classroom. Another instance of lecturers enhancing student self-efficacy was evident when appropriate online resources were used. For instance, the students mentioned in their diaries that YouTube seemed to have had a big impact on them:

> It is a fun way of accessing language videos. I had only used it for watching movies or games. It helped me learn more about the fundamentals of language and the basics of grammar. (Student 11)

> Language and grammar are interesting, but also difficult. I was able to perform better in the tests after viewing the videos developed and uploaded by the lecturer on YouTube. (Student 12)

From the aforementioned diary entries, it is apparent that the YouTube videos appeared to have increased learners' self-efficacy, or enhanced the students' belief in their own capabilities.

Besides, the students noted in their diaries that the technology and instructional strategy adopted by their lecturer, *"improved student attendance in classrooms"* (Student 12), allowed them *"to get immersed or to focus on the activit*y" (Student 6) and to become *"committed to the topic"* (Student 7), suggesting that they were motivated to learn more. The other positive aspects of the experience were that it (YouTube) made *"learning fun"* (Student 9) and *"informal*" (Student 10). The students had positive perceptions of technology, because its use was supplemented by "dialogue, interaction and discussion" (Student 5) with teachers and fellow students.

The aforementioned results also suggest that the students valued the importance of technology. However, they did not believe that they could tackle all difficulties on their own and were therefore happy to have teachers and peer support.

Disruptive Teaching Practices

The theme, 'disruptive teaching practices' was generated while analysing data from the student diaries and includes the initial theme 'student-centred approaches', which emerged after analysing the students' interview data. The students mentioned the following in their diaries about the instructional strategies/teaching style adopted by the lecturers when using technologies:

> I find PowerPoint presentations to be very helpful, because the lecturers use information, charts, graphs, picture illustrations, etc. They also hand out printed copies of the presentations, which is convenient. It enables me to learn subjects in an easier way. (Student 1)

> By presenting the lesson using PowerPoint, the lecturer seems to encourage students to focus more on the topic, ask questions and obtain feedback. (Student 2)

Other students noted in their diaries that the use of the Audience Response System by one of the lecturers enhanced *"interaction"* (Student 5), helped assess or *"evaluate the progress of students"* (Student 6) and that the technology prompted the students *"to learn, as there is the feeling that I am more involved"* (Student 7). With regard to the use of YouTube videos, one student noted that the lecturer wanted to:

> …encourage students to learn grammar, knowing well that we often use YouTube for entertaining ourselves. (Student 12)

The above-mentioned extracts from the student diaries suggest that the lecturers were using technologies for teaching and learning that resulted in the disruption of previous practices. According to the students, the technologies had increased their learning performance.

Similar views were expressed by the students in their interview responses. They specified that the lecturers were using ‘student-centred’ approaches when incorporating technology into the classroom. Giving students the opportunity to learn from real-life cases, while teaching them problem-solving and critical-thinking skills, the lecturers sought to give their students more control over their learning. The findings from the classroom observations also show that the lecturers wanted the students to learn at their own pace. This shows that adopting the socio-constructivist approach is ideal for lecturers in technology-based classrooms. One student responded as follows:

> Today, learning is student-centred and the lecturer allows us to make contributions to the lessons, which have already been planned by him. (Student 4)

Yet another student elaborated:

> [The] lecturer allows classroom discussion and we are encouraged to exchange ideas with him and amongst ourselves. (Student 5)

These responses illustrate that the lecturers promoted collaboration and interaction.

Taking the Initiative

The question concerning how the students kept abreast of technological developments exacted basically the same response from all the interviewees, except that it was worded differently in each case. The students felt that the college did not help them in any way to keep abreast of new technology. According to one participant:

> I think the college is behind in terms of providing technology… We have to look for answers from fellow students. (Student 1)

This response indicates that the students were obliged to take the initiative. They would make use of online resources or exchange information with their peers, keeping each other informed of the latest technological developments. Some of the responses that generated this theme were that the students obtained all the information *"from friends"* (Student 13), by reading *"online magazine[*s]" (Student 7), checking *"college news bulletin boards"* (Student 10) and by *"using Google Reader, which notifies [them] of the launch of new technologies"* (Student 14).

Unmet Student Expectations

This theme was created by merging three initial themes from the interview data analysis: 'unmet student expectations', 'lack of training', and 'disempowered students', as well as 'failure to engage with content', which emerged from the diary analysis. There was a general belief among some of the students interviewed that technology integration alone would not prepare them for the future, in spite of *"a nationwide strategy in the country to prepare us for the labour market"* (Student 2). This belief was evident in most of the interview responses to the question on how technology prepares students for the future.

> Unfortunately, there appears to be a dearth of equipment and applications and the ones available are almost obsolete. (Student 2)

One of the students frustrated with the situation replied:

> Curriculum design has to be changed to meet student expectations. I am still struggling with technology and understand that it is a necessity if I am to succeed in the future. (Student 13)

Samples of the notes made by the students in their diaries on the difficulties they had encountered complemented the views of the interviewees:

> The presentation was monotonous. Although I had already read the topic from the text book, I found the information confusing. I prefer traditional lectures. (Student 3)

> I prefer PowerPoint presentations, as lecturers can use more slides to provide more content. However, with the Audience Response System, less content is addressed. It is only ideal for question-answer sessions. (Student 8)

The interviewees observed that the technology used by the lecturers was basic and limited solely to presentations, because they were unfamiliar with emerging and more sophisticated educational technologies. For example, one student responded:

> The lecturer seems to convert the lessons into PowerPoint slides. He does not use any other type of technology. He tries to help but it seems he has constraints. (Student 7)

Similar views were expressed by another interviewee:

> The lecturers understand that they have to prepare students for the future, but they do not have the capability to incorporate critical-thinking or problem-solving skills. They need support. (Student 11)

One student felt that the lecturers were not teaching them how to acquire 21st century skills:

> Technology should be used to enhance critical thinking, problem-solving skills and collaboration… not just because lecturers are compelled to use technology by the management. (Student 10)

The statements cited above imply that the students were not happy with the way content was presented; meaning that they were unable to 'engage with the content' or material. They appeared to be unable to actively participate in the learning, or see any value in what they were learning. These responses also imply that the lecturers, who were unable to connect content knowledge with an understanding of how students' learn, lacked training and were therefore insufficiently prepared to meet the needs of 21st century learners in an effective manner.

Impact of Technology on Learning

The themes, 'supports flexibility in learning processes', 'fosters collaborative learning', 'peer learning', 'fosters social interaction' and 'enhancing motivation to learn' emerged from responses to the interview questions. These were merged to form the central theme, 'impact of technology on learning'. The students' interview responses on the impact of technology on learning indicate that they had experienced better interaction with their peers and lecturers when using technology designed for social-networking. The sub-theme, 'fostering social interaction' refers to technology which supports interaction. Two particular responses that endorsed this theme were:

> I join in discussions and interact with colleagues… It is so interesting to be an active participant in the learning process. (Student 6)

> I used to be an introvert. By regularly using technology, interacting with teachers and fellow students and taking part in regular classroom discussions, I have become socially interactive. (Student 14)

These findings show that learning through interaction can enhance the construction of knowledge. Besides enhanced interaction, however, the students felt motivated by feedback from their lecturers. Two such positive responses are quoted below:

> I get feedback from my tutors on my tablet. Everything about technology is positive. (Student 2)

> I try to take advantage of all the educational tools and technologies that are at my disposal… It certainly has a positive impact, as my academic performance has improved. (Student 4)

In other words, technology had enhanced the students' motivation to learn. Technology also seemed to have changed the way in which the students learned, as they were using cloud computing to save and share their documents. According to one participant:

> For all my courses and assignments, I use Dropbox, a cloud computing tool to store and share my academic work with other students. (Student 10)

This and several other findings led to the development of the theme, 'fosters collaborative learning'. One such finding was from the classroom observations, where the students were observed working in groups and engaging in discussion. This would also suggest that the teaching methods were student-centred, rather than teacher-centred, since the lecturer was enabling the students to build relationships and collaborate.

Another student was of the opinion that technology enabled 'peer-learning':

> The videos posted by peers on YouTube, or the scientific films and documentaries shown in the classroom by the lecturers can potentially help me become well-prepared to answer the questions on exam day. (Student 3)

All these responses indicate that technology supports collaborative learning environments, where students can get involved in sharing ideas; discussing concepts; debating questions; actively participating, and constructing knowledge together. Moreover, the students noted that a mobile application ('app') gave them the opportunity to translate material into their mother tongue. For example, one student reported:

> Technology has changed the way I learn… especially when I use translation apps for translating English into Arabic. This helps me to better understand what I learn. (Student 2)

The Social Downside to the Conveniences of Technology

The sub-themes or initial themes emerging from the interview data analysis, such as 'increases anxiety levels', 'shallow learning', 'reduces social involvement and psychological well-being', 'depersonalisation', 'sedentary lifestyle', and 'parental permissiveness or restrictiveness' were merged to develop one central theme: 'The social downside to the conveniences of technology'.

The students' responses to the question on the drawbacks of using technology for learning suggest that some were indiscriminately searching for information from online resources, in the belief that it would automatically be relevant and appropriate. One student voiced his concern:

> I don't believe that technology supports learning. It is just good for collecting information that is available online. I am not certain if some of this information is genuine. The demerits offset the merits. (Student 11)

In other words, the students were only accessing the superficial features of online learning situations and so their learning was not deep, but rather shallow. Students need to be motivated if they are to learn deeply (Fullan & Langworthy, 2014). Also evident was the belief that students should wait for feedback, reminders and announcements from teachers. Responses about making 'students wait for reminders and announcements from teachers' showed that the students were not proactive.

Regardless of the above, the increase in the number of social networking sites used by students for entertainment and recreational purposes, together with their use of technology via LMSs and online resources for completing and posting their assignments actually appeared to be taking its toll on them in various ways. The students pointed out the following effects of technology:

> [It h]as made me more or less lazy in spite of being young… It is claimed that using technology affects eyesight, heightens stress levels, and increases the chances of becoming overweight and even obese… I understand it is useful but it depends on the user. (Student 2)

> I think health-wise, technology can cause physical damage because of stresses and strains. (Student 7)

There was some concern amongst the students that they were becoming more prone to health-related issues, such as obesity, due to a lack of physical exercise, since technology can lead to a sedentary lifestyle. Moreover, some believed technology could increase anxiety levels. One student explained:

> Technology diverts attention from class activities, and makes students wait for reminders and announcements from teachers. (Student 12)

This response suggests that students can develop anxiety if they must wait for teachers to give them feedback on their work in the form of comments on their assignments or coursework.

When the students were prompted about particular issues concerning technology and social communication, they felt that technology could have an adverse effect on their daily lives. There were some negative responses and these were used to develop the three themes associated with the items, 'reduces social involvement and psychological well-being', 'depersonalisation' and 'sedentary lifestyle'.

Researchers have found that excessive use of technology in the social lives of children can have a negative impact upon them (Anderson et al., 2010; Ferguson, 2013). One student's response confirmed that this was also true in his age group:

> Although it is a good tool for social communication, I feel it has an adverse effect on students' academic lives; for example, it can cause obesity due to a lack of physical exercise. (Student 13)

Some responses also clarified that the students led a 'sedentary lifestyle', as they spent a considerable amount of time online, without ever having to leave their devices. One student stated:

> I use technology for all social interactions. At times, I overindulge in it. (Student 14)

The theme, 'depersonalisation' is associated with students who behave in peculiar ways, such as by constantly playing computer games and not finding time to communicate with their families. According to one student:

> Technology affects academic performance in terms of the time it demands. I spend a large amount of time playing games. I don't use it to contact my family. It affects my studies. (Student 9)

In other words, students were isolated or disconnected from others in their community, as they were engrossed in a virtual world of their own. There were also concerns that parents were not permissive. In response to the prompt about parental concerns of their offspring's online activities, the students remarked that:

> I have to make my parents understand how important technology is for the younger generation… They do not understand. In their opinion, technology can be used only for games. (Student 2)

This response suggests that the parents were anxious that their children would over-indulge in online activities and access unwanted material:

> My mother always advises me to use technology appropriately… Her main concern is that I may access unwanted sites. (Student 4)

> Parents in the Arab world are very concerned over inappropriate content and damaging videos, which entice young people to join certain groups, who are intent on creating terror. I have convinced them and have reduced my time spent online when I am at home. (Student 10)

However, other students did not feel that their parents restricted them, as they were aware of the benefits of technology. According to two such students:

> My father wants me to be tech-savvy. (Student 8)
>
> My parents are understanding. There are no constraints. (Student 11)

The data revealed that parental attitudes were indicative of over-parenting, with such approaches possibly being triggered by conservative beliefs. In view of the contrasting parenting styles evident from the students' responses, the theme, 'parental permissiveness or restrictiveness' was developed.

4.3.7. Findings: Research Question 2

How do Kuwaiti HE teachers use technology to support their teaching practice?

The initial themes emerging from the data analysis of the lecturers' interviews, diaries and classroom observations were merged and are presented below to answer this research question.

Rationale for Technology Adoption

The central theme, 'rationale for technology adoption' was developed by merging four themes that emerged from the interview data analysis: 'preparing students for the future', 'attempting to meet student expectations', 'engaging and monitoring students', 'students' learning preferences' and one theme: 'promotes interactive engagement' from an analysis of the lecturers' diary entries.

The lecturers' responses to the interview questions revealed how strongly they felt about the need to prepare their students for the future. They appeared to believe that this could only be achieved through technology integration.

> The adoption of technology stems from the need to prepare students for the labour market, because in today's world, most jobs require candidates to have ample knowledge of how to use technology. (Lecturer Dr. KHA)

Another lecturer remarked:

> [T]he institution continuously encourages lecturers to adopt technology and to make it part and parcel of teaching. Obviously, this is done in order to keep pace with developments in the field and achieve the goals that the state is seeking to meet in terms of embracing technology in all its forms, for educating and preparing students for the future. (Lecturer Dr. HAM)

The responses suggest that lecturers in Kuwait have realised it is necessary to teach skills that can be transferred to everyday life and future success. The importance of developing skilled talent pools amongst students - through new ways of teaching and learning via technology - and for 21st century skills to be acquired, has been stridently argued by many researchers (D'Aloisio, 2006; Snape & Fox-Turnbull, 2011).

In order to prepare students for the future, lecturers ought to have certain expectations of student behaviour and academic performance. Such expectations may be necessary, in order to be able to influence students' academic achievements. However, students also have expectations when they are in a technology-based environment and consequently, lecturers may need to use technologies to implement curricula designed to meet such expectations. These could include active learning; the delivery of prompt feedback; collaboration, and interaction, which allow lecturers to help students relate the lesson to their own experiences, both in and outside the classroom. As one lecturer responded:

> Students do not want to sit and listen to lectures anymore, because today's learners seek an interactive learning experience. (Lecturer Dr. HAS)

According to another lecturer, the needs of students who use different technologies can only be met, if those tools are also used by the faculty:

> As a member of the teaching staff, I am no stranger to using different technology devices. The main reason is that most students wish to access information about a topic using a variety of methods. (Lecturer Dr. HAM)

Besides, students learn in different ways and lecturers have to adapt to their learning styles and preferences.

> I find the majority of students are receptive to the idea of using technology, since it aims to relay information and make it easily accessible for learners… Another aspect is that it is an unconventional style of learning that draws the students' attention. (Lecturer Dr. KHA)

The students stated a clear preference for using technology, which was evident from their responses in earlier sections. The lecturers interviewed therefore realised that they needed to understand their students' learning preferences, if they were to successfully integrate technology for teaching and learning. The students expressed preferences for certain devices, studying in designated learning spaces and using visual media. One lecturer, who was aware of the impact of YouTube videos on young people, commented during the interview:

> I use YouTube to introduce a topic. The visuals help learners to easily acquire and retain what they see and hear. (Lecturer Dr. EM)

> I felt the students were getting bored with traditional lectures. I also felt that as a phonologist, I should help my students practice transcription the right way… through listening… (Lecturer Dr. HAN)

Another lecturer elaborated that the technology often used by the students was best suited to the presentation of ideas and concepts:

> It is an ideal platform for presenting ideas and concepts in the form of text, videos or images. (Lecturer Dr. ABD)

Moreover, the lecturers were aware that today's generation of learners most often use technology for their amusement and socialising. However, it can be seen from the above responses that the precise nature of technology use is also influenced by the context of that use. Therefore, understanding students' learning preferences may be useful for informing curriculum design or pedagogical approaches. In addition, there was the realisation among the lecturers that learners are not passive anymore and tend not to appreciate traditional teaching approaches. Therefore, alternative strategies are required to engage them. In order to meet students' needs, lecturers are consequently using active instructional strategies, which involve interaction.

Aside from the above, the lecturers considered student engagement as crucial for enhancing learning and teaching in HE, especially when technology was being used. In order to enhance such student engagement, one lecturer reported during the interview that he integrated an LMS, which also helped monitor the students:

> The learning management system allows me to determine how long students have been actively engaged online and when they have submitted their work. (Lecturer Dr. MOH)

The lecturer added:

> Students increasingly value technological tools and engage with various devices. I use technology to engage students. (Lecturer Dr. MOH)

It is also apparent from the diary notes that the lecturers were using technological tools/software to promote interactive engagement:

> PowerPoint may do more to promote active learning… and active learning can improve students' performance in quizzes and tests… especially in the case of introductory undergraduate science courses, which are difficult for the students. (Lecturer Dr. HAS)

Another lecturer wrote that the use of technology enhanced active learning:

> They did not seem to be passive learners… [I] saw more signs of keenness and interest in them. (Lecturer Dr. HAM)

In other words, the students were able to achieve better learning outcomes, because the lecturers had created an interactive learning environment. The following is one diary entry which elaborates on this:

> [The] students considered the Audience Response System as having a positive effect on their learning, which can be seen in their attentiveness, the way they prepared for the classes… there was a marked difference in their attendance. What the students wanted was instantaneous feedback after the activity." (Lecturer Dr. MO)

A further instance of enhancing student engagement was evident in the following diary entry:

> They seemed more interested… especially when they started engaging in discussions… Technology alone cannot get students involved in classroom activities… it depends on the teaching style of the lecturer and the way the technology is used… I believe that only the use of discussions after presentations can make students active learners. (Lecturer Dr. ZWE)

Studying Sciences, Business Management, or any other subject at undergraduate level is complex and therefore, cognitively challenging. However, it can become easier to learn a complex topic, where lecturers promote methods of interactive engagement. These methods may include questioning students or challenging them to engage in activities that require thinking skills. In other words, it is an instructional strategy for active learning (Eison, 2010).

Aligning a Creative Curriculum

Two themes, 'being creative' and 'curriculum-aligned', were merged to form the key theme, 'aligning a creative curriculum'. These themes were created after analysing the interview data. The lecturers' responses suggest that they were creative, when it came to planning and managing their lessons. Some of them considered it to be their responsibility to enhance student learning and were seen to use an LMS, such as Canvas, and applications like My University, or the Audience Response System. One interviewee stated that by using Canvas, a faculty can *"divide the lecture into two sessions to break the monotony and make it more interesting".* (Lecturer Dr. MOH)

Another lecturer who used documentary videos stated:

> I use documentary videos which help in supporting the curriculum and also in changing the conventional lecturing style and note taking. This is a better way of managing lessons… especially using an educational film through which information can be relayed to the students and instilled in their memory… This is usually followed by discussions to make sure that everyone has understood the issues raised during the lecture. (Lecturer Dr. KHA)

In response to the question about educational resources, the lecturers declared that they were confident with them and claimed that the tools they used most were mobile apps, Canvas, laptops, YouTube and PowerPoint. Explanations for the selection of these technologies were provided by the lecturers during the interviews. For instance, they declared that they integrated mobile apps into the curriculum, as it allowed the students *"to access, communicate and reflect upon the information presented"* (Lecturer Dr. HAN), made learners more *"comfortable with the Canvas programme"* (Lecturer Dr. MOH), and by using software such as PowerPoint, the faculty were able to *"capably achieve the objectives of the curriculum".* (Lecturer Dr. HAN)

According to the lecturers, the rationale for aligning technology with the curriculum was because the students were satisfied with it. Most importantly, the lecturers were successful in aligning technologies with content and pedagogy.

Promotes Authentic Learning

The theme, 'promotes authentic learning' was created by merging the interview themes, 'engaging and helping to instil confidence in students' and 'sustainable feedback practices', as well as the themes from the diaries, 'promotes deep learning' and 'authentic learning experiences'.

The lecturers narrated stories of their success in adopting and using technology. The following responses to the interview questions demonstrate how the lecturers were able to engage and motivate their students to learn about specific topics:

> Mobile apps, such as WhatsApp, which I use for the Phonetics and Phonology class are either cheap or completely free, which makes them easy to obtain. I used these and saw that students, who had been very depressed earlier because they did not understand phonetics, left the class with confidence. (Lecturer Dr. HAN)

Another lecturer recounted how the students interacted when technology was used:

> I was teaching a topic [relating to] crimes against humanity and used videos related to these crimes… the PowerPoint presentation device is quite useful for these images, as there is a big screen and everyone can watch..... Actually, I do receive quite a positive response and interaction from most students. (Lecturer Dr. HAM)

The diary entries also reveal that technology supports active learning:

> PowerPoint use promoted active learning. After having read the text in the slides, the students focused on the notes they had made and were involved in discussions with other students. (Lecturer Dr. HAM)

One lecturer noted in his diary that the use of technology allowed the students to participate in learning activities by:

> …achieving student interaction, creating a learning environment that increases participation and also combines teaching with evaluation and assessment. (Lecturer Dr. ZWE)

Another lecturer wrote that the students were more energised and organised as a result:

> [The] [s]tudents enjoyed the lesson, as they had a better learning experience. The technology seemed to energise the *c*lassroom. They seemed to be more organised, especially in the way they made notes. (Lecturer Dr. AB)

The above accounts from the lecturers indicate that they were making greater use of active teaching modes; involving students in learning through the use of technology and helping them develop their understanding and skills (Tuominen, 2013). In other words, they seemed to be promoting deeper learning. The diary entries also indicate that the technology integrated by the lecturers supported deep learning:

> The classroom activity involved how students can look for information on the immigration crisis in Europe. Although I had used PowerPoint to highlight the issue, [the] students were able to find other ways of locating information about the situation …[they] used CNN news, Yahoo news and AOL to independently educate themselves. They were totally immersed when they were looking for the information. (Lecturer Dr. HAM)

Another important aspect was the fact that the students sought feedback from the lecturer and their fellow students. One lecturer wrote:

> Although [the] students were immersed in their activities, … [they] learnt mainly through feedback; through question and answer sessions. (Lecturer Dr. ZWE)

This point was echoed by another lecturer in his diary:

> I used very low density of text in the slides… this was to generate discussions… the students welcomed it… I also added graphics - both appeared to have stimulated positive student feedback. (Lecturer Dr. KH)

The literature explains that the aim of feedback is to enable the gap between the actual level of performance and the desired learning goal to be bridged (Lizzio & Wilson, 2008). Two particular responses from the lecturers to the interview questions epitomise the significance of using certain technologies to provide feedback for students:

> I chose Canvas, as it helps me communicate with students and enables me to provide them with prompt feedback. (Lecturer Dr. MOH)
>
> I use emails to provide feedback to students on assignments. When I started teaching at the college, I used traditional teaching methods. I provided feedback directly to students and those who did not fare well were not happy with it, because of the presence of other students in the classroom. On the other hand, when I sent feedback via email, they were pleased. (Lecturer Dr. ZEW)
>
> I use the technology available to me in the lecture room... As a result of some technical obstacles, I usually bring my own device and speakers to show short films and images... I also use them to access diverse sources. Moreover, I make sure that each student has an e-mail address to enable communication, as it allows to me to send them results or feedback on assignments. (Lecturer Dr. KHA)

By including discussion sessions and providing feedback, the lecturers engaged the students and created opportunities for deep learning. It is argued that deep learning prepares life-long, creative learners, who are connected and collaborative problem-solvers (Simelane & Dimpe, 2011). Furthermore, deep learning not only reduces guesswork and rote memorisation among students, but also encourages debate and discussion (Simelane & Dimpe, 2011). Overall, active and deep learning complemented by speedy feedback were found to create an authentic learning environment.

The literature indicates that in authentic learning environments, the focus should be on designing appropriate content and activities to reflect real-life situations, in which students become active participants in the learning process (Neo, Neo & Tan, 2012).

The findings from the current study suggest that by using a wide range of activities, lecturers can engage their students, instil confidence and create an environment, where learners can think creatively, discuss topics, exchange feedback and reflect upon the learning process.

4.3.8. Findings: Research Question 3

What are the lecturers' pedagogical beliefs with regard to the use of technology to support student learning?

The initial themes emerging from the data analysis of the lecturers' interviews and diaries were merged and are presented below to answer the research question.

Desire to Keep Abreast of New Technologies

The theme, 'desire to keep abreast of new technologies' also includes 'alternative options' - a sub-theme derived from the data analysis of the lecturers' diary entries. The lecturers wanted to make an effective choice from among new technology options. In other words, they wanted to try out new technologies, with two of them writing the following in their diaries:

> I'll probably check on the downloading of the app ahead of time. I would constantly search for new apps. (Lecturer Dr. HAN)
>
> I will try using the Audience Response System. (Lecturer Dr. HAM)

Technology use is claimed to maintain or improve cognitive abilities by exercising the brain. This is in fact what one of the lecturers had experienced:

> It supports the way the brain works through 'brain-training' activities. (Lecturer Dr. HAN)

The lecturer using the Audience Response System had similar plans and wrote:

> Using interactive videos… students usually read the textbook, but in my opinion, they will be able to understand better using their listening and visual skills… At present, I am busy preparing a ten-minute video introducing students to the contents of the lecture in a concise manner… This will enable students to build an idea about the video and its content, before coming into the lecture room… I will record these video clips myself, as it requires a lot of effort, but I am on it right now. (Lecturer Dr. MO)

The lecturers interviewed claimed that they used basic devices, such as laptops, overhead projectors for presentations, mobile phones and Android tablets. Moreover, mobile devices were used to access social-networking sites and apps, such as Twitter, WhatsApp and YouTube. Some of the responses to the interview questions suggest this:

> I prefer YouTube, as it helps in teaching language and improves learners' language skills. (Lecturer Dr. EM)

> I do not use my email when communicating with my students. Instead, I use Twitter to communicate with them. (Lecturer Dr. HAM)

One lecturer declared that the technological devices he used for teaching differed from those he used for social purposes:

> I only use social media for social purposes. Thus, I am able to draw a line between compromising my professional life, my relationships with the students and my personal relationships. (Lecturer Dr. MOH)

All the lecturers were keen to improve their students' learning. However, one lecturer in particular, who used Canvas and the Audience Response System, seemed to stand out, because he had taken the initiative to integrate these technologies out of his own volition. These efforts were the result of his *"desire to keep abreast of new technologies"*.

The notes made by the lecturers, together with their interview responses, suggest that they were seeking other options in an attempt to engage their students and enhance learning outcomes.

Constructivist Teaching Practices

This main theme was identified after merging the themes, ‘a change in the role of the lecturer’, ‘taking responsibility for student learning’, and ‘constructivist teaching beliefs’ from the interview data analysis, with ‘student-centred approaches and empowered learners’, ‘constructivist teaching strategies’, and ‘peer instruction’, which were sub-themes derived from an analysis of the diary data.

In socio-constructivist learning environments, the role of the lecturer is to prompt and facilitate discussion. The data obtained from the interviews, diary entries and classroom observations reveal that the lecturers interacted with the students and built a relationship with them in the process of integrating technology and while using various tools. This is because they felt a need to change their pedagogical approach. In their view, this could only be achieved by building a rapport and removing the boundaries between the learners and teachers. During one interview session, the lecturer stated:

> By being able to easily present the scientific material and deliver the idea using videos and in text forms… This change in teaching approach enabled me to deliver knowledge to students in a better manner… in a way that helps them understand and retain the information. It also allows me to interact better with the students and create a rapport in the classroom. (Lecturer Dr. HAS)

Technology appears to have changed the role of the lecturer at the College of Basic Education. One of the lecturer’s responses during the interview was:

> In the past, the emphasis was on rote methods and memorisation… On the other hand, technology enables the development of critical-thinking skills and independent learning. The role of the lecturer is to facilitate the development of 21st century skills. (Lecturer Dr. HAM)

It would appear that attempts are being made to abandon traditional approaches and adopt more innovative ones. One lecturer was of the opinion that there is a need for change in lecturers' attitudes:

> Technology development is incessantly opening up new possibilities for learning. Teachers have to change the way they engage students. This has changed the role played by lecturers. Lecturer Dr. MOH)

In other words, lecturers have become enablers:

> I have become a facilitator, rather than an individual who provides information and knowledge to students. (Lecturer Dr. ZWE)

Similar views were also found in some of the lecturers' diaries:

> I allowed [the] students the opportunity to choose the app they wanted… understanding the values of the learners and allowing them to take charge of activities. So, instead of lecturing all the time, I focused only on supervising the activity and facilitating the learning process. (Lecturer Dr. HAN)

This response suggests that besides changing roles, the lecturers were nevertheless still seen to take responsibility for students' learning. This view was expressed in multi-faceted ways by different lecturers during the interviews:

> Initially, I used to leave students' grades on the noticeboard outside my office, as it could be seen by everyone. However, the Canvas system I have integrated enhances privacy and security. It allows students to receive their assignment grades discreetly. (Lecturer Dr. MOH)

Although the lecturers wanted the students to take control of their learning, they mentioned during the interviews that they used technology, because:

> [S]howing videos… helped me clarify ideas and concepts… (Lecturer Dr. HAS)

as a means of supporting the students. They also mentioned using a:

> …simulation model for the students to watch before the lecture. (Lecturer Dr. MOH).

The responses revealed that the lecturers not only allowed their students to take responsibility for their own learning, but they also assumed full accountability and responsibility for the learners' success. These views typically encompassed the lecturers' learner-centred pedagogical beliefs (Chai et al., 2009). In other words, when the lecturers adopted technology, they did so with their students in mind. The diary entries also indicate that the lecturers were subsequently able to *"engage"* (Dr. HAS & DR. ZWE) and *"motivate the students"* (Lecturer Dr. MO), allowing the students to interact with their peers and discuss and understand *"concepts"* (Lecturer Dr. HAM), while at the same time increasing *"student attentiveness"* (Lecturer Dr. MO). Another lecturer wrote:

> I was pleased that I was able to keep [the] students attentive and engaged; for example, using a video may help draw attention to a specific concept and maintain students' attention on that concept throughout the duration of the video. (Lecturer Dr. EM)

The following diary entry suggests that technology integration improved student attendance:

> Most importantly, there were no absentees. (Lecturer Dr. HAM)

There were two diary entries that emphasised meeting students' needs:

> I had more chance to focus on their abilities and what their needs were, because I had the chance to go around and talk with them during the discussions. (Lecturer Dr. AB)

> I was able to energise the classroom. The discussions that followed made me feel better, as I was able to understand the needs of the students. (Lecturer Dr. KH)

Moreover, a lecturer who used the Audience Response System wrote that the rationale for adopting the strategy was to:

> …provide feedback, which the technology allows. (Lecturer Dr. MOH)

Conversely, a lecturer who used YouTube to teach language and grammar reported:

> When students watch videos (YouTube), they are able to construct meaning and understand important concepts. Videos help explain things simply and clearly. (Lecturer Dr. EM)

The student interaction and discussion highlighted the themes, ‘a change in the role of the lecturer’, ‘taking responsibility for student learning’, ‘constructivist teaching beliefs’, and ‘peer instruction’. The lecturers’ diary entries and interviews suggest that the lecturers expected to achieve increased student engagement by adopting a technology-based teaching strategy. In so doing, they sought to help the learners understand important concepts pertaining to the subject they were teaching. All the above-mentioned approaches and strategies were not only ‘student-centred’, but also ‘empowered learners’. These themes refer to student-centred activities that can help students internalise new concepts much more quickly and make them feel that they are learning in a more supportive environment. The lecturers played a key role in the learning process by engaging the students in dialogue, developing a shared understanding of the activities and providing feedback on learners’ ideas and completed tasks.

As facilitators of learning, the lecturers not only took on new roles, but adopted approaches based on constructivist views, considered to be useful for helping students learn.

> The role of the teacher has changed and may now be envisaged as that of a facilitator. We organise information, disseminate knowledge using appropriate means, guide students towards accessing online content, make online assessments, and even monitor their online presence. (Lecturer Dr. MOH)

The above response, as well as the one which follows, suggests that through self-monitoring, lecturers can help students become more self-disciplined.

> Through instruction, coaching, and support, teachers can help students develop greater personal self-discipline. By making students responsible for their own learning, they become self-directed learners. They also improve their classroom habits and practices. (Lecturer Dr. MOH)

With regard to teaching philosophies, the lecturers had developed and applied their own values through experience acquired when using technology. According to one lecturer:

> My teaching philosophy has become more focused on how to promote a better teaching atmosphere… teachers can make much more progress by incorporating new technologies that yield many advantages, such as engaging students more, providing them with more information and allowing them to explore by themselves. (Lecturer Dr. ABD)

> I have to identify appropriate technologies that are required to support the curriculum. I have to also direct students and motivate them to use technology appropriately. (Lecturer Dr. HAM)

The lecturers' responses demonstrated their intention to transfer the control over learning to their students. This transfer of responsibility, if it is gradual, is referred to as 'scaffolding'. Research also shows that such constructivist beliefs can enable teachers to provide autonomy and support, thus positively influencing students' engagement (Jang et al., 2010; Rienties et al., 2012). In the socio-constructivist classroom, collaborative learning is a process of peer interaction that is mediated and structured by the teacher. Since the lecturers were using technology and related software to facilitate learning through student engagement, while also applying instructional strategies for active learning, the theme was coined as: 'Constructivist teaching practices'. This strategy included the integration of technology to engage the learners in authentic learning activities. The lecturers therefore guided their students towards constructing meaning through stimulation. Previous studies show that students demonstrate more learning, better conceptual understanding and increased engagement when constructivist teaching methods are used, as compared to traditional lecturing styles (Armbruster et al., 2009; Armstrong et al., 2007). Lecturers who apply socio-constructivist principles choose classroom discussion as an instructional format and create a learning context, where students can become engaged in interesting activities that encourage and facilitate learning.

Benefits of Technology

This theme emerged from the interview and diary analysis after merging three sub-themes, 'meeting students' expectations', 'flipped classrooms' and 'lecturers' digital transition and social relations'. According to the lecturers in this study, one of the benefits of technology is that it helps shape students' expectations; for example, through discussions, real-time interaction and collaboration. One lecturer remarked during the interviews:

> I think the use of technology in the lecture room and explanation during the lesson has been consistent with what the students think. (Lecturer Dr. HAS)

One lecturer reported that technology was an enabler:

> Technology has enabled teachers and students to engage in more interactive activities. It allows collaboration and as teachers, we are able to develop students' problem-solving skills and critical-thinking skills. (Lecturer Dr. MOH)

The use of innovative methods in HE not only has the potential to improve learning, but also to empower students and lecturers. The importance of innovative teaching approaches was highlighted by one lecturer during the interviews:

> Technology has great benefits, academically. It provides us with new ways of teaching; it also opens horizons of creative teaching and learning… Students seem to look forward to new ways of learning, and anything that will be different from traditional teaching. (Lecturer Dr. ABD)

The lecturers were using approaches that blended traditional lectures with online learning. In other words, they were reversing traditional classrooms to create what are also known as 'flipped' classrooms, in which students become motivated and confident. According to one lecturer:

> I also record some of the lecture sessions and email the Web links to students who were unable to attend classes. (Lecturer Dr. EM)

Research has shown that 'flipped' classrooms, or inverted traditional classrooms, not only allow lecturers to guide online learners, but also to engage them in other interactive activities. In such online settings, the instructors facilitate learning by responding to students' questions and shaping content (Tucker, 2012).

Prior to the emergence of mobile devices, lecturers' or teachers' social lives and activities were not considered important. Nowadays, however, there are attempts to understand how lecturers use technology for social purposes; this, incidentally, being one of the objectives of the present study. The lecturers' responses to the interview questions suggest that they are making the transition towards using technology to enhance social relationships with friends and family. They were using IPads and smart phones to read *“fiction and journal articles”* (Lecturer Dr. HAS), for *“personal, as well as my social life”* (Lecturer Dr. EM), and to *“connect with colleagues, relatives and friends”* (Lecturer Dr. HAM). From the diary entries, it was also evident that the lecturers were increasingly appropriating technologies for social purposes, for example using *“smartphones and iPads to communicate with my parents and friends…”* (Lecturer Dr. HAS), to “keep up-to-date with the latest developments, whether political or social” (Lecturer Dr. HAM), and using *“Facebook and Instagram accounts to keep up-to-date with all the social relationships”* (Lecturer Dr. MO). The findings suggest that technology has affected many aspects of the lecturers’ daily lives. In other words, technology would appear to be firmly embedded in their academic and social lives.

Frustration

This theme represents other sub-themes, such as ‘inattentiveness of policy-makers’, ‘lack of skills and support’, ‘limitations of technology-based instructional strategies’, and ‘lack of training’. The lecturers identified technical glitches as just part of the process of using technology, but one which keeps recurring. One lecturer noted in his diary that:

> Equipment. failure or technical failure seems to occur while using PowerPoint. (Lecturer Dr. ZWE)

However, some of the lecturers interviewed were able to gain a degree of control over the resolution of glitches, but considered the problem as something they:

> …have to contend with and which does waste a good deal of my teaching time… (Lecturer Dr. MOH)

while another lecturer remarked:

> I wish we had more technology on campus. Having to do everything from scratch every semester is a little annoying. (Lecturer Dr. HAN)

The implications of these problems were amplified by one lecturer:

> The problems start to emerge during technical glitches, which can force me to change the lesson plan. (Lecturer Dr. HAS)

The lecturers observed that both the infrastructure and equipment at the college were inadequate and so they felt that they did not have any power or authority when it came to choosing appropriate tools. This situation frustrated the lecturers, as is evident in the following responses:

> It can be really shocking to see the lecture rooms modernised and equipment upgraded without consulting the teaching staff members, who are the ones who use technology on a daily basis. (Lecturer Dr. KHA)

> We do suffer from inadequate technological services as a result of the absence of technical expertise or staff incompetence… (Lecturer Dr. KHA)

Moreover, one drawback of technology-based instructional strategies is the need to set aside a considerable amount of time for preparing lectures. One lecturer, who used the Audience Response System, mentioned in his diary:

> I need almost four hours to prepare the lecture… I have my own unique teaching style, because I do not depend entirely on the course book, but rather I link all the topics I teach to reality… As such, using videos during the lecture has achieved the target, for me at least… The one drawback noted by several instructors is that not as many concepts can be addressed when using an Audience Response System. (Lecturer Dr. MO)

The lecturers believed that some of the measures adopted by administrators were purely to satisfy the requirements of policy-makers, as opposed to meeting the pedagogical needs of the students. The lecturers felt that besides educational institutions, policy-makers, such as the Ministry of Higher Education in Kuwait, also had an important role to play in ensuring student learning. However, one lecturer was of the opinion:

> Neither the government nor educational institutions in Kuwait take these technologies seriously and that's why students see technology as an additional burden, rather than as a positive contributory factor along their educational journey. (Lecturer Dr. ABD)

The lecturers perceived that there was chronic negligence or incompetence on the part of policy-makers. One lecturer recommended during the interview:

> We need to create technological workshops for students and teachers to take advantage of recent and new developments in the world of technology. (Lecturer Dr. KHA)

Another lecturer considered the existing technology integration strategies to be obsolete:

> The whole existing strategy is quite complex and needs to be reconsidered… (Lecturer Dr. KHA)

Therefore, administrators and policy-makers may have to consider their own role in ensuring that educational technology initiatives are sufficiently evaluated, in order to draw lessons from the emerging and developing strategies.

There was the feeling that new strategies were required to train lecturers, so that they would acquire the necessary skills to prepare students for the future; for example, by ensuring that the students were in a position to enter suitable jobs in highly skilled occupations. However, it would appear from the study that the lecturers lacked the capacity to develop such skills. The responses were unanimous:

> Yes, I am very keen on developing my technological skills… For example, right now, I need professional help with a tool called 'Lecture Recording'. (Lecturer Dr. MOH)

> Yes, I really would love to develop my skills and knowledge, because technological advancement is not static; it is a continuous, on-going process that develops over a short period of time, so one needs to have regular updates and develop new skills in using emerging technologies. (Lecturer Dr. ABD)

The lecturers' lack of training was evident in the literature reviewed. The results of the present study support the findings of earlier research, which show how lecturers lack ICT skills and confidence in using technological tools, as well as requiring appropriate teacher training (Toetenel, 2014; Moran et al., 2011). One of the factors that can make a difference between success and ultimate failure in technology adoption and use is lecturers' lack of training. This concern was voiced by many of the lecturers in this case:

> Although the colleges and universities in Kuwait provide [well-equipped] classrooms with all the necessary technologies, teachers do not use them, because they have not been properly trained. This is a sad reality. (Lecturer Dr. ABD)

One interviewee made it explicit that little attention was being paid to organise more training workshops:

> I attended some training courses and workshops organised by the Sciences Department and other courses at Kuwait University… In spite of the shortage of such courses, I do my best to attend because I know how important they are. (Lecturer Dr. HAS)

In order to acquire skills, therefore, it became apparent that the lecturers needed training and this was voiced by most of the respondents.

The aforementioned difficulties encountered by the lecturers led to the development of the theme: 'Frustration'. Despite these limitations, however, it was the lecturers' beliefs and assumptions about learning that led them to engage with these technologies.

4.4. Conclusion

This chapter has presented the findings of the data collection exercise, which sought information about the way in which students and lecturers use technology for academic and social purposes. The findings derived from the students' questionnaire data suggest that technology empowered the students; facilitated informal learning; enhanced learner engagement; permitted peer feedback and communication with family and friends, and developed intellectual skills. The data obtained from the interviews and student diaries reveal that the learners were motivated to use technology, since the lecturers were using student-centred teaching approaches, allowing the students to learn at their own pace and by collaborating with peers.

The findings from the lecturers' questionnaire responses suggest that the faculty faced challenges when attempting to use technology, such as a lack of technical support, increased workload and a lack of evidence of the educational benefits of emerging technologies. The interview data also show that the lecturers found it challenging to use technology, due to their lack of skills and support; lack of training, and the negligence of policy-makers. However, the lecturers stated during the interviews that they were able to discern the students' learning preferences, align the curriculum with the technology, use constructivist teaching approaches and facilitate learning. In the process, the students were empowered. In the following chapter, the findings are further discussed in relation to the research questions.

Chapter Five: Discussion

5.1. Introduction

Data were collected and analysed to examine the levels and patterns of technology use amongst lecturers and students, as well as lecturers' pedagogical practices, beliefs about technology, and motivation for using it. In the first phase of the study, the quantitative research questions revealed several variables, which serve as predictors of students' and lecturers' technology use. The EFA of 37 variables associated with students' use of technology yielded six factors: empowering students, facilitating informal learning, enhanced student engagement, expediency, intellectual stimulation, and a sedentary lifestyle. Meanwhile, the EFA of 14 variables associated with lecturers' use of technology yielded three factors: support and access, constructive challenges and usability concerns.

In the second phase, which was qualitative, the results of the statistical tests were explored in more depth. Ten themes emerged during the qualitative data analysis of students' interview data: 'Convenience and usability', 'Basic technologies and facilities', 'Self-directed engaged learning', 'Teachers as facilitators', 'Gaining real-world experience', 'Builds students' self-efficacy', 'Disruptive teaching practices', 'Taking the initiative', 'Impact of technology on learning', and 'The social downside to the conveniences of technology'. Meanwhile, seven themes emerged from the qualitative data analysis of the lecturers' interview data: 'Rationale for technology adoption', 'Aligning a creative curriculum', 'Promotes authentic learning', 'Desire to keep abreast of new technologies, 'Constructivist teaching practices', 'Benefits of technology', and 'Frustration'.

The merging of the quantitative and qualitative data helped answer the research questions in a more complete way. The discussion of the findings presented in this chapter is not only structured around the research questions guiding this study, but also informed by the theoretical frameworks and considers how insights from concepts or theories, such as social constructivism, problem-based learning, CoPs, Situated Learning Theory and the affordances of technology can be combined to elicit a fuller understanding of students' and lecturers' technology use for academic and social purposes.. In particular, it will show the importance of developing a broader understanding of the Kuwaiti context and culture and how these influence students' perceptions and lecturers' beliefs about the use of technology for learning and teaching.

In the previous chapter (Chapter Four) the results of the quantitative and qualitative phases were presented. In this current section, the results that helped answer the quantitative research questions will now be interpreted. Next, the results that answered the qualitative research questions will be used to further clarify and explain the quantitative results. The patterns and relationships between the findings from multiple data sources are presented in the following discussion of the research questions and integrated with the theoretical frameworks guiding the study and the literature reviewed.

5.2. Answering the Research Questions

5.2.1. Research Question One:

Qualitative: How do Kuwaiti HE students use technology in their academic and social lives to connect informal learning to the formal learning environment?

Quantitative: What factors influence that use?

The results of the preliminary stages of the quantitative analysis identified six factors influencing students' technology use: 'Empowering students', 'Facilitating informal learning', 'Enhanced student engagement', 'Expediency', 'Intellectual stimulation', and

‘Sedentary lifestyle’. As illustrated in the findings from the Literature Review in Chapter Two, previous studies have demonstrated that technology can empower students (Eikenberry, 2012); facilitate learning by reducing the boundaries between formal and informal learning (Clough et al. 2009; Anderson, 2010; Benson & Morgan, 2013; Jones et al., 2013; Lai et al. 2013); increase student engagement (Redecker et al., 2009; Jang et al. 2010); are convenient and easy to use, for example, in communication (Lai & Savage, 2013; Lauricella & Ray, 2013), and stimulate intellectual curiosity (Ferri et al., 2012), but if used frequently, can lead to isolation, reduced social involvement and an inactive lifestyle (Griffiths, 2010; Lepp et al. 2013). The results of the quantitative phase presented a similar picture.

Aside from the above, the qualitative analysis provided an explanation of these quantitative findings. Ten reasons were pivotal, being reflected by the 20 major themes emerging from the qualitative data analysis: ‘Convenience and usability’, ‘Basic technologies and facilities’, ‘Self-directed engaged learning’, ‘Teachers as facilitators’, ‘Gaining real-world experience’, ‘Builds students’ self-efficacy’, ‘Disruptive teaching practices’, ‘Taking the initiative’, ‘Impact of technology on learning’, and ‘Social downside to the conveniences of technology’. Some of the initial themes were merged, thus generating these final themes.

Table 5.1: Research Question 1 - Key themes and sub-themes

Key Themes	***Sub-themes: Interview***	***Sub-themes: Diary***	***Sub-themes: Observation***
Convenience and usability	‘Size matters’; ‘Accessibility’; ‘Convenience and usability’; ‘Dependent on student learning styles and preferences’		

Basic technologies and facilities	'Basic technologies'; 'Bring your own device (BYOD) situations'		
Self-directed engaged learning	'Independent learning'; 'Self-directed learning'; 'Enhancing motivation to learn'; 'Engaging with content'	'Independent learning'; 'Actionable response'	'Engaging with content'
Teachers as facilitators	'Teachers as facilitators'		'Teachers as facilitators'
Gaining real-world experience	'Hands-on technologies'; 'Web-based/online resources'	'Enhanced critical thinking'	'Gaining real-world experience'
Builds students' self-efficacy	'Builds students' self-efficacy'; 'Peer support'	'Enhances self-efficacy'	
Disruptive teaching practices	'Student-centred approaches'	'Disruptive teaching practices'	'Student-centred approaches'
Taking the initiative	'Taking the initiative'		
Impact of technology on learning	'Supports flexibility in learning processes' ; 'Fosters collaborative learning'; 'Peer learning'; 'Fosters social interaction'		'Fosters social interaction'
The social downside to the conveniences of technology	'Unmet student expectations'; 'Lack of training'; 'Disempowered students' ; 'Increases anxiety levels'; 'Shallow learning'; 'Reduces social involvement and psychological well-being'; 'Depersonalisation'; 'Sedentary lifestyle'; 'Parental permissiveness or restrictiveness'	'Failure to engage with content'; 'Technical glitches'; 'Increasing online presence'	

The quantitative data revealed that the students were able to post and share information, interact, self-regulate their learning, and switch between academic and social activities. This finding indicating that technology empowers students corroborates those of a previous study by Cobcroft et al. (2006). The interviews provided more evidence for the research in mapping a picture of constructivist learning from the students' perspective. The qualitative findings also appear to validate the quantitative results and indicate that the students were empowered through the expediency afforded by technology and because the lecturers allowed them to bring their own devices (BYOD).

The interviews reflected that the students preferred technology (for example, BYODs such as mobile devices) with ease of accessibility to support their learning and acquiring skills in technology use. BYOD is a current trend, as more and more students are bringing their own Android tablets, phones and laptops into the institutional learning environment, with the expectation that these tools can be used to access knowledge (Numer & Spencer, 2015). The rationale for using these technologies is based on convenience and usability; a very prominent theme in the literature (for example, Pattuelli & Rabina, 2010; Rossing et al., 2012; Lai & Savage, 2013; Lauricella & Ray, 2013).

The notion that technology changes the way in which students learn (Woodcock et al., 2012; Fullan & Langworthy, 2013; Murgatroyd, 2014) would appear to be substantiated in the current study, because the learners were found to take the initiative to keep up-to-date with developments in this domain. There was a strong sense of self-initiated action. Here, the students favoured technology that was more flexible in supporting and enhancing their learning processes. The results of the interviews also demonstrated that the students were satisfied, as long as the technology met their learning needs and offered them choices, such as giving them access at any time and from anywhere. In this way, communities of learners were formed, with peer-learning and the promotion of collaborative learning taking place. This qualitative finding helped further explain the quantitative factor of 'Expediency', revealing that the participants were attracted to the features of a technology-enabled environment; for instance, the flexibility of location and time, which allowed them to balance their social and academic lives.

Usability was one such affordance, with technology allowing new levels of convenience and accessibility to Internet resources. According to the literature, this fits in ideally with contemporary student lifestyles (Howe et al., 2009). It would also seem that the lecturers gave their students the BYOD option, although the lecturers themselves favoured PowerPoint, the Audience Response System and YouTube; all of which can be accessed using mobile devices anyway. The rationale for the use of mobile devices and emerging technologies was that BOYD empowered the students to customise available technology to their learning needs and enabled them to learn in a completely new way in the current educational context, as well as in their future careers. This indicates an emphasis on authentic learning, which is a focal point of constructivism.

The disruptive technologies introduced by faculty members in an attempt to improve students' learning performance through student-centred approaches also motivated the students. However, the literature reviewed for this study suggests that disruptive technologies are in fact a barrier (Joseph, 2012). Nevertheless, the findings of this present study indicate that the lecturers used technology to give their students the opportunity to identify whether they had correctly understood a concept, or to clarify any misconceptions about a topic, while at the same time acknowledging student success. This finding supports the results of earlier studies, which have reported how lecturers allowed students to use technology when participating in tasks, in order to enhance their understanding (Rienties et al. 2012; Seifert et al. 2013).

The BYOD situations were not only created by the lecturers, but also by the prevailing conditions at the College of Basic Education, included under the theme, 'Basic technologies and facilities'. Although the institution had facilitated accessibility to technology by making the Internet available across the entire campus, the students expressed dissatisfaction with these facilities - for example, the hardware and software provided - as they considered them to be rudimentary. It was due to the poor quality of the facilities and infrastructure, both in physical and organisational terms, that the students therefore practiced BYOD. As a result, however, the students demonstrated that they could effectively acquire, retain and retrieve information from online resources, if they felt that it suited their learning styles and preferences.

Another key finding was that the students engaged successfully with the content and learning in an autonomous manner, or through self-directed and engaged learning. They stated that they felt valued, respected and competent. Consequently, in such a technology-based learning environment, the students began to self-regulate their learning to become autonomous learners (Rienties et al. 2012), while at the same time developing their critical-thinking skills (Richardson & Ice, 2010). By actively participating in learning via hands-on technology use, the students were able to access electronic databases online, construct knowledge of their own accord, and solve problems. This finding substantiates the results of previous research, which indicate that online environments provide students with the opportunity to independently learn and absorb material (Kvavik & Caruso, 2005; Paechter & Maier, 2010). Moreover, these technologies, used by the students for academic purposes, appear to have enhanced their motivation.

Such powerful learning experiences have also been reported by students in earlier studies (for example, Al-Khashab, 2007; Erguvan, 2014). Besides, the students in the current study reported that the technologies used had empowered them, while the lecturers played a key role in facilitating this learning process. Therefore, it may be deduced that the learning environment created by the lecturers enabled the students to regulate their own learning (Paechter & Maier, 2010). The literature also indicates that students do not become independent learners on their own, but rather once the instructor has shifted the responsibility for the learning process over to them (Chai et al. 2009).

Aside from the above, a TDOP analysis (observation schedule) revealed that the students used technology for meaningful activities, such as accessing and gaining content-related knowledge. The students were encouraged to engage in discussion, while the lecturers assumed the role of mentor or facilitator in the classroom; managing the class by guiding group discussion and permitting collaboration. This result is consistent with the findings of Morris et al. (2005) and Weltzer-Ward (2011). The participants were also of the opinion that they contributed and benefited more in a technology-enabled environment than in a face-to-face classroom, due to meaningful interactions and discussion of the course material. The reason for this was that the lecturers guided the learners and gave them space to develop their learning through independent problem-solving tasks, in collaboration with more competent peers. The following statement is consistent with Vygotsky's Zone of Proximal Development (ZPD) (Vygotsky, 1978):

> I was able to collate information and make assumptions. I was ably guided by my teachers in this regard. (Student 14, Interview)

One key finding from the student surveys was that the lecturers supported students' intellectual stimulation through technology integration. The students were observed (VIO) becoming immersed in active, investigative learning and participating in practical problem-solving activities. They perceived that technology had helped improve their intellectual skills (such as problem-solving skills) and there was the general feeling that they were able to learn more effectively from peers when interacting with them online.

The observation results also demonstrated that technology encouraged innovation and creativity by inspiring students' thoughts and imagination (VIO), suggesting that technology enabled the learners to engage in intellectually stimulating learning experiences. The findings therefore corroborate and bolster the outcomes of earlier work, demonstrating that technology can improve students' abilities, promote interaction, and advance knowledge in an intellectually stimulating environment (Kerawalla et al., 2009; Toetenel, 2014). These results also support those of Pifarre and Kleine Staarman's (2011) study, which found that technology (for example, wikis) equips students with the skills to construct knowledge through dialogue and interaction. The learners also became actual creators of information through collaboration, as they used hands-on technologies to access online resources and share them with their peers. These results suggest that technology has the potential to transform education (Brown & Adler, 2008) and facilitate informal learning. It could even be stated that technology has "blurred the line between producers and consumers of content and has shifted attention from access to information toward access to other people" (Brown & Adler, 2008, p.18).

The data suggest that various technologies - for example, mobile devices and the classroom tools used by lecturers, such as PowerPoint slides, narrated slideshows and multiple media - were already being incorporated into the students' lives. This meant that they were able to make extensive use of these enabling technologies, which in turn enhanced their engagement by developing their critical-thinking skills (Agree 53.2%; Strongly agree 25.9%). In addition, the qualitative results also suggest that technology can improve critical-thinking skills. However, previous research from the Arab region has produced completely different results. For instance, Mourtada et al. (2013), while examining the transformation of education in this region, found that students who had completed their HE were not properly equipped with problem-solving, critical-thinking or communication skills, due to the prevalence of traditional teaching practices.

Critical thinking refers to a set of skills that involves the analysis, synthesis and evaluation of information. As thinking leads to learning, lecturers who integrate technology place students in experiential learning situations and design instruction to engage them in direct experiences, tied to real-world problems. As a result, the technologies integrated into students' academic lives by their lecturers in the present study produced interactive and powerful learning environments, thus allowing the students to gain real-world experience. The observation data demonstrated that it was very indicative (VIO) that students were using technologies to connect to real-world contexts and learn from them. The interview and diary data additionally showed that the students used Internet resources for this purpose.

While gaining real-world experience, students need to understand the concepts, ideas or opinions that represent objects in the real world. The students being studied here applied critical analysis to a set of questions and were able to provide accurate information by checking other evidence and informants. The technologies implemented were selected specifically because they enabled the students to gather information conveniently and to interact with the lecturers. However, the technology failed to facilitate prompt feedback from the lecturers, although the students were happy with the comments they received. This suggests that the quality of the interaction with the lecturers and their 'actionable response' or feedback in a technology-enabled environment had influenced the students' learning. In other words, the technologies adopted proved to be valuable for the learners, as they were more motivated to learn, while their individual skills were enhanced. Besides, the students used their own technology to stay in touch with friends and family, creating connections or fostering relationships. The reason for this may have been expediency, as the learners were adept at using emerging technologies for social networking. It may also have been influenced by the appeal of these technologies for this particular generation of students. The result corroborates the findings of one study from Kuwait (Hamade, 2013), which found that students use technology to connect with their families, relatives and friends and to become involved in social, political and cultural activities.

In addition, the students' diary entries suggest that the lecturers were using technology to disrupt existing learning and teaching practices. The use of technology appeared to have increased the learners' self-efficacy. The students also reported that they were able to evaluate their technological skills by interacting with peers and relying on peer-support. This peer-support seemed to have strengthened the students' self-efficacy and is likely to have increased their positive and proactive self-image, as well as their self-belief concerning the adoption and use of technology.

Aside from the above, the learners stating that they found YouTube videos useful for their learning seemed to believe that these videos could enhance their understanding of various topics. Their responses in this regard, however, were in sharp contrast to what has been suggested in previous literature, where it is claimed that although students may be fluent in technology use, they may not be prepared or able to apply their technology skills in an academic or professional sphere (Sandars & Schroter, 2007; Kumar, 2009). Nevertheless, research shows that perceived peer support and improved self-efficacy amongst students can improve technology-based learning (Ong & Lai, 2006; Park, 2009).

Another finding of the present study was that the students acquired knowledge through social interaction. This corroborates the survey results, which showed that technology facilitates informal learning. The technology used facilitated information exchange and expanded access to a collaborative learning environment. It also offered the learners access to information in ways that were consistent with their individual learning styles, thus enabling them to forge their own links between bodies of knowledge. In other words, collaboration and effective communication proved to be the keys to knowledge construction. This would suggest that the students were using technology to help build their knowledge in participatory learning environments. At the same time, they were using online media to develop friendships and extend their fields of interest. In this way, they appeared to have acquired the essential social and technical skills to be able to participate fully in contemporary society. Previous studies have likewise revealed that collaborative and connected learning experiences enhance student engagement (De Winter et al., 2010).

Meanwhile, the interview and survey results illustrated the ‘social downside to the conveniences of technology’; a key theme and major finding that emanated from the thematic analysis. The students perceived that their expectations had not been met, because the curriculum was not aligned with technology and their teachers were not trained to use technology for teaching and learning. This gives the impression of a gap between students’ expectations of learning and teaching and lecturers being ill-prepared to meet these needs. These ‘unmet student expectations’ had resulted in ‘disempowered students’, who were not only discouraged, but also worried, as demonstrated in the above statement about the ways in which technology ought to be used to enhance critical thinking and problem-solving skills. These results highlight the necessity for lecturers to change their practices, so that they can meet their students’ needs and expectations (Ertmer & Ottenbreit-Leftwich, 2010).

Nevertheless, the students interviewed were of the view that technology increased their stress levels, while those surveyed indicated that it distracted them from their studies.

For example, they were unable to participate fully in class, or focus on their assignments when using social media. This finding is reflected in a Kuwaiti study (Hamade, 2013), where it was found that students who spend a considerable amount of time using social-networking sites neglect their coursework. Findings of this nature give credence to the growing belief that technological progress has detrimental side-effects, in that technology has created a world in which users can become depersonalised and merely represented by usernames, rather than appearing as real people and interacting with physical beings.

Another sub-theme that contributed to the key finding of 'social downside to the conveniences of technology' was the students' fear that they would become shallow learners, if they used technology for learning. They reported that technology did not always provide a pathway towards successful learning. In other words, they may have been unable to reflect on their own learning or gain a clear understanding of the concepts involved. This claim has not been made in any other research from Kuwait or the Middle East. The students also complained that their lecturers lacked training in technology use and were unable to deal with technical issues. This finding corresponds to the results of previous research from Kuwait (for example, Al-Ansari, 2006; Al-Ali, 2010).

Aside from the above, the students interviewed and surveyed felt that technology use eventually results in a sedentary lifestyle. The students 'increased online presence' or the tendency to frequently use technology for social purposes was held to reduce genuine social involvement and impact psychological well-being. The responses in this regard point to diminished individuality, due to excessive technology use, whereby users become disconnected from others and even from themselves. The finding substantiates the results of earlier studies (for example: Owen, Sparling, Healy, Dunstan

& Matthews, 2010; Lepp, Barkley, Sanders, Rebold & Gates, 2013). Furthermore, although, not very significant, another result contributing to the key finding, ‘social downside to the conveniences of technology’ was that parents imposed restrictions on their offspring’s technology use. One of the reasons for this parental concern may be the fear that learners will become involved in anti-social communication and behaviour.

Notwithstanding the above, it has been demonstrated across the literature that technology can help lecturers create and present content and instruction that is interesting and relevant for their students. When learning is relevant to students, they become more engaged and active learners, with increased access to learning resources, tools and information. Enhanced student engagement can in fact mean even more self-directed learning. A strong research base describes how technology strengthens student engagement and learning, whenever technology and collaborative or interactive teaching methods are used (Armbruster et al., 2009; Newmann & Hood, 2009; Gallagher-Lepak et al. 2009; De Winter et al., 2010).

5.2.1.1. Summary of Findings for Research Question One

The findings related to Research Question One show that the students were able to develop their skills in using technology; interact socially online; engage with content; regulate their own learning, and independently seek out and post information. In the process, they developed self-efficacy through a deeper understanding of their strengths and were able to identify steps or pathways towards achieving their learning goals. Moreover, they enhanced their core skills, especially the ability to relate ideas and concepts and to locate sources of knowledge before applying it.

The students reported that they had acquired skills and knowledge about the use of technology for their learning and social lives. This again suggests that they were engaged in self-directed learning; not only taking the initiative, but also taking responsibility for their learning by interacting and communicating with their peers. Likewise, the findings indicate that the lecturers facilitated this learning process by guiding and encouraging their students to take the initiative and lead their own learning in this way. As facilitators, therefore, the teachers had nurtured self-directed learning through technology use. In so doing, they had encouraged freedom of learning and accelerated the transition from a teacher-centric to a student-centric approach (Teo et al., 2008): a learning approach that is broadly related to and supported by constructivist theories of learning.

There were indeed also some limitations, but these were due to the way in which the technology was integrated, rather than to the shortcomings of the technology itself. For example, there was a lack of prompt feedback from the lecturers, despite the fact that this represents an integral feature of effective teaching and learning; perhaps one of the most powerful ways of enhancing student learning. Alternatively, the students were able to obtain feedback from their peers. Although not very prompt or timely, this feedback facilitated learning by providing information that could be used to improve and enhance students' performance, thus indicating that the learning was socially influenced in the collaborative environment created by the lecturers.

To sum up, technology has been found to empower students in four fundamental ways: in the democratisation of knowledge (free access to resources and learning at one's own pace), participatory learning (through collaboration with peers), authentic learning, and learning through lecturers' socio-constructivist approaches.

5.2.2. Research Question Two

Qualitative: How do Kuwaiti HE teachers use technology to support their teaching practice?

Quantitative: What Factors influence that use?

The results of the questionnaire data revealed that the only factor influencing the lecturers' use of technology for teaching was the acceptance of 'Constructive challenges'. Qualitative data provided clarity on the factors influencing the lecturers' technology use. These consisted of the 'Rationale for technology adoption', 'Aligning a creative curriculum', and 'Promotes authentic learning'.

Table 5.2: Research Question 2 - Key themes and sub-themes

Key Themes/ Findings	Sub-theme: Interview	Sub-theme: Diary	Sub-theme: Observation
Rationale for technology adoption	'Preparing students for the future'; 'Attempting to meet student expectations'; 'Engaging and monitoring students'; 'Students' learning preferences'	'Promotes interactive engagement'	'Students' learning preferences'
Aligning a creative curriculum	'Being creative'; 'Curriculum-aligned'		
Promotes authentic learning	'Engaging and helping to instil confidence in students'; 'Sustainable feedback practices';	'Promotes deep learning'; 'Authentic learning experiences'	

One of the findings indicated that some of the lecturers considered the rationale for the unstructured use of technology to be based on satisfying students' learning preferences. In other words, their students were encouraged to exercise BYOD by bringing their own technologies into the classrooms to facilitate and enhance their learning. This BYOD model, described previously, is already causing a major shift in HE and distance learning by allowing more students to access course materials via mobile technology (Shuler, Winters & Wes, 2013; Numer & Spencer, 2015). It is gaining popularity as a cost-effective means through which instructors can engage their students and improve learning outcomes.

Another noteworthy reason was that the lecturers were attempting to meet their students' expectations. This suggests that the lecturer wished to close the gap by aligning learners' expectations with reality, preparing them for the future, and empowering them to meet the challenges of tomorrow. In order to satisfy the learners' expectations and ensure that they achieved academic success, the lecturers used technology creatively; embracing originality by looking for new ways of planning lessons (for example, by aligning the curriculum with the technology applied and using educational resources that the faculty was familiar with), while at the same time engaging the students and keeping track of their progress.

These results are similar to the findings of previous studies, whereby educators are seen to adopt technology, as it not only enhances learner engagement, but also helps address students' expectation of an enhanced learning experience (Woodcock et al., 2012). The literature also shows that lecturers make use of various technologies, due to their pedagogic concerns; aimed at providing adequate opportunities for learners and empowering them to meet the challenges of HE (Baker et al., 2012; Cheon et al., 2012). The lecturers sought to meet the needs of a new generation of technically adept learners (Bennett et al., 2008). However, it was unclear whether the determination to apply new technologies stemmed from the needs and abilities of these learners, or because there was some external compulsion to make greater use of such technologies (Corrin et al., 2010).

In addition, so as to engage the students and instil confidence in them, the lecturers incorporated technology in and around the learners' lifestyles and learning preferences. This was likely to have involved weighing up the options and selecting technologies that corresponded to the students' daily routines and habits, as well as to their personal learning styles (Howe et al., 2009). The lecturers accomplished this by positioning interactive technology as an essential part of the classroom environment, with a view to improving student learning outcomes.

By promoting deep learning and using authentic learning experiences, assisted by the effective use of technologies favoured by the learners, the lecturers enabled their students to make sense of what they had learned (Carty & Baker, 2014; Dede, 2014; Fullan & Langworthy, 2014). Learning opportunities were subsequently provided by the lecturers to enable their students to explore, discuss and meaningfully create a useful shared outcome. The technologies integrated by the lecturers thereby helped develop authenticity in the students' learning.

To be more precise, the lecturers willingly integrated technology into their teaching practice, so that the students could participate in discussion. The integration of technology also indicated that the lecturers had applied constructivist teaching styles. The lecturers were observed inducing their students to use technology to answer questions and as a means of assessing their own work or correcting their own mistakes (VIO).

Another key finding was that technology engaged the students in interactive constructivist learning environments created by the lecturers. The latter consequently used sustainable feedback practices and attempted to deliver prompt responses and comments to their students. To support their technology use, the learners were permitted to use technology to answer their lecturers' questions. In this manner, the lecturers, acting as mentors, enabled the students to develop their reflective skills and progress from being novices to experts (Williams & Jacobs, 2004; Berge, 2009; Price & Kirkwood, 2014). These findings are closely related to theories of Social Constructivism and Situated Learning (Vygotsky, 1978; Lave & Wenger, 1991), where instructors are found to be able to engage students in more realistic settings by providing learning 'scaffolds' as a means of resolving practical problems through the acquisition of critical-thinking skills (Hung et al. 2008; Lowther et al, 2008; Jang et al. 2010; Cheon et al. 2012). This means that classroom technology was not used for drill-and-practice events, but rather for engaging students and making real-world connections (Ertmer et al., 2012). The focus of this technology integration was explicitly on student-centred pedagogy.

Additionally, during the observations, lecturer-centred practices - for instance, the use of technology for drill-and-practice - was not observed. The students were therefore encouraged to take responsibility for their own learning. All the lecturers stated that they frequently used technology as a resource for their lectures, presentations and assessments; creating lessons that could be considered student-centred. The aim was to actively involve the learners in knowledge construction by transferring control over the learning to the student. Being able to place technology in the hands of the students was therefore a matter of believing in the value of technology; how it could work to create an engaging and productive learning environment, and knowing how to accomplish this feat.

More specifically, the lecturers used technology to promote higher-level thinking skills and to facilitate the development of technology skills, for example critical thinking skills and independent learning (DR. HAM, Interview), as well as problem-solving skills (Dr. MOH, Interview), which could prove useful in the students' future working lives (Ottenbreit-Leftwich et al. 2010). However, they also faced some challenges, one being increased workload, although most of the lecturers who administered the survey questionnaires disagreed with this point. Nevertheless, the literature suggests that the creation of active learning strategies can involve too much pre-class preparation, as lecturers tend to be highly motivated to help students develop their understanding and skills (Eison, 2010), although this challenge proved to be constructive in this case. For instance, technology use may well have increased the teachers' workload, but the teaching staff were committed to using digital technology to support delivery of the curriculum. The lecturers appeared to have encouraged their students to stay engaged with the content and learning process, supported by technology. Therefore, despite the fact that it had increased their workload, the lecturers leveraged the situation to drive more creative outcomes.

5.2.2.1. Summary of Findings for Research Question Two

The lecturers played a key role in supporting students' technology adoption by aligning the curriculum with the technology and facilitating authentic learning experiences. The environment into which the technologies were introduced was created by lecturers demonstrating vision and leadership. In general, it may be argued that the lecturers in this study were motivated to use technology in the classroom out of a strong desire to help students learn and to prepare them for their future careers.

5.2.3. Research Question Three

What are the lecturers' pedagogical beliefs with regard to the use of technology to support student learning?

It is apparent from the analysis of the questionnaire data that the pedagogical challenges facing the lecturers consisted of a lack of support, constructive challenges and usability concerns.

The qualitative findings, which provided more explanation, suggested that although the lecturers felt strongly about the need to keep abreast of new technologies, in order to take advantage of the benefits of technology and engage students through the use of constructivist teaching practices, they lacked support and attributed this to the 'inattentiveness of policy-makers', 'lack of skills and support', 'limitations of technology-based instructional strategies', and 'lack of training'. However, one significant finding that emerged from the observation data was that the lecturers orchestrated classroom activities.

Table 5.3: Research Question 3 - Key themes and sub-themes

Key Themes/ Findings	Sub-theme: Interview	Sub-theme: Diary	Sub-theme: Observation
Desire to keep abreast of new technologies	'Desire to keep abreast of new technologies'	'alternative options'	'Desire to keep abreast of new technologies'
Constructivist teaching practices	'Changes in the role of the lecturer' 'Taking responsibility for student learning'; 'Constructivist teaching beliefs'	'Student-centred approaches'; 'Empowered learners'; 'Constructivist teaching strategies'; 'Peer instruction'	'Student-centred approaches'; 'Peer instruction'; 'Orchestrating activities'
Benefits of technology	'Meeting students' expectations'; 'Flipped classrooms'; 'Lecturers' digital transition and social relations'	'Lecturers' digital transition and social relations'	
Frustration	'Inattentiveness of policy-makers'; 'Feeling disempowered'; 'Lack of skills and support'; 'Lack of training'	'Limitations of technology-based instructional strategies'	

An analysis of the interview transcripts revealed that the lecturers were constantly keeping abreast of new technologies, so that they could support student learning. The classroom observations also validated the interview findings. The lecturers were observed introducing new technologies and innovative teaching strategies into the classroom to convey content (VIO). The literature suggests that this knowledge is essential for meeting the needs of a new generation of technically adept learners (Bennett et al., 2008). The lecturers' pedagogical beliefs about the use of technology related to learner-centred approaches, reduced control over students' learning; independent learning; collaborative learning, and the welcoming of students' own ideas.

One of the recurring findings in all the data sets was that the lecturers held constructivist teaching beliefs. The lecturers in the present study maintained that they had adopted constructivist teaching strategies, which helped them to integrate technology in ways that fostered more extensive learning, better conceptual understanding, and increased engagement amongst their students. Additionally, the lecturers were keen to introduce learners to the necessary skills for taking independent action and responsibility for their learning. There is research to show that such constructivist teaching methods are more effective than traditional lecturing styles (Armstrong et al., 2007; Armbruster et al., 2009).

It was therefore demonstrated in the present study findings that the students were allowed to take responsibility for their learning, while lecturers mediated through discussion and feedback. This implies that the lecturers integrated technology with the intention of transferring control over the learning to their students or allowing students to become actively involved in the construction of knowledge. These beliefs stem from learning theories, such as constructivism, situated learning, and CoP. The students were encouraged to participate, with minimal intervention from their lecturers, as the latter wished to allow for natural development. The researcher also observed that the lecturers fostered creativity by focusing on experiential learning and immersing their students in active, investigative tasks.

During data integration, another unique finding emerged; the lecturers using constructivist teaching strategies had integrated technology with the aim of providing the learners with learning environments, in which they could engage in meaningful peer-interaction. This socio-cultural approach seemed to have given students the opportunity to build learning communities. The approach enabled the students to create relationships with each other and to engage in learning. According to Rovai (2002), a classroom community is a:

> …feeling that members have of belonging, a feeling that members matter to one another and to the group, that they have duties and obligations to each other and to the school, and that they possess shared expectations that members' educational needs will be met through their commitment to shared learning goals. (p.322)

All the results presented above suggest a marked change in the role of the lecturer. The lecturers not only delivered content in ways that helped the students understand and retain information, but they were also able to interact better with their students, organise information more effectively, and became facilitators of learning. Their roles varied from 'managerial' (Weltzer-Ward, 2011) to customising content (Morris et al. 2005), and facilitating and guiding dialogue (Weltzer-Ward, 2011). Therefore this finding is congruent with existing literature in the field.

It was evident during the classroom observations that none of the lecturers had attempted to openly control students with positive reinforcement. This again showed that the lecturers had applied constructivist approaches instead of behaviourist practices, such as physical stimuli, reinforcement (verbal or through rewards) and external motivation. Overall, the research revealed a close relationship between technology and constructivism. This is largely due to the lecturers' student-centred beliefs about instruction and the nature of lessons where teachers integrate technology. Such approaches have been found to enable students to become active participants in their own learning process (Koohang et al., 2009; Maurer & Neuhold, 2012).

A unique finding that emerged from the classroom observations was that the lecturers orchestrated classroom activities. This was a new concept for the researcher, not previously encountered when reviewing the literature for this study. Technology orchestration is a student-centred approach, defined as an educational process, whereby teachers act as facilitators and collaborate with students to create knowledge (Prieto, Holenko Dlab, Gutierrez, Abdulwahed & Balid, 2011). It involves adapting activities to suit students' behaviour. However, integrating technology and conducting learning activities is complex, as it involves recognising and understanding students' diverse needs and preferences. It therefore not only involves planning and coordinating the teaching and learning, but also requires lecturers to take into consideration the pace of that learning and to make systematic use of the available resources (Diaz, Nussbaum, Nopo, Maldonado-Carreno & Corredor, 2015).

One of the ways in which the lecturers orchestrated the classroom activities was by applying the flipped learning model, or reversing traditional classroom modes by delivering instructional content via technological means outside the classroom (Tucker, 2012). Research has shown that the 'flipped' classroom allows lecturers to not only guide online learners, but also to engage them in other interactive activities. In such online settings, the instructors facilitate learning by responding to students' questions and shaping content (Tucker, 2012).

The lecturers had also made the transition from didactic to digital means of delivering an enhanced student learning experience. However, in the process, their social relations had changed, since they had begun engaging with technology tools at a deeper level. The lecturers' transformation and their foray into the world of smart devices frequently occupied by their students suggested that they wished to redefine themselves in the light of changes in the wider environment (Meloncon, 2007). This finding is consistent with what has been reported by previous researchers about the potential benefits of technologies (Meloncon, 2007; Brown & Adler, 2008; Ajjan & Hartshorne, 2008; Lee & McLoughlin, 2010).

Overall, the results showed that the lecturers encouraged freedom of learning through the use of student-centred approaches, thus allowing the students to make their own decisions and take control of their learning. Furthermore, the learner-centred approach had the potential to prepare students for analysing and addressing real-world problems independently (Maurer & Neuhold, 2012). This was the case here, as the lecturers adopted a socio-constructivist approach, allowing the students to construct and reconstruct knowledge and thereby suggesting a departure from behaviourist approaches to pedagogy.

However, the lecturers claimed that they lacked skills and support and were consequently frustrated and disappointed, as the respective institution did not have the necessary infrastructure or technical staff. Therefore, one of the key findings was that the lecturers were 'frustrated'. This has also been reported in other studies from Kuwait (Al-Ansari, 2006; Alajmi, 2011). Another limitation of technology use reported by the lecturers involved assessment requirements. The lecturers were concerned that their institution had embraced digital learning, in spite of the lack of sufficient evidence that these technologies improved students' learning and educational outcomes.

One of the significant limitations of technology-based instructional strategies was student absenteeism. Lecturers who tended to use PowerPoint perceived the desire to incorporate technology into instruction as problematic, because technology is constantly evolving. Therefore, the teachers appeared to struggle in their choice and use of possible technologies to attract and retain students, realising the drawbacks of using strategies that do not have an impact on student learning. Therefore, the participants felt that educational technology initiatives needed to be adequately evaluated. This suggests that the lecturers should determine whether the technology aligns with their teaching pedagogy, as well as with their instructional goals. It is evident from the literature that technologies have a tendency to disrupt learning patterns (Ellison & Wu, 2008). Consequently, lecturers should leverage their instructional strategies to fully address student attendance issues.

The lecturers who were administered questionnaires and interviewed declared that they had received support from other lecturers, but not from the appointed technical staff, government or institution. Besides having insufficient time to plan instruction, the literature reveals how inadequate technical and administrative support can have a negative impact on lecturers when they attempt to integrate technology (Naismith et al., 2004; Schoepp, 2005; Alajmi, 2011). Despite this lack of institutional support, however, the lecturers were still able to make adjustments and remain committed to improving student learning.

Another source of frustration was the lecturers' lack of training. The main issue here was the need for more training in the effective use of digital technology for learning. Previous research has shown that a lack of training can prevent educators from integrating technology into curricula (Al-Ansari, 2008).

One of the greatest challenges of technology adoption is the prevalence of outmoded policy regimes. It is possible to teach students in a variety of ways and using alternative structures, but current policy in Kuwait prohibits or impedes many types of new instructional approaches. In order to support student learning, the lecturers therefore felt that policy-makers should attach more importance to technology implementation in HEIs. On the other hand, they believed that these policy-makers were inattentive to their needs and did not provide adequate support.

5.2.3.1. Summary of Findings of Research Question 3

The findings demonstrate that the lecturers in the present study had begun to see themselves as partnered with their students in the learning process, reporting a more reciprocal relationship. They were observed moving toward more student-centred and enquiry-based approaches, whereby they served as facilitators, allowing the students to take more responsibility for their own learning. Furthermore, there was an enhanced learning climate in the classroom, with more interaction and cooperative work across all student groups and between the students and the lecturers. Increased multi-way communication and respect thus helped to create a CoP. This shows that education in Kuwait is undergoing a transformation and is no longer confined to formal settings. Students consequently have more of a sense of belonging to a community, which they appear to take an active part in developing, as a means of enhancing their own learning "through communities of practice, personal networks, and through completion of work-related tasks".

In their quest to become more effective in their role, the lecturers correspondingly experimented by using unconventional teaching strategies. They were mindful of the advances made in technology and attempted to use such tools with care. This would imply that traditional classroom-based teaching in Kuwait is undergoing a shift in teaching styles, due to the emergence of digital technologies.

5.3. Differences between Students and Lecturers in the Use of Technology

The students in the present study expressed a great deal of optimism about technology and their attitude towards its use seemed overwhelmingly positive. The lecturers correspondingly saw themselves as implicated in this process; as agents who could facilitate student learning by using learner-centred approaches. The differences between students and lecturers, identified in this study, did not represent too much dissimilarity in the context of technology use. The lecturers demonstrated that technology has a very important place in education. In contrast, the students seemed to attach more importance to technology use for both academic and non-academic purposes. In sum, both the students and lecturers used technology in similar ways, but there were subtle differences between them (Waycott et al., 2010).

However, more differences did become apparent when examining technology use in the HE context. The students' and lecturers' responses revealed that they used many of the same technologies, but the types of activities they undertook and their associated concerns differed to some extent. An analysis of their responses would suggest that these differences may be due to the diverse roles enacted by students and lecturers in the academic context. More specifically, the key benefits of students using technologies in education lay in the support provided by technology for communicating with lecturers and other students, and the convenience and control it afforded them in managing their studies. The key limitations they identified, however, were shallow learning, increased anxiety, their lecturers' lack of training in technology use and unmet expectations. As a result, they were disempowered.

For the lecturers, technology was seen as a means of enhancing student learning and managing teaching activities. This would support previous research demonstrating how lecturers' attitudes to the use of technology in HE are substantially influenced by their teaching approach (Chen & Bryer, 2012; Schunk, 2012). Some lecturers in the present study emphasised their use of more established technologies to support traditional teaching activities; for example, PowerPoint, as a means of enhancing their lectures. On the other hand, the limitations identified by these lecturers relate more to institutional issues and work practices, especially the increased workload often associated with providing greater flexibility for students – this also being an issue identified in earlier research (for example, Myers, 2004; Tabata & Johnsrud, 2008). However, it is understandable that the lecturers were more focused on institutional issues and pedagogical applications of technology. These findings clarify that lecturers and students are likely to experience the same technologies very differently in a university context, given the perspectives afforded by their differing roles and goals.

The lecturers had sound pedagogical beliefs and wanted to integrate technology in an attempt to dispense with conventional teaching practices. They preferred constructivist teaching practices. On the contrary, the students preferred traditional lectures, suggesting that the lecturers may need to be more involved in class. The lecturers, on the other hand, held constructivist beliefs and wanted to use technology to make learning interactive, experiential and more effective. Although previous research from the GCC states had not demonstrated that lecturers from the region held constructivist beliefs, the research findings (for example: AlMunajjed & Sabbagh, 2010) revealed that the students studied were dissatisfied with traditional methods of teaching. Considering these findings, the students surveyed in the present thesis appear to favour blended learning approaches.

The current study therefore identified differences between the technologies used in HE and those used in everyday life among the students and the participating lecturers; that is, there was some evidence of a difference between the technologies used for general living and those used for learning. The different ways in which technologies are put to use may largely be accounted for by the motivation and social rules inherent in diverse activities and pertaining to the individual within each context. Everyday activities, such as keeping in touch with friends or family infer social norms, calling for technologies to be used in specific ways. For instance, activities undertaken in HE have a particular significance for the individual and involve different social roles. In the light of this, the gulf between educational and everyday technology use becomes apparent. These differences bear implications for anyone seeking to successfully integrate social technologies into educational contexts. Overall, the findings of the present study suggest that the lecturers were not resistant to using new technologies, although their students, who had embraced these technologies, wanted them to seek and receive more training. Many of the lecturers also appeared to be both positively oriented towards technology as a means of enhancing student learning, and even highly skilled and knowledgeable about educational technologies.

5.4. Conclusion

Together, the quantitative and qualitative findings from this study present strong evidence that students and lecturers use technology for formal and informal learning in Kuwaiti HE. The results of this study were then analysed to identify any gaps between the use of technology by students and lecturers in their academic and social lives. This was achieved by linking the findings with literature from both the West and GCC countries, of which Kuwait is one. The initial assumption, prior to commencing this research, was that Wenger's CoP concept may not be relevant in Kuwait, as Kuwait's culture and traditions are quite distinct from those of Western nations. Lamontagne (2005), who conducted a qualitative study on perceptions of CoP amongst faculty members in the UAE, found that although Arab students consider themselves to be potential CoP participants, they did not engage in a process of collective learning like the way it is done in the West. However, the present study found that students formed communities independently, both for academic and non-academic purposes.

As an illustration of the above, the students' responses to the questionnaire suggest a sense of community which fostered CoP and enhanced learning. The students' familiarity with technology and the skills acquired while using it appeared to have enabled them to actively engage with their peers. By forming closely connected groups and behaving as a community of learners, they consequently participated in lively discussion. This is because technology facilitates collaborative and interactive teaching methods (Armstrong et al., 2007; Armbruster et al., 2009).

It was also evident from the observations that strong classroom communities developed; demonstrating characteristics such as shared common interests, active engagement in two-way communication, and trusting and helping other students. Therefore, it may be established that technology can promote a sense of community in the classroom, especially for students in their sense of learning. This was probably fostered by the favourable CoP that evolved in those classrooms which incorporated technology. This is another unique finding, as it refutes earlier claims that the principles of effective CoP cannot be fully realised in the context of traditional Arab culture (Lamontagne, 2005).

Studies from the West (for example, Ertmer, 2005; Voogt, 2008; Ertmer & Ottenbreit-Leftwich, 2010) claim that teachers have already integrated technology into their teaching practice and are using constructivist approaches. The findings in this current thesis also show that lecturers are keen to develop their practice, so that they can meet the needs and expectations of their students. Similar to the West, the lecturers in this study appeared determined to expand education beyond traditional boundaries through the use of student-centred teaching and learning approaches, with a focus on educational practices and principles that provide all students with equal access to the knowledge and skills necessary for HE and their future careers. There is in fact current evidence to prove that learners in Kuwait are embracing technology and becoming more active users, as is the case in the developed world. Moreover, lecturers are not limiting themselves to traditional teaching methods, as the findings indicate how earlier assumptions about lecturers purely using technology to present information are erroneous, and they are now also using technology to ensure hands-on learning for their students.

The qualitative and quantitative findings in this study support the principle components of Vygotsky's theory of social constructivism, such as ZPD and scaffolding. The shift in teaching approaches described above also appears to have been influenced by situated learning. The role of the learner in creating, monitoring and controlling a favourable learning environment is emphasised by such learning theories and approaches. This means that the way in which students adapt in the classroom is a function of the situation they encounter, as presented by the lecturer. There were shades of Socio-constructivist Theory in the lecturers' approaches here. For instance, the environment they created allowed the students to form CoPs, become more active, and engage with the learning situation. In adopting such practices, the lecturers encouraged the students to become more independent thinkers, investigating things for themselves and constructing their own understanding of topics. As a result, the constructivist learning environment afforded the learners control and flexibility, thus promoting reflection and self-paced learning.

Research on the use of technologies in teaching and learning is scarce, but the results of the present study contribute to existing knowledge, not just in Kuwait and other GCC countries, but also in the West. The study examined ICT use in the specific contest of HE in Kuwait and findings of this nature have not yet appeared in the literature.

Chapter Six - Conclusion

6.1. Introduction

This mixed methods sequential explanatory study was conducted to identify factors contributing to students' and lecturers' use of technology for academic and non-academic purposes. The study context was the College of Basic Education, contained within PAAET. This chapter concludes the research and summarises the main findings in response to the research questions. It highlights the contributions made to knowledge regarding technology integration and use in HE. Finally, it presents the theoretical and practical implications of incidental findings, making recommendations for future research.

Summarising from Chapter Two, the current literature shows that emerging technologies and e-learning can provide a socio-constructivist learning environment that promotes discussion, collaboration and interaction (Chen & Bryer, 2012; Schunk, 2012). Moreover, technologies can essentially improve learning outcomes (Ho-Abdullah et al., 2011; Hiew, 2011; Promnitz-Hayash, 2011; Eikenberry, 2012; Virvou et al., 2012; Troussas et al., 2013) and promote collaborative methods of instruction (Shuler et al., 2010; Thorsteinsson et al., 2010; Lally & Sclater, 2013). In fact, new technologies provide seamless learning spaces (Chan et al., 2006) and learner-controlled pacing (Holley et al., 2007; Smith et al., 2007). It is also claimed that technology permits personalised learning, whereby learning essentially becomes a student-centred activity (Cobcroft et al., 2006).

However, although the literature extols the affordances of technologies, there are certain scholars who refute such claims and argue that the educational setting can impose constraints on learners, as individual educators may affect the way in which technologies are used (Kennewell, 2001). The literature reviewed also demonstrates that students' perceptions of technology use are driven by degrees of freedom and levels of confidence (Barnes et al., 2007; Celik, 2013); access to various technologies (Oliver & Goerke, 2007; Kennedy et al., 2010; Van Harmelen & Randall, 2011; Woodcock et al., 2012; Lenares et al., 2012); perceptions of e-learning environments and the performance of technology-related activities (Howe et al., 2009; Paechter & Maier, 2010; Blau et al., 2009; Kerawalla et al., 2009; Park, 2009; Corrin et al., 2010; Shroff et al., 2011; Woodcock et al., 2012; Ali et al., 2013; Lauricella & Ray, 2013; Aregbesola & Olatokun, 2014; Toetenel, 2014), and attitudes to the use of technologies (Yaoyuneyong et al., 2013).

In addition to the above, it is evident from the literature that students use technology for social purposes, but may not always have the required digital literacy skills for education (Hadyn, 2008). They have moreover developed a complex relationship with technology (Dahlstrom et al., 2013) as they appreciate the convenience, connectivity and control it offers (Caruso & Kvavik, 2005). Lecturers, on the other hand, were generally considered in this instance to play the role of facilitator (Weltzer-Ward, 2011; Nortcliffe et al., 2011), enabling students to use the technology by building communities of learning (Junco et al., 2011; Fullan & Langworthy, 2013; Murgatroyd, 2014). However, the main concern of lecturers in Kuwait and its neighbouring countries proved to be the slow speed at which technology is being integrated into educational practices in their countries (Erguvan, 2014), combined with the prevalence of rote-learning and memorisation (Mourtada et al., 2013).

Although survey questionnaires were used in the quantitative phase and interviews, diaries and classroom observations were implemented in the qualitative phase, with major emphasis being given to qualitative data and analysis. The results of the two phases were subsequently integrated during the interpretation of the outcomes of the entire study. In the first phase of the study, the quantitative research questions focused on identifying the factors that influence students and lecturers to use technology in their academic and social lives. In the second phase, the perceptions of students and lecturers were explored in depth to understand how students and lecturers use technology for learning and teaching, as well as for non-academic purposes. In other words, the qualitative phase explored and explained the results from the statistical tests in greater depth.

6.2. Key Findings

In the quantitative phase of the study, the participants' answers to items on the survey scales were studied using Descriptive Statistics, EFA and PCA. Quantitative data analysis of the students' responses identified six factors that influenced technology usage: 'Empowering', 'Facilitating informal learning', 'Enhanced student engagement', 'Expediency', 'Intellectual stimulation', and 'Sedentary lifestyle'. Conversely, the results of the lecturers' questionnaire data revealed three factors: 'Lack of support', 'Constructive challenges' and 'Usability concerns'.

The qualitative analysis captured rich insights into the contextual and explanatory factors perceived to underlie technology use by students and lecturers in Kuwaiti HE. Thematic analysis of the students' interviews, diaries and classroom observations generated 10 major themes: **'c**onvenience and usability', 'basic technologies and facilities', 'self-directed engaged learning', 'teachers as facilitators', 'gaining real-world experience', 'builds students' self-efficacy', 'disruptive teaching practices', 'taking the initiative', 'impact of technology on learning', and the 'social downside to the conveniences of technology'. Meanwhile, qualitative analysis of the lecturers' interviews, diaries and classroom observations generated seven major themes: 'rationale for technology adoption', 'aligning a creative curriculum', 'promotes authentic learning', 'desire to keep abreast of new technologies', 'constructivist teaching practices', 'benefits of technology', and 'frustration'. In the final analysis, the data were integrated and interpreted. The key findings to emerge from the study are summarised below.

The results from the questionnaires, interviews, classroom observations and diary entries show that the students' technology use and actors influencing that use were diverse and multi-faceted. Together, they demonstrate how the students used technology in their academic and social lives.

Some of the significant findings to emerge from this thesis were the expediency of the technologies and the disruptive practices of the lecturers. The students perceived that the disruptive technologies used in the classrooms and the disruptive practices of the lecturers provided encouragement and promoted engagement, interaction and active participation in the learning process. In other words, it empowered them, which in turn triggered student engagement in self-regulated learning. By engaging the students in creative and stimulating mental activities and urging them to use technology, the lecturers had expanded their knowledge and skills.

The interview findings indicated that the students in question had the necessary skills to use technology. Furthermore, most favoured hands-on BYOD, due to the convenience and usability it afforded. The interviews provided some details of how these students thought technology could affect their learning. They subsequently reported that technology motivated them and enhanced their learning. This perception of technology could be seen to relate to students' beliefs about the affordances of technology.

The interview findings showed that the College only had basic technologies and mediocre infrastructure available. Therefore, the lecturers permitted the unstructured use of technological devices, which was evident from the classroom observations. The students took advantage of the situation and used their preferred technologies to interact with each other. By giving students this opportunity, the lecturers created a community of learners, who were able to connect with each other and enhance their learning in the process. In addition, the students interviewed stated that they regulated and took responsibility for their own learning.

One significant finding was that the students had high expectations of being taught to use technology as a means of enhancing their critical-thinking, problem-solving and collaborative skills. The students were content that the lecturers had assumed the role of facilitators; using student-centred approaches, orchestrating classroom activities and enabling intellectual exchange with their teachers. These learning approaches are supported by constructivist theories of learning. However, it was felt that the lecturers were insufficiently prepared to effectively meet students' needs. A primary concern was rather the lecturers' apparent lack of training in this area.

The survey findings suggest that the students researched were already using technology extensively, but were able to balance this use between social and academic situations. In other words, although technology did not fully support them at college, they were able to interact socially and communicate with each other to further their learning. Despite this, the students interviewed perceived that the drawbacks of using technology for learning included increased anxiety and stress. The students also mentioned some of the concerns expressed by their parents, which they attributed to conservative beliefs prevalent in their society. This finding reveals parents' sensitivity to excessive technology use amongst the younger generation

One of the barriers encountered by the students was their fear that the excessive use of technology for social purposes would affect their academic achievement and result in a sedentary lifestyle, with implications for obesity. These results reflect those of earlier studies, which highlight the negative effects of technology. Yet another significant finding was that if learners use technology for academic purposes, they may become shallow learners, suggesting that learning technologies in general tend to support superficial rather than deep learning approaches.

The interview and survey findings demonstrate that technology fosters social interaction and collaboration. This is a constructivist view of learning, which posits that knowledge is constructed through observation, reflection and interaction with peers, teachers and technology. The lecturers espoused constructivist beliefs, which helped them to orchestrate classroom activities and create socio-constructivist learning environments. Their objective was to facilitate learning through the adoption of learner-centred approaches. The findings from the interviews indicated that the lecturers wished to keep abreast of new technologies and felt the need to meet students' expectations. They also felt responsible for preparing students for the future and used tools to engage with and monitor them by providing scaffolding. Moreover, they were willing to try and understand students' learning preferences. It implies that the lecturers were making changes to their teaching practice, using student-centred approaches, and attempting to meet the needs and expectations of their students.

One of the unique findings of this research points to the lecturers building a community of learners. They collaborated with other faculties to contend with technical glitches, and the poor quality infrastructure and equipment at the College. However, these lecturers also claimed that they were frustrated, as administrators and policy-makers failed to provide adequate support or organise training workshops to develop their skills in technology use for learning. Nevertheless, they managed to redefine themselves alongside the evolution of technology; taking the initiative and using the available technologies, or at least those with which they felt comfortable, to achieve the curriculum objectives. In other words, as learning facilitators, the lecturers transferred control over the learning to their students, but provided feedback to enhance that learning.

6.3. Limitations of the Study

Unfortunately, the present study does have several limitations. These include the problem of its generalisability, the type of sample used, validity and reliability, and the interpretation of the qualitative results. One of the main limitations which emerges is that it was carried out on groups of students and lecturers in just one state HEI in Kuwait. Attempting to generalise the study findings could therefore raise other issues. As a result, it is suggested here that any future research considers involving students and faculty members from both state and private sector HEIs in Kuwait and even in its neighbouring countries.

Although a high level of measurement validity was ensured through triangulation between the respective numerical data and qualitative responses, this study has low external validity, because it clearly cannot be generalised to other HEIs in Kuwait or the neighbouring states. This is due to the fact that it is not known how well the students and lecturers involved in this study represent the wider population. In addition, the present study has some limitations in its reliability, as each tool was only tested over a short period of time. In order to increase reliability, the researcher could have repeated the study, using the same methods and then comparing the results. This is because "…in interviewing there may be as many different interpretations of the qualitative data as there are researchers" (Cohen et al., 2011, p.202). Yet another limitation of this study consists of the qualitative results being interpreted by only one researcher. If more researchers, especially external investigators, had been involved, the interpretation may have been different.

6.4. Contributions of the Study

This study has addressed three research questions that have been under-explored in previous research. The findings from this mixed methods study on students' and lecturers' use of technology for formal and informal learning make an important contribution to the literature, as one of very few studies to be conducted on this topic in Kuwait. From a methodological perspective, the two aspects of this thesis that add significant value to existing perceptions of technology adoption and use in HE in Kuwait are: the application of Socio-constructivist Theory and the employment of an explanatory mixed methods research design.

Together, the quantitative and qualitative findings from this study present strong evidence that technology is being used in Kuwaiti HE. This study therefore makes an important contribution to the Kuwaiti literature by demonstrating the greater understanding that can be achieved through adopting an explanatory mixed methods research design to study technology adoption and use in education. This study was therefore able to exploit the strengths of both quantitative and qualitative methods, thus enabling a more comprehensive understanding of education technology and its application in Kuwaiti HE.

In the quantitative phase of this study, statistical analysis enabled the researcher to meet the research aim of identifying the factors influencing technology use. In the qualitative phase, however, thematic analysis of the data enabled the researcher to meet the research aim of exploring the contextual and explanatory factors perceived in relation to technology adoption and use. The qualitative data therefore enabled the researcher to make more meaningful interpretations, informed by the specific social and cultural contexts of the students' and lecturers' lived experiences. Consequently, a comprehensive understanding of the nature of technology adoption and use in HE was captured by mixing quantitative and qualitative methods.

This study will contribute to developing an understanding of the factors which encourage students to use technology for learning and the factors influencing lecturers to integrate technology in support of student learning. The use of interviews gives ample opportunity for the voices of the students and lecturers to be heard. The results of the present study therefore fill the gap in the literature concerning how students and faculties use technology, by allowing these stakeholders to narrate their own experiences. The students concerned therefore presented their decisions over technology use as a matter of personal choice and expressed a desire to use technology in ways that matched their personal learning style. The evidence from this study suggests that context is crucial for forming and shaping a lecturer's decisions about technology.

6.5. Implications

As technology continues to form an integral part of students' and lecturers' lives, both within and outside HE campuses, and as it is increasingly integrated into curricula, research problems are also expected to evolve. In the opening chapters, the present thesis alluded to the scarcity of research in Kuwait and other GCC states concerning the use of technologies by students and lecturers or teachers for their academic and more generally, their social lives. Some of these previous studies have explored online tools, including social media, in teaching and learning contexts (Behl et al., 2007; Al-Hawari, 2009; Vrazalic et al., 2010). On the other hand, there have been no studies to date, which have examined constructivist learning approaches and technology; for example, collaborative learning. Although earlier research has explored the impact of technology on academic performance, the relevant research findings do not address how technology is used in its entirety.

6.5.1. Implications for Future Research

This study has shown that students' and lecturers' adoption and use of technology encapsulates their perceptions of technology and pedagogical beliefs. Therefore, researchers can use case studies to focus on one of these aspects and to consider the ways in which these interact and develop over time.

It is hoped that the present study will give added impetus to future research and contribute to the growing body of literature exploring how new and emerging technologies can become a viable medium for instructional strategies, especially for students who are referred to as 'digital natives', or 'Generation Z'. The methodological implication of this study is that different methods can be used and then interpreted interdependently. This leads to a thorough understanding of technology use for academic and social purposes.

6.5.2. Implications for Higher Education Institutions (HEIs)

The findings of this study have implications for how lecturers and HEIs overall identify, select and use technologies for learning and teaching. This investigation not only relates to the practical exploration and application of technologies for academic purposes, but also for social purposes.

HEIs need to ensure that the curricula into which technology is integrated are developed on the basis of students' needs. Institutions should also include lecturers in curriculum development, as well as taking into account the culture of the respective establishment.

In fact, institutions have a vital role to play in helping learners understand how existing values, policies and laws apply to a rapidly changing and technology-dependent world. To support new ways of teaching and learning, HEIs and educators should avoid using standardised exams to test students' ability to memorise. On the other hand, HEIs ought to require students to use their critical thinking and problem-solving skills in response to more creative and open questions.

To effectively integrate technology in HEIs, policy-makers in education must understand the dilemmas and legal issues raised by the technologies concerned. In other words, there is a need for realistic policies. Policy-makers should moreover educate lecturers on important technology-related ethical issues and clearly communicate the relevant policies to faculty members and students alike.

6.5.3. Implications for Policy-makers

This current study has implications for policy-makers, such as the Ministry of Education in Kuwait. The findings would give teachers and educational policy-makers in the above context a better representation of the educational affordances of emerging technologies.

The findings presented in this study demonstrate that significant problems exist, which hinder the successful integration of technology into Kuwaiti HE. At the level of wider policy, there appears to be a lack of coordination between policy-makers and HE institutions, whereby the problems that exist make it impossible to integrate technology effectively. This evidence has important implications for the targeting of policies that seek to encourage and support the use of technology in education.

There are issues that are specific to lecturers in Kuwaiti HE. To illustrate this problem, a key issue raised in the interviews and diaries was that the lecturers were frustrated, because they lacked support. They attributed this to the inattentiveness of policy-makers and lack of training that they had received. The need for better access to resources and for training was in fact strongly emphasised by many of the lecturers. The findings of this study could therefore be used by the Ministry of Higher Education to inform future plans for technology integration, such as the allocation of technology resources in a way that would ensure adequate and equitable access to technology. The findings from this study also suggest that policy-makers need to include quality professional development programmes to continuously support teacher development.

Steps should therefore be taken for technology to make a positive difference. HEI leadership would consequently need to plan for such technology use, taking into account all stakeholders right from the very outset and not just after implementation. Student-centred learning needs to be applied in the classroom, whereby students are permitted to use technology as a tool that will enable them to collect, analyse and create major projects. Moreover, it is the quality, not the quantity of time allowed for technology integration into the curriculum that is the key to effective teaching and learning.

6.6. Summary

The reasons for increasing technology use amongst students could arguably be attributed to the lecturers' own use of technology, ICT skills, willingness to integrate technology into the classroom and commitment to improving student learning. The students and lecturers involved in the present study were more than willing to use technology for non-academic purposes, as they believed that they could improve their personal relationships and build new ones. Moreover, the lecturers espoused constructivist pedagogical beliefs. Overall, the general research findings and conclusion of this study were consistent with the overarching theory presented in the theoretical framework (i.e. constructivism and Socio-constructivist Learning Theory).

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Appendices

Appendix 1: Research Instruments

1 (a) Survey Questionnaire - Lecturers' Perceptions of Using Technology

A. **Please answer the following questions:**

1. In general, how do you rate your skills in using digital technology? Please circle the appropriate answer.

□ Non-user □ Novice □ Very Good □ Expert

2. What proportion of time on average do you spend using technology in your lessons, including preparation and social use? Please circle the appropriate answer.

□ Never □ Rarely □ Sometimes □ Often □ Very Often

3. How does this compare to typical technology usage amongst lecturers within your college? Please circle the appropriate answer.

□ Much more □ A little more □ Similarly □ A little less □ A lot less

B. **Please answer the following questions in relation to the use of technology in your classroom. Please indicate how far you agree with each of the following statements**:

1. When a new technology is introduced, I have sufficient technical support in my classroom.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

2. I like to have evidence of the educational value of a new technology or activity before using it.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

3. I find it difficult to see how I can integrate digital technology I have not used before into my teaching.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

4. Assessment requirements limit my use of digital technology.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

5. The use of digital technology supports the delivery of the curriculum.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

6. Using digital technology will increase my workload in the short term.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

7. Using digital technology will increase my workload in the long term.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

8. I would like more training to use digital technology effectively for learning.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

9. I participate in a supportive lecturer network around digital technology.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

10. I have sufficient access to hardware and software in my classroom.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

11. Students in my class help me use digital technologies during lessons.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

Thank you for participating in this survey.

Please return the completed questionnaire directly to the secretary’s office in your department.

1 (b) Survey Questionnaire - Students' Perceptions of Using Technology

A. In relation to technology use, what benefits does it offer? Please indicate the extent to which you agree with each of the following statements:

1. It motivates me to learn more.

☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree

2. The inability of a technology to fully support the Arabic language does not discourage me from using it for learning.

☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree

3. It does not improve my academic performance.

☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree

4. It improves my personal skills (e.g. initiative, persistence).

☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree

5. It improves my social skills (e.g. teamwork, communication).

☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree

6. It does not improve my intellectual skills (e.g. problem-solving skills).

☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree

7. It improves my critical-thinking skills (e.g. evaluating a resource for bias).

☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree

8. It improves my skills in using technology (e.g. use of online resources).

☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree

9. I do not get support from my lecturers and technical staff when I face difficulties.

 Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree

B. When using online learning tools, such as social media applications (for example Twitter, Facebook, Google+, etc.),

1. I feel a sense of community.

 Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree

2. Learning becomes interactive.

 Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree

3. Posting questions to my peers does not help me understand my readings better.

 Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree

4. I am able to get faster feedback from my peers.

 Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree

5. I am not able to get faster feedback from my instructor.

 Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree

6. I am unable to communicate effectively.

 Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree

7. I am able to connect with peers more easily than I can face-to-face.

 Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree

8. I am unable to increase my participation in classes when I am allowed to contribute through social media.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

C. By using technology for learning:

1. I would like to be a participating member of an online community.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

2. I cannot explore current topics of interest.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

3. I am not able to share interests and reflections online.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

4. I will be able to enrol in classes to continue my education.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

5. I cannot use Internet communications and other technology tools for self-expression.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

6. I can learn many things by interacting with other Internet users.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

7. I can use Internet communication technology tools when I want to learn about something new.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

8. I do not learn better in a traditional classroom setting.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

9. I can learn more when I regulate my own learning experience and seek information on things I want to learn about.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

10. I can post information that might be of interest to other people.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

D. By using technology for social (non-academic) purposes,

1. Keeping in contact with friends and family has become easier.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

2. Face-to-face social interaction has become limited.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

3. I can stay in touch with friends and family I rarely see in person.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

4. I am unable to focus on my assignments.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

5. I can post information that might be of interest to my friends and family members.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

6. I will be able to communicate with people better than I do in face-to-face encounters.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

7. I can use it to release some of the pressure I face when doing assignments.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

8. I can better balance the relationship between social media and academic study.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

9. I have become physically inactive.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

10. I have become totally disengaged from real life.

□ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree

Thank you for participating in the survey

Please return the completed questionnaire directly to the secretary's office in your department.

1 (c) Interview Questions for Lecturers

1. If you do use technology, could you please share your experience as well as your views on technology?

- What kind of resources and other technologies do you use during your teaching or personal life?

2. Why did you decide to adopt instructional technologies in your teaching processes and methods?

Follow-up questions:

- Did your students prefer lessons where technology was adopted?
- Did they appreciate and respond well to the use of technologies in the classroom?
- Did you find your fellow-staff/colleagues and department supportive of your adoption of technology?

3. What are the problems and challenges you face during your use of educational technology? Do the limitations outweigh the benefits?
4. Have you had direct experience of planning and managing lessons with technology in the classroom? Please narrate one such experience
5. What kind of educational technology resources do you feel most confident with during your practical activities?
6. Please describe what instructional technologies you use to teach those classes.

Follow-up questions:

- How did you choose the classes you would use technology in?
- Why did you choose those particular technologies? Can you cite some success stories from your technology adoption? Were there instances when technology did not work so well?

7. Have these technologies changed the way you teach your course(s)? If so, how?

Follow-up questions:

- Can you give me an example of a situation in which you used technology that you feel improved the students’ experience?
- Do you also have experience of technology use that you feel did not support your students?

- Why do you think that technology supported students? What could be the reasons that technology did not support them?

8. What resources do you use when adopting technology in your teaching?

Follow-up question:

- Did you find these resources helpful?
- Have you recommended/would you recommend these resources to a co-worker?
- What kind of help/support would be useful? Why?

9. Have you adopted any of these technologies into your personal life (productivity tools, calendars)? If so, which tools and how are you using them?

Follow-up questions:

- Would you or have you used technology for personal use?

10. What have you changed in your teaching practice from the adoption of technology?

Follow-up questions:

- When you use technology, is your approach to classroom management different? For example: do you use *instructional approach* (to actively engage students in use of technology in order to meet their interests, needs, and abilities**)** or *self-discipline approach* (to allow students to evaluate themselves**)?**
- Has technology adoption influenced your teaching philosophy? (or changed the way you teach)

11. Do you use any educational technology resources as teaching tools? If yes, which ones? Why? How often? If not, then please give reasons.
12. What do you think are the main benefits of using technology in education?
    Do the technologies yield previously unattainable benefits for:
    - your teaching practice?
    - student learning?
13. Are you interested in developing your skills and knowledge in the use of technology?

Follow-up questions:

Do you have any difficulties understanding the technical aspects of educational technology? Do you receive support?

14. Have you ever received training in the use of these technologies? If yes, can you give any details of this? Was there anything that was useful or not useful about it? If not, how did you acquire skills and knowledge for using the technology?

1 (d) Interview Questions for Students

1. Please tell me something about the technology you personally use to support your learning?

Follow-up questions:

- Do you often use technology at home or elsewhere? If so, what kind? Do the devices belong to you?
- What do you usually do online at home? Do you engage in college-related activities? Or do you use technology for entertainment, chatting or browsing without any particular purpose?
- Apart from college and home, where do you access the Internet? Do you use it while commuting?

2. Please tell me something about the educational technologies and facilities in your college (classroom, library, computer lab).
3. Can you also tell me something about the technology that lecturers use in the classroom?
4. In your opinion, what are the benefits of using technology for learning? Do you believe that the benefits justify the efforts made by your institution/lecturers to implement the technologies?
5. How did you acquire skills and knowledge in the use of new technologies for academic purposes? Can you tell me these skills and knowledge you have acquired?
6. How did you acquire your skills and knowledge in the use of new technologies for social purposes? Did you receive any training? Did you take any specialised courses to acquire these skills?
7. Do you use any educational technology resources as learning tools? If yes, which ones, why and how often? If not, then please state why.
8. What do you think are the main benefits and drawbacks of using technology for learning? Do the technologies provide previously unattainable benefits in terms of educational experiences and outcomes? Do the limitations outweigh the benefits?
9. What kind of educational technology resources and other technologies do you feel most confident with during your practical activities? Tell me what you feel about the technology used in the classroom and what you use personally?

10. Do you have any difficulties in understanding the technical aspects of educational technology? Are there similar difficulties in the technology you use for social purposes?
11. Are you happy with the way your lecturer plans and manages lessons with educational technology in the classroom? Do the lecturers help you/your classmates when you face difficulties in using educational technology in the classroom? Please give details.
12. How do you keep up-to-date with technology developments? Do you get information from the lecturers or the institution? Or do you find it out for yourself? If so how?
13. Do you think the use of technology in classrooms is adequate for preparing students for the future? Please explain your response.
14. Do you think that technology changes the way in which you learn about specific subjects? In what way does it change the way you learn?
15. In general, has technology had an impact on your learning? Was this negative or positive?
16. Do you communicate with family/friends online? Does social interaction with friends affect your assignments?
17. Do your parents constrain your time online or the websites you visit? What is your parents' opinion on the use of technology in education?
18. If you encounter any difficulties when using technology, who do you turn to? Do the technical staff provide timely and valuable support?
19. How would you evaluate your own technology skills?

1 (e) Students' Diaries

1. What was the subject and content of the lesson?
2. What interactive technique was used by the lecturer?
3. What resources (technological/non-technological) were used by the lecturer?
4. What do you think about this form of learning (instructional strategies or teaching style adopted by lecturer)?
5. What were the outcomes? (e.g. What did you learn about the topic? Were there any unexpected occurrences?)
6. Please give your thoughts on how technology use in this particular lesson contributed to your understanding of subject concepts.
7. What difficulties did you encounter?
8. What were the positive aspects of this experience?
9. What did you get out of the activity?
10. Did you find it difficult?
11. Did the activity allow you to meet the learning objective it was designed to address?
12. How do you use technology outside classrooms/for social purposes? Please give one or two examples.

1 (f) Lecturers' Diaries

1. What was the subject and content of the lesson?
2. What interactive technique did you choose to use (technology-based)?
3. What resources were used?
4. What did you expect to achieve with the strategy adopted?
5. What were the outcomes? (e.g. What do you think students learned about the topic? How can you tell? Were there any unexpected occurrences?)
6. Please provide some of your thoughts on how the technology used in this particular lesson contributed to students understanding concepts of the subject.
7. What difficulties did you encounter?
8. What were the positive aspects of this experience?
9. What did the students get out of the activity? How can you tell?
10. What did you (as the lecturer) get out of it?
11. Did you find it difficult?
12. Did the activity allow students to meet the learning objective it was designed to address?
13. What would you do differently next time?
14. Please provide your thoughts on the use of technology outside the classroom/for social purposes.

1 (g) Observation Schedule

Interview Questions for the Lecturer in Relation to the Observation

1. Do you have a written lesson plan for this lesson? ___ Yes ___ No

2. How would you characterise the purpose of this lesson?

3. What are your instructional objectives for this lesson with this class?

4. What technology will you be using for this lesson?

5. What content will you cover in this lesson?

6. How do you intend to assess outcomes for this lesson?

Observation Demographics

Department:

Lecturer:

Topic:

Date:

Classroom session: From………..to ……………..AM/PM.

Technology/ies used:

Observation Protocol (TDOP) Components of the Teaching Dimensions

Dimension: Teaching Methods		Lecturer 1		Lecturer 2		Lecturer 3		Lecturer 4	
NO = Not observed, M = Minimal, TSE = To some extent, VIO = Very indicative of the observation		Session 1	Session 2	Session 1	Session 2	Session 1	Session 2	Session 1	Session 2
Student-centred	Interactive lecture	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
	Students working in groups/discussion	TSE	TSE	TSE	TSE	TSE	TSE	TSE	TSE
	Whole class discussion	VIO	VIO	VIO	VIO	TSE	TSE	VIO	VIO
Teacher-centred	Students completing work alone at their desk/chair.	NO	NO	NO	NO	NO	NO	NO	NO
	Absolute control	NO	NO	NO	NO	NO	NO	NO	NO
Lecture with demonstration of topic or phenomena	Lecture without technology	NO	NO	NO	NO	NO	NO	NO	NO
	Lecture with technology to convey course content	VIO	VIO	TSE	TSE	TSE	TSE	M	M
	Lecture with handwritten visuals	NO	NO	NO	NO	NO	NO	NO	NO

Dimension: Cognitive Demand		Lecturer 1		Lecturer 2		Lecturer 3		Lecturer 4	
NO = Not observed, M = Minimal, TSE = To some extent, VIO = Very indicative of the observation		Session 1	Session 2	Session 1	Session 2	Session 1	Session 2	Session 1	Session 2
Recalling and retaining information	Lecturers provide either written or verbal information, or information transmitted using online tools	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
	Students recall basic facts in response to a verbal question, or to a question posted on an online tool	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
Problem solving	By immersing students in active, investigative learning	VIO	VIO	VIO	VIO	TSE	TSE	TSE	TSE
	Through participation in practical problem-solving activities	VIO	VIO	VIO	TSE	TSE	TSE	TSE	TSE
	Through a focus on experiential learning	VIO	VIO	VIO	TSE	TSE	TSE	TSE	TSE
Fostering creativity	Providing students with hands-on opportunities to generate new ideas when using technology	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
	Providing situations and opportunities for students to answer questions using technology for research and for practical trial-and-error challenges	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
	Allowing students to take ownership of a problem and learn through their mistakes	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
	Allowing students to self-correct mistakes	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
Appropriate connections made to real-world contexts	Allowing students to use technologies to connect to global and diverse classrooms, in order to view real-world examples and learn from them	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
	A sufficient number of examples of real world or contextual applications of concepts and skills is presented	TSE	TSE	TSE	TSE	TSE	TSE	NO	NO
Dimension: Student-Teacher Interaction		Lecturer 1		Lecturer 2		Lecturer 3		Lecturer 4	
NO = Not observed, M = Minimal, TSE = To some extent, VIO = Very indicative of the observation		Session 1	Session 2	Session 1	Session 2	Session 1	Session 2	Session 1	Session 2
Students asking questions	Students seeking clarification of a concept	VIO	VIO	VIO	VIO	VIO	VIO	VIO	VIO
Lecturers asking questions	Checking for understanding (e.g. "Does that make sense?") and pausing to indicate an opportunity for students to respond	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
Lecturers' responses	Students' ideas and questions are welcomed and solicited by the lecturer	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
	Students' questions are answered or discussed	VIO	VIO	VIO	VIO	VIO	VIO	TSE	TSE
Students' responses	Students respond to questions posed by the lecturer	VIO	VIO	TSE	TSE	TSE	TSE	TSE	TSE
Students' interaction with each other	Pairs or groups of students chat with each other about a topic	TSE	TSE	TSE	TSE	TSE	TSE	TSE	TSE
Dimension: Student Engagement		Lecturer 1		Lecturer 2		Lecturer 3		Lecturer 4	
(Very High >75%; High between 50 & 75%; Medium between 25 & 50%; Low <25%)		Session 1	Session 2	Session 1	Session 2	Session 1	Session 2	Session 1	Session 2
Actively taking notes		75%	75%	75%	75%	75%	75%	75%	75%
Looking at the instructor/course materials		75%	75%	75%	75%	75%	75%	75%	75%
Using technology		75%	75%	75%	75%	75%	75%	75%	75%

Appendix 2: Research Instruments in Arabic

2 (a) Lecturers' Questionnaire in Arabic

يهدف هذا البحث لدراسة أثر استخدام التكنولوجيا على الحياة الاجتماعية و الأكاديمية لكل من الطلبة و أعضاء هيئة التدريس في مراحل التعليم الجامعي في دولة الكويت. و لتجنب الخلط بين المعاني المختلفة لمصطلح "تقنية"، أود طرح التعريف التالي لتوضيح ما يشير إليه المصطلح في هذه الدراسة. يتعلق مصطلح (التقنية) أو (تكنولوجيا التعليم) باستخدام الأدوات التقنية (مثل: برمجيات و وسائل التواصل الاجتماعي و التطبيقات و البرمجيات التعليمية كأنظمة إدارة التعلم و أجهزة الحاسوب الشخصي و المحمولة و التقنيات المتنقلة كأجهزة الهواتف المحمولة و التطبيقات المتنقلة و أجهزة الحاسوب اللوحي بنظام الأندرويد...إلخ) و التي تسهل الوصول للمعلومات و نشر مفاهيم استخدام و إدارة و تقييم العمليات و الوسائل التعليمية بين الأفراد و المؤسسات. تهدف هذه الدراسة عن طريق الاستبيان أدناه للتعرف على مفاهيم أعضاء هيئة التدريس حول المعتقدات (التربوية فيما يخص استخدام التقنية (التكنولوجيا:

ناصر علي

أ- يرجى اختيار الإجابة المناسبة على الأسئلة التالية:

1- بشكل عام كيف تقيم مهاراتك في استخدام التكنولوجيا الرقمية؟ يرجى اختيار الإجابة المناسبة من التالي:

☐ ☐ جيد جدا ☐ خبير ☐ جيد ☐ مبتديء ☐ لا استخدمها

2- ما هو معدل الوقت الذي تقضيه في استخدام التكنولوجيا في تقديم دروسك بما في ذلك وقت الإعداد للمحاضرة وكذلك استخدام التكنولوجيا للتواصل الاجتماعي؟ يرجى اختيار الإجابة المناسبة من التالي

☐ عادة ☐ كثيرا جدا ☐ أحيانا ☐ نادرا ☐ غير مستخدم

3- كيف تقارن هذا المعدل بذلك المتعارف عليه بين نظرائك المحاضرين في ذات الكلية؟ يرجى اختيار الإجابة المناسبة من التالي

☐ أقل بقليل ☐ أقل بكثير ☐ متشابه ☐ أكثر بقليل ☐ أكثر بكثير

ب- يرجى اختيار الإجابة المناسبة على الأسئلة التالية فيما يخص استخدام التكنولوجيا في قاعة المحاضرات. يرجى تحديد مدى موافقتك على كل من العبارات التالية:

1- يكون لدي الدعم الفني الكافي في القاعة الدراسية كلما تم تقديم تقنية جديدة.

☐ ☐ لا أوافق ☐ أوافق بشده ☐ محايد ☐ أوافق ☐ أوافق بشده

2- أسعى على التأكد من القيمة التربوية لأي تقنية تكنولوجية أو نشاط جديد قبل استخدامه.

☐ ☐ لا أوافق ☐ أوافق بشده ☐ محايد ☐ أوافق ☐ أوافق بشده

3- أجد صعوبة في كيفية دمج التكنولوجيا الرقمية التي لم استخدمها في دروسي من قبل.

☐ ☐ لا أوافق ☐ أوافق بشده ☐ محايد ☐ أوافق ☐ أوافق بشده

4- متطلبات التقييم تحد من استخدامي للتقنية الرقمية.

☐ ☐ لا أوافق ☐ أوافق بشده ☐ محايد ☐ أوافق ☐ أوافق بشده

5- يساعد استخدام التكنولوجيا الرقمية على توصيل و توضيح المنهج والمقرر.

☐ ☐ لا أوافق ☐ أوافق بشده ☐ محايد ☐ أوافق ☐ أوافق بشده

6- على المدى القريب استخدام التكنولوجيا الرقمية سيزيد من أعباء العمل .

☐ أوافق بشده ☐ أوافق ☐ محايد ☐ لا أوافق ☐ لا أوافق بشده

7- على المدى البعيد استخدام التكنولوجيا الرقمية سيزيد من أعباء العمل .

☐ أوافق بشده ☐ أوافق ☐ محايد ☐ لا أوافق ☐ لا أوافق بشده

8- أود الحصول على المزيد من التدريب على كيفية استخدام التكنولوجيا الرقمية بفاعلية في التعليم.

☐ أوافق بشده ☐ أوافق ☐ محايد ☐ لا أوافق ☐ لا أوافق بشده

9- أشارك في شبكات داعمة للمحاضرين حول استخدام التكنولوجيا الرقمية.

☐ أوافق بشده ☐ أوافق ☐ محايد ☐ لا أوافق ☐ لا أوافق بشده

10- لدي قدر كافي من البرمجيات و المعدات التكنولوجية في القاعة الدراسية.

☐ أوافق بشده ☐ أوافق ☐ محايد ☐ لا أوافق ☐ لا أوافق بشده

11- يساعدني الطلبة في القاعة الدراسية وأثناء المحاضرة في استخدام التكنولوجيا الرقمية .

☐ أوافق بشده ☐ أوافق ☐ محايد ☐ لا أوافق ☐ لا أوافق بشده

أشكركم على المشاركة في هذه الدراسة.

2 (b) Students' Questionnaire in Arabic

أخي الطالب / أختي الطالبة

يهدف هذا البحث لدراسة أثر استخدام التكنولوجيا على الحياة الاجتماعية و الأكاديمية لكل من الطلبة و أعضاء هيئة التدريس في مراحل التعليم الجامعي في دولة الكويت. و لتجنب الخلط بين المعاني المختلفة لمصطلح "تقنية"، أود طرح التعريف التالي لتوضيح ما يشير إليه المصطلح في هذه الدراسة. يتعلق مصطلح (التقنية) أو (تكنولوجيا التعليم) باستخدام الأدوات التكنولوجية (مثل: برمجيات و وسائل التواصل الاجتماعي و التطبيقات و البرمجيات التعليمية كأنظمة إدارة التعلم و أجهزة الحاسوب الشخصي و المحمولة و التقنيات المتنقلة كأجهزة الهواتف المحمولة و التطبيقات المتنقلة و أجهزة الحاسوب اللوحي بنظام الأندرويد...إلخ) و التي تسهل الوصول للمعلومات و نشر مفاهيم استخدام و إدارة و تقييم العمليات و الوسائل التعليمية بين الأفراد و المؤسسات. تهدف هذه الدراسة عن طريق الاستبيان أدناه للتعرف على مفاهيم الطلاب و المعتقدات التربوية بين المحاضرين فيما يخص استخدام التقنية (التكنولوجيا):

أ- **ما هي فؤائد استخدام التكنولوجيا؟ يرجى تحديد مدى موافقتك على كل من العبارات التالية:**

1- إنها تحفزني لتعلم المزيد.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

2- عدم قدرة التكنولوجيا على التوافق التام مع اللغة العربية لا يمنعني من استخدامها.

☐ لا أوافق ☐ لا أوافق بشده ☐ محايد ☐ أوافق ☐ أوافق بشده

3- لا تطور من أدائي الأكاديمي.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

4- استخدام التكنولوجيا تطور مهاراتي الشخصية (مثل المبادرة و المثابرة).

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

5- إنها تطور من مهاراتي الاجتماعية (مثل العمل الجماعي و التواصل).

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

6- إنها لا تطور مهاراتي الفكرية (مثل مهارات حل المشكلات).

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

7- إنها تطور مهارات التفكير النقدي(التحليلي) لدي (مثل تقييم وسيلة معينة).

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

8- إنها تطور مهاراتي في استخدام التكنولوجيا (مثل استخدام محركات البحث و الانترنت).

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

9- لا أحصل على الدعم من أعضاء هيئة التدريس أو الطاقم الفني في الكلية عند مواجهة أية مصاعب.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

ب- **عند استخدام وسائط تعليمية كوسائل التواصل الاجتماعي(مثل تويتر و فيسبوك والوتس اب والبرامج الأخرى المعدة للتواصل الاجتماعي)**

1- أشعر بالانتماء إلى المجتمع.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

2- استخدام وسائل التواصل الاجتماعي يجعل التعليم تفاعلي.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

3- إرسال الأسئلة لزملائي لا يساعدني في فهم ما أقرأ بشكل أفضل.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

4- يمكنني من أن أحصل على تعليقات ومساعدة بشكل سريع من زملائي.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

5- لا أحصل على تعليقات وردود من أعضاء هيئة التدريس.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

6- لا استطيعع التواصل بشكل فعال.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

7- عند استخدام وسائل التواصل الاجتماعي أستطيع التواصل مع زملائي بشكل أسهل من التواصل وجها لوجه.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

8- لا تزداد مشاركتي في الفصل عند السماح لي بالمشاركة عبر وسائل التواصل الاجتماعي.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

ت- في حال استخدام التكنولوجيا للتعلم:

1- أود أن أصبح عضوا مشاركا في مجموعة على الشبكة العنكبوتية.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

2- لا أستطيع أن ابحث عن مواضيع معاصرة مهمة.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

3- لا أستطيع مشاركة الاهتمامات و ردود الفعل عبر الانترنت.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

4- سأتمكن من الالتحاق بفصول لاستكمال تعليمي.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

5- لا أستطيع استخدام اتصالات الانترنت أو أي أدوات تكنولوجية أخرى في التعبير عن نفسي.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

6- أستطيع تعلم أشياء كثيرة من خلال التفاعل مع مستخدمي الانترنت الآخرين.

☐ لا أوافق ☐ لا أوافق بش ☐ محايد ☐ أوافق ☐ أوافق بشده

7- أستطيع استخدام أدوات و تقنيات الاتصال عبر الانترنت عندما أريد تعلم شيء جديد.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

8- لا اتعلم بشكل أفضل في بيئة الفصل التقليدي.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

9- أستطيع التعلم أكثر عند تنظيم تجربتي التعليمية و البحث عن معلومات أريد معرفتها.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

10- أستطيع رفع (إرسال) معلومات تهم الآخرين.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

د- في حال استخدام التكنولوجيا لأغراض اجتماعية غير أكاديمية:

1- يصبح التواصل مع الأسرة و الأصدقاء أسهل.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

2- يصبح التواصل الاجتماعي وجها لوجه أكثر محدودية.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

3- استطيع التواصل مع أفراد الأسرة و الأصدقاء الذين نادرا ما أراهم شخصيا.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

4- لا أستطيع التركيز على المهام المكلف بها (الواجبات).

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

5- استطيع رفع (إرسال) معلومات قد تكون هامة لأفراد الأسرة و الأصدقاء.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

6- سأتمكن من التواصل مع الآخرين أفضل من التواصل وجها لوجه.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

7- استطيع استخدامه لتنفيس بعض من الضغط الذي أواجهه أثناء عمل الواجبات.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

8- أستطيع الموازنة بين وسائل التواصل الاجتماعي و الدراسة الأكاديمية بشكل أفضل.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

9- أصبحت أعاني من خمول بدني.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

10- انفصلت تماما عن الحياة الواقعية.

☐ لا أوافق ☐ لا أوافق بشدة ☐ محايد ☐ أوافق ☐ أوافق بشده

أشكركم على المشاركة في هذه الدراسة.

ناصرعلي

2 (c) Lecturers' Interview Questions in Arabic

أسئلة مقابلة شخصية لأعضاء هيئة التدريس

1- إن كنت تستخدم التكنولوجيا في أي جانب من جوانب حياتك، هل ممكن أن تخبرنا عن تجاربك الخاصة في استخدام التكنولوجيا و رأيك فيها؟

- ما نوع الوسائل و التكنولوجية التي تستخدمها في عملية التدريس أوفي حياتك الشخصية؟

2- لماذا قررت استخدام التكنولوجيا كأداة او وسيلة تعليمية في التدريس؟

أسئلة متابعة:

- هل يفضل طلابك الدروس المستخدم فيها التكنولوجيا؟
- هل يفضل طلابك استخدام التكنولوجيا أثناء التدريس؟ و هل تشعر بأنهم يتجاوبون معها جيدا؟
- هل يدعم زملائك و القسم الذي تنتسب له استخدامك للتكنولوجيا؟

3- ما هي المشكلات و التحديات التي تواجهها أثناء استخدام التكنولوجيا للتعليم؟ و هل تفوق تلك العقبات الفوائد؟

4- هل كانت لك تجارب مباشرة في الإعداد لـــ أو إدارة درس باستخدام التكنولوجيا في القاعات الدراسية؟ يرجى وصف إحدى تلك التجارب.

5- ما نوع الوسائل التكنولوجيا التربوية التي تشعرك بأقصى قدر من الثقة أثناء عملك؟

6- يرجى وصف التقنيات التربوية التي تستخدمها أثناء تدريسك.

أسئلة متابعة:

- كف تختار القاعات الدراسية التي تستخدم فيها التكنولوجيا؟
- لماذا اخترت تلك التقنيات تحديدا؟ هل يمكنك ذكر بعض قصص نجاحك في استخدام التكنولوجيا؟ هل حدث أن فشلت التقنية في العمل بشكل جيد؟

7- هل غيرت تلك التقنيات من طريقة تدريسك؟ اذكر كيف إن كان الأمر كذلك.

أسئلة متابعة:

- هل لك أن تذكر موقفا استخدمت فيه التكنولوجيا و شعرت أنها حسنت تجربة الطلبة.
- هل مررت بتجربة لاستخدام التكنولوجيا و لم تشعر أنها أفادت طلبتك؟
- لماذا في اعتقادك نجحت أو لم تنجح تلك التكنولوجيا مع الطلاب؟ أذكر بعض أسباب تلك النتائج.

8- ما الوسائل التي تستخدمها عند استخدام التكنولوجيا في التدريس؟

أسئلة متابعة:

- هل وجدت تلك الوسائل مفيدة؟
- هل أوصيت / أو قد توصي زميل باستخدام تلك الوسائل؟
- ما نوع الدعم أو العون الذي قد يكون مفيدا؟ لماذا؟

9- هل استخدمت أي من تلك التكنولوجيا في حياتك الشخصية (أدوات قياس الانتاجية أو التقاويم)؟ إن كانت الإجابة بنعم، ما هي تلك الأدوات و كيف تستخدمها؟

أسئلة متابعة:

- هل سبق أن استخدمت أو قد تستخدم التكنولوجيا استخداما شخصيا؟

10- ما الذي تغير في اساليب تدريسك باستخدام التكنولوجيا؟

أسئلة متابعة:

- هل يختلف أسلوبك في إدارة الصف عند استخدام التكنولوجيا؟ على سبيل المثال: هل تستخدم نهجا تعليميا (لتجعل الطلبة يشاركون بفعالية في استخدام التقنية و بذا تخاطب اهتماماتهم و احتياجاتهم و قدراتهم) أم انك تستخدم نهج الانضباط الذاتي (بما يسمح للطلبة أن يقيموا أنفسهم)؟
- هل أثر استخدام التقنية على فلسفتك في التدريس (هل غير من طريقة تدريسك)؟

11- هل تستخدم أية وسيلة تعليمية تكنولوجية كأداة للتدريس؟ إن كانت الإجابة نعم، اذكرها و اذكر سبب و مدى استخدامك لها. و في حالة النفي، يرجى ذكر الأسباب.

12- في رأيك، ما الفوائد الرئيسية لاستخدام التقنية في التعليم؟

هل يسرت التكنولوجيا تحقيق فوائد كان يصعب تحقيقها سابقا فيما يخص:

- ممارستك لمهنة التدريس
- استفادة و تفاعل الطلبة

13- هل أنت مهتم بتطوير مهاراتك و معرفتك في مجال استخدام التقنية؟

أسئلة متابعة:

- هل تواجه أية مصاعب في فهم الجوانب الفنية للتقنية التعليمية؟ و هل تحصل على دعم بهذا الخصوص؟

14- هل تلقيت أي تدريب على استخدام هذه التقنيات؟ إن كان الأمر كذلك، هل لك أن تذكر التفاصيل؟ هل كان استخدامها مفيدا أم لا؟ إن كانت الإجابة بالنفي، كيف اكتسبت مهارة و معرفة استخدام التقنية؟

2 (d) Students' Interview Questions in Arabic

أسئلة مقابلة شخصية للطلاب

1- أرجو أن تحدثني عن التكنولوجيا التي تستخدمها شخصيا لتعزيز استيعابك لما تتعلمه.

أسئلة متابعة:

- هل تستخدم التكنولوجيا بشكل عام في المنزل أم في مكان آخر؟ في حالة الإيجاب، هل تستخدم أجهزة تخصك؟
- ما الأنشطة التي عادة ما تمارسها عبر الانترنت في المنزل؟ هل تشارك في أنشطة خاصة بالكلية أم هل تستخدم التقنية للترفيه و الدردشات و التصفح بلا هدف محدد؟
- من أين تستخدم الانترنت بعيدا عن الكلية و المنزل؟ و هل تستخدمها أثناء التنقل؟

2- أرجو أن تحدثني عن التكنولوجيا و المرافق التعليمية في كليتك (الفصل و المكتبة و مختبر الحاسوب....إلخ)

3- هل لك أن تحدثني أيضا عن التكنولوجيا التي يستخدمها المحاضرون في كليتك أثناء التدريس؟

4- ما هي في رأيك فوائد استخدام التكنولوجيا في التعلم؟ و هل تعتقد أن الفوائد تبرر الجهد الذي تبذله مؤسستك التعليمية و المحاضرون لاستخدامها؟

5- كيف اكتسبت شخصيا المهارة و المعرفة في استخدام التكنولوجيا لأغراض أكاديمية؟ و هل لك أن تحدثنا عن تلك المهارات و المعرفة؟

6- كيف اكتسبت مهاراتك و معرفتك باستخدام التكنولوجيا الحديثة للتواصل الاجتماعي؟ هل تلقيت أي تدريب؟ و هل خضعت لأي دورات تدريبية خاصة لاكتساب تلك المهارات؟

7- هل تستخدم أية وسيلة تكنولوجية تعليمية كأداة للتعلم؟ إن كان الرد بالإيجاب، اذكرها و اذكر سبب و معدل استخدامك لها، و إن كان بالنفي، يرجى ذكر السبب.

8- ما هي في رأيك فوائد و عيوب استخدام التكنولوجيا للتعلم؟ هل تحقق التقنيات فوائد كان يصعب تحقيقها سابقا فيما يخص التجربة و المخرجات التعليمية؟ و هل تفوق المعوقات الفوائد المحققة؟

9- ما نوع الوسيلة التعليمية أو غير التعليمية التي تشعرك بقدر أكبر من الثقة أثناء استخدامها في أنشطتك العملية؟ حدثني عن شعورك حيال التكنولوجيا المستخدمة في القاعات الدراسية و عن الوسيلة التي تستخدمها شخصيا.

10- هل تواجه أية مصاعب في فهم الخواص الفنية للتكنولوجيا التعليمية؟ و هل هناك مصاعب مشابهة في استخدام التكنولوجيا لأغراض اجتماعية؟

11- هل انت راض عن الطريقة التي يتعامل بها استاذك و يدير بها الدرس أثناء استخدام التكنولوجيا التعليمية؟ هل يقوم المحاضرون بمساعدتك و زملائك عند مواجهة مصاعب في استخدام التكنولوجيا التعليمية أثناء الدرس؟ يرجى ذكر التفاصيل.

12- كيف تواكب التطورات التكنولوجية: هل تحصل على المعلومات من المحاضرين أو المؤسسة التعليمية أم أنك تصل إليها بنفسك؟إن كان الأمر كذلك، اذكر كيف.

13- هل تعتقد أن استخدام التكنولوجيا في الفصل كاف لإعداد الطلبة للمستقبل؟ يرجى تفسير إجابتك.

14- هل تعتقد أن استخدام التكنولوجيا في التعليم غير من طريقة تعلمك في مادة محددة؟ كيف تغير من طريقة تعلمك؟

15- هل كان للتكنولوجيا أي أثر على تعلمك بشكل عام؟ هل كان هذا الأثر سلبيا أم إيجابيا؟

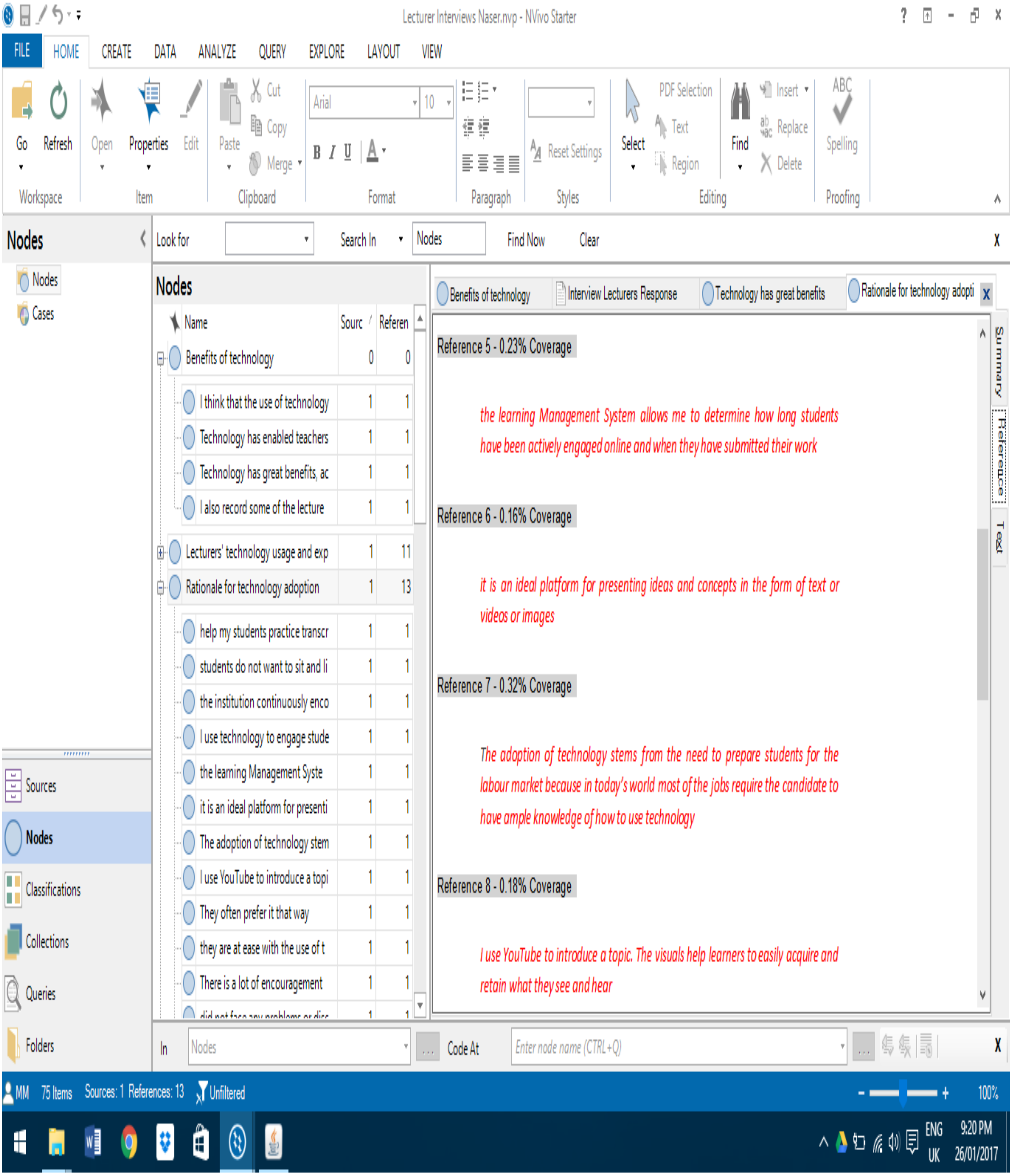
16- هل تتواصل مع الأسرة و الأصدقاء عبر الانترنت؟ و هل يؤثر التواصل الاجتماعي مع أصدقائك على واجباتك؟

17- هل يحد والداك من الوقت الذي تمضيه على الانترنت أو المواقع التي تقوم بزيارتها؟ ما رأي والداك في استخدام التكنولوجيا في التعليم؟

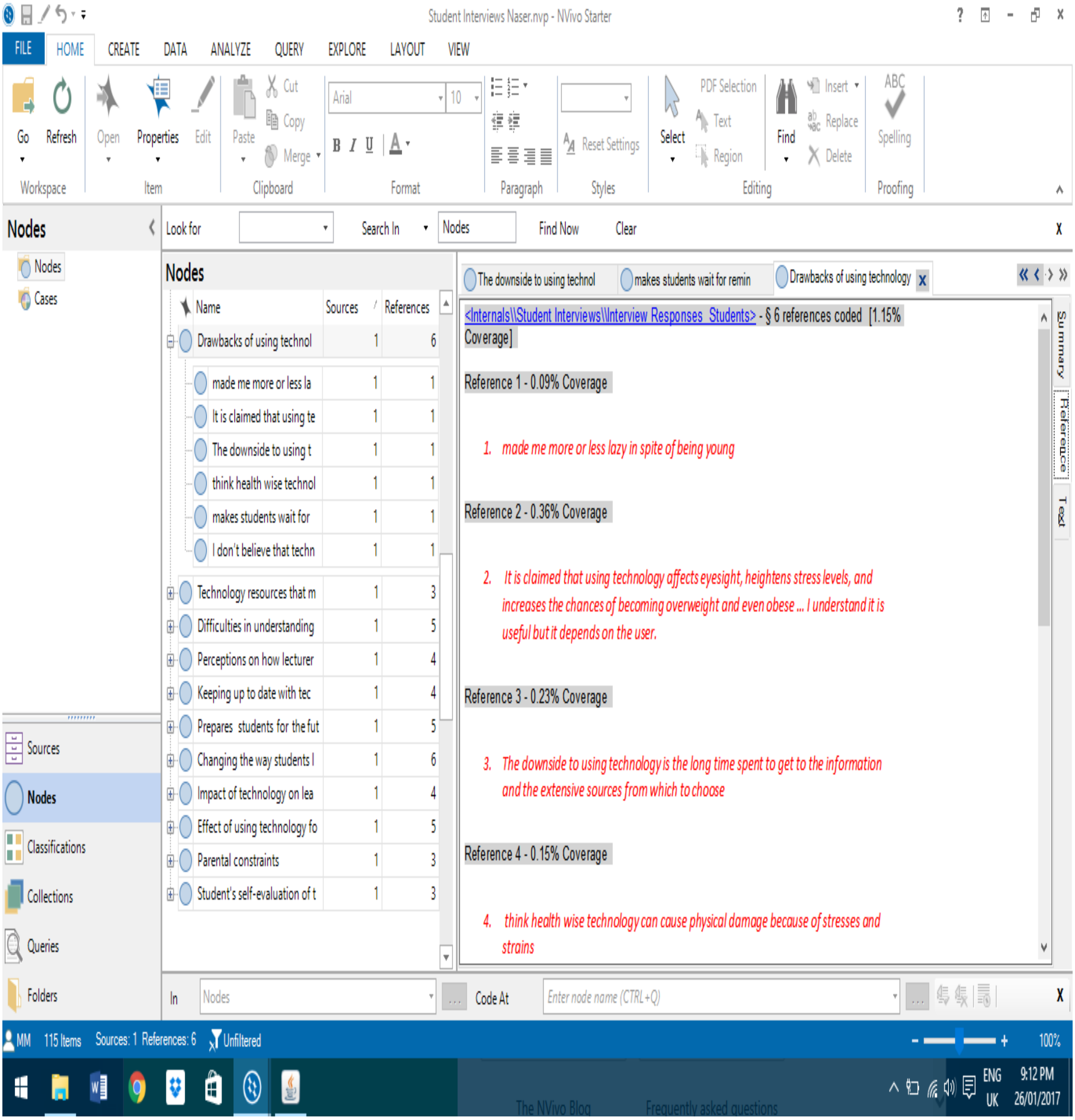
18- لمن تلجأ عند مواجهة مصاعب في استخدام التكنولوجيا؟ هل تحصل على دعم مناسب و مجدول من الطاقم الفني في الكلية أو القسم العلمي؟

19- كيف تقيم مهاراتك في استخدام التكنولوجيا؟

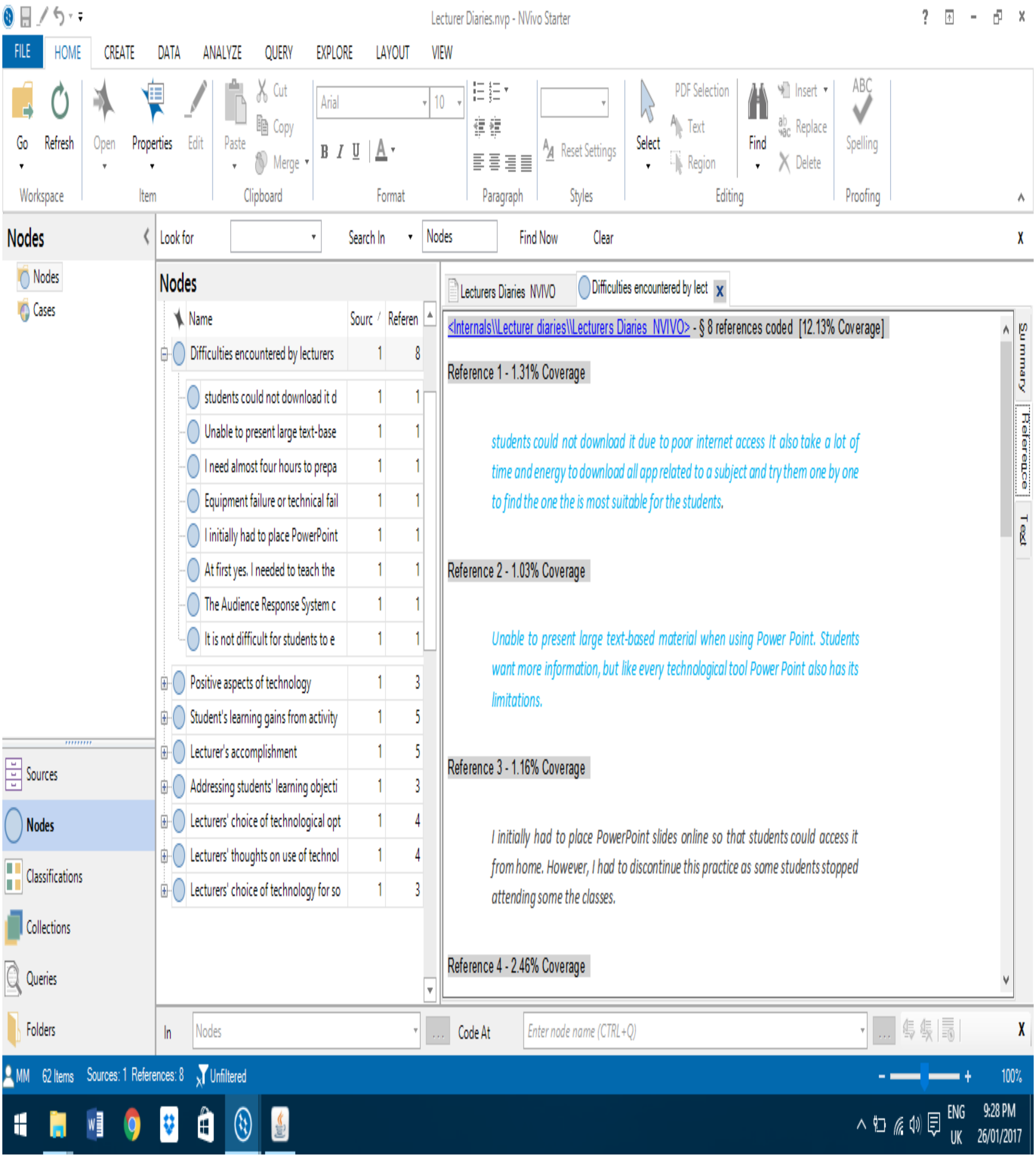
2 (e) Lecturers' Interviews- NVivo screenshot



2 (f) Students' Interviews-- NVivo screenshot



2 (g) Lecturers' Diaries - NVivo screenshot



2 (h) Nodes in Excel Sheets

Lecturers' Interviews

		Nodes
1	1	Lecturers' technology usage and experiences
2	2	the use of technology provides short cuts to users for things that usually would take longer.
3	3	supports the way the brain works through 'brain-training' activities.
4	4	cannot do without the various technology devices available that allow me to communicate and interact with my wife and relatives and also my friends.
5	5	use technology in my social life much more than in teaching
6	6	I only use social media for social purposes. Thus, I am able to draw a line between compromising my professional life, my relationships with the students, and my personal relationships.
7	7	I use an iPhone and Android application called "MyU" short for My University; it is an application that allows any teacher to open his~her own account, whereby his~her students will be able to join them. It is similar to a private blog
8	8	I never use a pen at work and my teaching is based entirely on handouts and printouts or by transferring soft copies via emails. When I am in the lecture room, I rarely use PowerPoint or related equipment because of the compatibility issues we encounter
9	9	facilitates transfer of knowledge and learning
10	10	helps in terms of providing a platform for discussion
11	11	allow for critical discussion.
12	12	I prefer You Tube as it helps in teaching language and improve learner's language skills.
	13	Rationale for technology adoption
	14	help my students practice transcription the right way .... through listening...by using internet and speech technologies because that's what phonetics is all about.
	15	students do not want to sit and listen to lectures anymore because today's learners seek an interactive learning experience.
	16	the institution continuously encourages lecturers to adopt technology and to make it part and parcel of teaching.
	17	I use technology to engage students
	18	The learning Management System allows me to determine how long students have been actively engaged online and when they have submitted their work
	19	it is an ideal platform for presenting ideas and concepts in the form of text or videos or images
	20	The adoption of technology stems from the need to prepare students for the labour market because in today's world most of the jobs require the candidate to have ample knowledge of how to use technology
	21	I use YouTube to introduce a topic. The visuals help learners to easily acquire and retain what they see and hear
	22	They often prefer it that way
	23	they are at ease with the use of technology
	24	There is a lot of encouragement on the part of my colleagues in the department when it comes to the use of technology
	25	did not face any problems or discouragement at the workplace
	26	My colleagues are supportive
	27	Challenges
	28	But the problems start to emerge during technical glitches, which may force me to change the lesson plan
	29	I wish we had more technology on campus. Having to do everything from scratch every semester is a little annoying
	30	There are technical glitches that I might have to contend with and does waste a good deal of my teaching time
	31	in most classrooms traditional methods are still in vogue, although technology exists, but the teacher takes the centre stage
	32	the government as well as the educational institutions in Kuwait do not take these technologies seriously
	33	it can be really shocking to see the lecture rooms modernised and equipment upgraded without consulting the teaching staff members who are the ones to use technology on a daily basis
	34	Experiences in planning or managing lessons
	35	I use Canvas to plan lessons. The lesson that I initially designed and posted on Canvas were about 50 minutes in duration. I realised that it is difficult to plan a 50-minute long lecture as it will be too boring, and for that reason I decided to divide th
	36	Educationals resources that teachers are confident with
	37	I use mobile apps, because I have the ability to try them at home. By integrating the apps into the curriculum, students are able to access, communicate and reflect upon the information presented.
	38	Many students voiced their concerns about the technology offered by the college ... On the other hand, they seem comfortable with the Canvas programme which I had introduced ... These programmes are the result of my own effort and have proved successful
	39	I believe that by using PowerPoint I can capably achieve the objectives of the curriculum
	40	Success stories from technology adoption
	41	Mobile apps such as WhatsApp which I use for the Phonetics and Phonology class are either cheap or completely free, which makes it easy to obtain. I used these and saw that students who were earlier very depressed because they did not understand phonetics
	42	I also give them some photos or videos and ask them to comment on them for discussion in the following lecture ... Actually, I do receive quite a positive response and interaction from most students.
	43	I chose Canvas as it helps me communicate with the students and enables me to provide prompt feedback to students.
	44	I use YouTube because it contains a considerable number of videos that have interesting educational content.
	45	Impact of technology on teaching and learning
	46	change in teaching approach enabled me to deliver knowledge to students in a better manner ...in a way that helps them to understand and retain the information. It also allows me to better interact with students and creating rapport in the classroom.
	47	in the past, the emphasis was on rote methods and memorisation ... On the other hand, technology enables critical thinking skills and independent learning. The role of the lecturer is to facilitate the development of 21st century skills
	48	I have become a facilitator
	49	When students were unable to retain what they read, I had to resort to showing videos which helped me to clarify ideas and concepts which covered an entire course book chapter
	50	Initially I used to leave student grades on the noticeboard outside my office as it could be seen by everyone. The Canvas system that I had integrated enhances privacy and security. It allowed students to receive their assignment grades discretely.
		Nodes
	51	I use video images to engage students. Almost every other day, I improve students' experience. The videos stimulate the most improvement in performance.
	52	Drawing on my own experience with the students, I used ordinary methods of explanation which I followed by simulation to explain
	53	If the technology fails to achieve the target, then this would indicate that we as teachers have failed in selecting the right material ...
	54	Use of technology for social purposes
	55	I read fiction and journal articles and do the reading on my iPad and I hardly use paper.
	56	For me, the iPhone and iPad are indispensable and I take them everywhere I go ... Having a very sociable character and as I am always busy writing, technology has shaped the way I connect with colleagues, relatives and friends
	57	I use Outlook calendar to manage my email communication, whether it is for personal or academic purposes.
	58	Change in teaching practices
	59	I have to identify appropriate technologies that are required to support curriculum. I have to also direct students and motivate them to use technology appropriately.
	60	The role of the teacher has now changed, which may now be envisaged as a facilitator. We organise information, disseminate knowledge using appropriate means, guide students to access online content, make online assessments and even monitor their online presence
	61	Through instruction, coaching, and support teachers can help student develop greater personal self-discipline. By making students responsible for their own learning they become self-directed learners
	62	I don't want to think of a situation where there are no technological tools as it would be boring. Most importantly I may not be able to interact the way I do now.
	63	Initially I had apprehensions, but now I have a positive philosophy towards using laptops for teaching and other mobile devices.
	64	My teaching philosophy has become more focused on how to promote a better teaching atmosphere, and that the teacher could make much more progress by incorporating new technologies that yield many advantages, such as engaging students more
	65	Benefits of technology
	66	I think that the use of technology in the lecture room and during the lesson explanation has been consistent with what the students think
	67	Technology has enabled teachers and students to engaging in more interactive activities. It allows collaboration, and as teachers we are able to develop student's problem solving skills and critical thinking skills.
	68	Technology has great benefits, academically. It provides us with new ways of teaching, it also opens horizons of creative teaching and learning.
	69	I also record some of the lecture sessions and email the web links to student who could not attend classes.
	70	Skill development and difficulties
	71	Yes, I am very much keen on developing my technological skills ... For example, right now I need professional help with a tool called 'Lecture Recording'
	72	I need more support to develop my skills in using learning management systems.
	73	Training and acquring skills
	74	I feel that I need to acquire more skills and knowledge in using new and emerging technologies.
	75	Although the colleges and universities in Kuwait provide well-fitted classrooms with all the necessary technologies, teachers do not use them because they have not been properly trained. This is a sad reality,

Students' Interviews

	Nodes
1	Technology that supports learning
2	smartphone, which is more like a tablet or mini-computer
3	Size no longer matters as today's devices accommodate many features
4	applications that can be downloaded
5	chatting, browsing the internet and also for learning
6	use these tools for learning and for social purposes
7	Wikipedia and Google Scholar
8	use technology anywhere
9	I do not use technology at home or when commuting.
10	One of the most important technology devices I use to enhance learning is YouTube, which I access using my tablet
11	light weight and portable
12	I bring my own device ...a laptop
13	I use technology, for example, social media using my mobile phone from home and elsewhere to connect with some teachers and students at college
14	I can sort out the homework using my laptop and mobile phone, and to communicate with my colleagues and teacher.
15	I use technology, that is laptop and tablet, in most areas and from almost anywhere as long as there is access.
16	I use laptops in classrooms and also at home., but not when travelling
17	I prefer traditional methods such as pens and notebooks
18	Educational technologies and facilities available
19	desktop PCs and display screens.
20	internet is almost available in all departments
21	use my own computers and tablets
22	the number of these devices is very limited and there is a rotational system in the use of the equipment.
23	The studio is old but we still use it for video tutorial material
24	PCs, overhead projectors, display screens, and lap top chargers
25	I use my own gadgets
26	desktops to laptops, presentation equipment, video conferencing facilities etc
27	all students bring their laptops.
28	Blackboard learning management system
29	Technology lecturers use
30	display screens and television sets
31	lecturer uses tablets at times but most often than not uses laptops
32	teacher uses his own device to show documentaries
33	The lecturer uses laptops but urges students to use Google Drive to create and share documents.
34	Benefits of technology & Impact on the institution
35	technology will help me to understand better than reading ... In addition, it breaks the routine ... Some teachers are distinguished in the use of technology ... The teaching style makes me understand the lesson and benefit at the same time.
36	technology increases my understanding of lesson material.
37	The college is developing, encouraging, and supporting independent learning.
38	technology encourages deeper thinking, and allows leaners to process content and then to express it different forms. The lecturers are aware of the benefits of technology
39	am able to interact with course content. Maybe this could be the reason that the college must have integrated technology in classrooms
40	encouragement from my lecturer makes me believe that he is doing it because he wants me to gain form the benefits of technology
41	Acquiring skills and knowledge for using technology for learning
42	at the college I developed practical skills... It gave me the opportunity of using technology for learning
43	I get encouragement from the teacher to use technology
44	developed the skills on my own...watching my brothers in action at home
45	I consider myself a digital native...I have been using technology for example phones, laptops, IPods, IPad, Xbox etc for quite some time now. The skills I developed playing games have helped me academically.
46	Acquiring skills and knowledge for using technology for social purposes
47	The use of social networks such as Facebook, Twitter and WhatsApp, as well as others does not really require very good skills
48	I learnt how to use mobile phones on my own
49	Maybe it was happenstance learning
50	Use of technology resources as learning tools
51	I use my IPad to read online articles, and I also use it to log onto the department website where I can search for links and material related to the curriculum
52	I use the teacher's site almost daily for any relevant material related to a module he teaches,
53	Google search engine
54	WhatsApp
55	Tablets as it allows me to easily access online learning material or content,
56	laptops
57	Drawbacks of using technology for learning
58	made me more or less lazy in spite of being young
59	It is claimed that using technology affects eyesight, heightens stress levels, and increases the chances of becoming overweight and even obese ... I understand it is useful but it depends on the user.
60	The downside to using technology is the long time spent to get to the information and the extensive sources from which to choose
	Nodes
61	think health wise technology can cause physical damage because of stresses and strains
62	makes students wait for reminders and announcements from teachers.
63	I don't believe that technology supports learning. It is good for collecting information that are available online.
64	Technology resources that make students feel confident
65	Everything I need is actually available on the website ... For example, I have access to films, tables, images, reports and issues that we usually tackle in the classroom and the curriculum
66	I prefer using laptops, although my lecturer uses overhead projectors for presenting his lecture as I am more confident learning on my own.
67	I often use tablets but also learn through educational videos which are projected using
68	Difficulties in understanding the technical aspects of technology
69	the difficulties I face are usually associated with technical issues ... Usually, the instructions are given in the English language, which I do not speak fluently. I don't have any problems when using phones or tablets for social interactions or for enter
70	I do not have any difficulty using technology for social purposes. As for the devices used in the classroom, the college provides tech support
71	The teacher gives us instructions right from the beginning of the academic term ... He also offers support and help on how to use technology ...However, I don't think that are any issues in using technology for social purposes
72	I have difficulties at times but I have lecturers who offer support.
73	I have always used Google search or You Tube to solve problems
74	Perceptions on how lecturers use technology to support learning
75	Today, learning is student-centred and the lecturer allow us to make contributions to the lessons which have been planned already by him
76	lecturer allows classroom discussion and we are encouraged to exchange ideas with him and between students.
77	The lecturer seems to convert the lessons into PowerPoint slides. He does not use any other type of technology. He tries to help but seems that he has constraints.
78	Lecturers understand that they have to prepare students for the future but they do not have the capability to incorporate critical thinking or problem solving skills. They need support
79	Keeping up to date with technology developments
80	I think the college is behind in terms of providing technology ... We have to look for answers from fellow students,
81	get all the useful information from online blogs and from the yahoo news.
82	keep myself updated by reading 'technology review' an online magazine.
83	keep myself informed of the latest developments by using Google Reader which notifies me on the launch of new technologies
84	Prepares students for the future
85	There is actually a nationwide strategy in the country to prepare us for the labour market ... Unfortunately, there appears to be a dearth in terms of equipment and applications and the ones available are almost obsolete
86	I feel that teachers have to better prepared to effectively meet the needs of 21st century learners
87	Today more than ever, we have to perform creative tasks if we are to succeed. This needs skills like self-direction, creativity, and critical thinking. However, technology is inadequate
88	Technology should be used to enhance critical thinking, problem solving skills and collaboration ...... not just because lecturers are compelled to use technology by the management
89	Curriculum design has to be changed to meet student expectations
90	Changing the way students learn
91	Technology has changed the way I learn ...especially when I use translation apps for translating English to Arabic. This helps me to better understand what I learn.
92	I use e-portfolio tools such Google sites and wikis for classroom projects. It allows me to be creative and assess my own learning processes.
93	For all my courses and assignments, I use Dropbox a cloud computing tool to store and share my academic work.
94	it has certainly changed the way I learn Mathematics. I used to be very poor in this area, but several online resources have helped me to collaborate and learn.
95	For all my courses and assignments, I use Dropbox a cloud computing tool to store and share my academic work with other students
96	I collaborate and share ideas with fellow students
97	Impact of technology on learning
98	I get feedback from my tutors on my Tablet. Everything about technology is positive
99	I join in discussions and interact with other colleagues ... It is so interesting to be an active participant in the learning process.
100	I consider mobile phones and apps to be supplemental learning tools
101	I used to be an introvert. By regularly using technology, interacting with teachers and fellow students and taking part in regular classroom discussions, I have become socially interactive.
102	Effect of using technology for social communication
103	use it to communicate with family and friends
104	I try to find time for my assignments.
105	Also, it made me socialise less with my friends, as I don't meet them in person.
106	Technology affects academic performance in terms of time it demands. I spend a great amount of time playing games. I don't use it to contact my family. It affects my studies.
107	Although it is a good tool for social communication, I feel that has an adverse effect on students' academic lives, for example causes obesity due to lack of ohysical exercise
108	Parental constraints
109	main concern is that I may access unwanted sites.
110	Internet and online materials are always considered to be a taboo in my community. I don't have such beliefs.
111	Parents in the Arab world are very concerned over inappropriate content and damaging videos which entice young people to join certain groups who are intent on creating terror.
112	Student's self-evaluation of technological skills
113	Technology keeps developing and is getting increasingly sophisticated, which needs us to keep abreast of any new developments ... I still think I am knowledgeable.
114	I can create documents, pdf files, Photoshop, and using the search engines. I think I have adequate skills.
115	I can use different software, have word processing skills, Photoshop and have started learning how to use statistical packages

Appendix 3: Factor Analysis and Principal Component Analysis

3 (a) Students' Perceptions of Technology Use

a. Correlation Matrix

Correlation Matrix[a]

		A01	A02	A03	A04	A05	A06	A07	A08	A09	B01	B02	B03	B04	B05	B06	B07	B08	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	D01	D02	D03	D04	D05	D06	D07	D08	D09	D10
Correlation	A01	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A02	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A03	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A04	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A05	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A09	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C09	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]
	D07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]
	D08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]
	D09	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]
	D10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000
Sig. (1-tailed)	A01		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A02	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A03	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A04	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A05	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	A09	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C09	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	C10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	D06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	D07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
	D08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
	D09	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
	D10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

a. Determinant = [illegible]

b. *Alpha values*

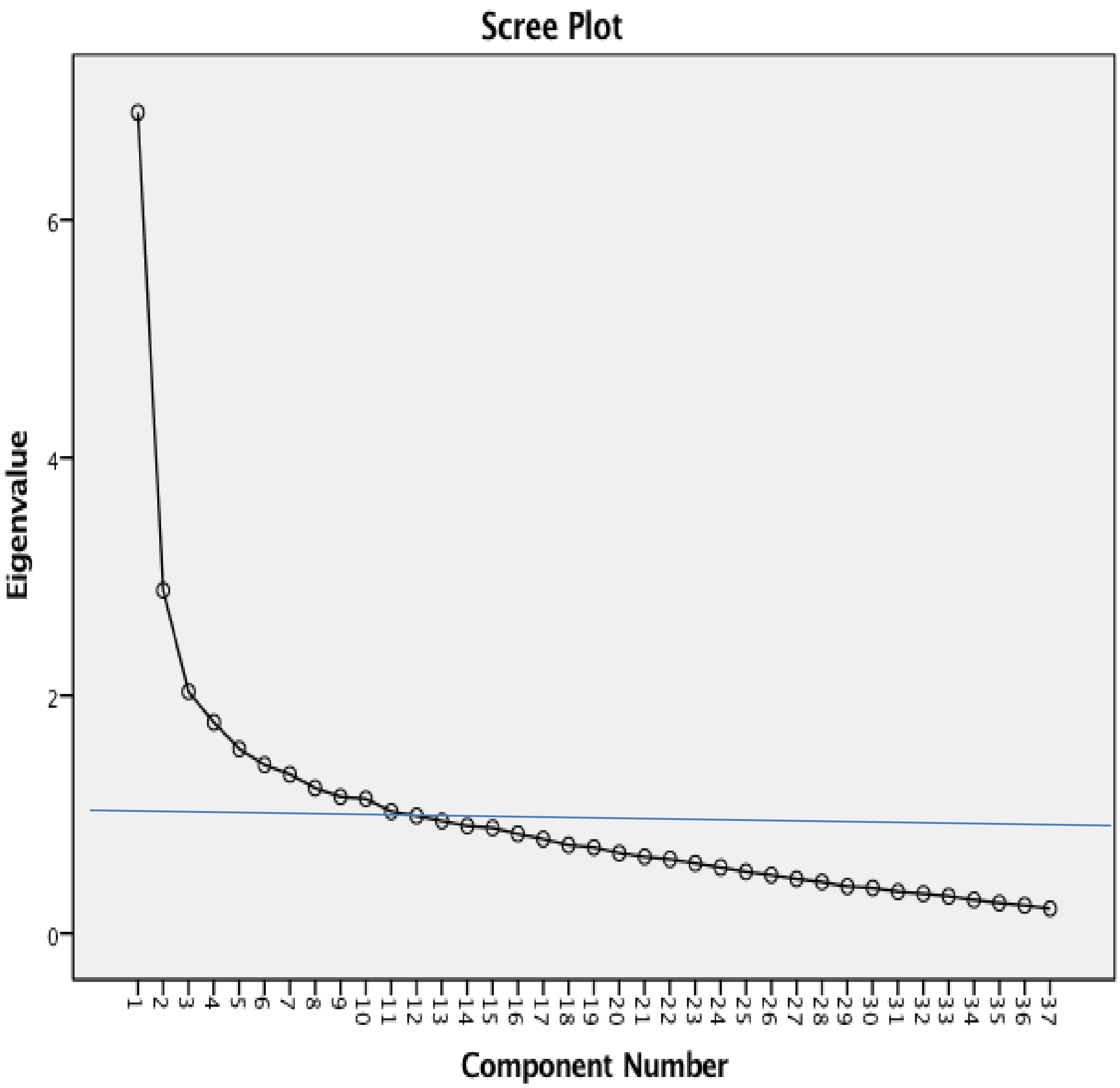
Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Technology_1	137.53	172.406	.409	.834
Technology_2	138.29	175.467	.135	.840
Technology_3	137.97	172.130	.347	.835
Technology_4	137.68	175.582	.217	.837
Technology_5	137.72	169.726	.446	.832
Technology_6	138.41	167.931	.360	.834
Technology_7	137.94	171.481	.368	.834
Technology_8	137.40	169.856	.565	.831
Technology_9	138.82	171.177	.253	.838
online learning_1	137.92	172.566	.268	.836
online learning_2	137.77	168.979	.518	.831
online learning_3	138.55	171.832	.286	.836
online learning_4	137.58	171.089	.491	.832
online learning_5	138.78	168.786	.386	.833
online learning_6	138.30	169.480	.426	.832
online learning_7	138.01	172.969	.179	.840
online learning_8	138.63	171.912	.275	.836
Technology for learning_1	138.12	171.964	.267	.837
Technology for learning_2	138.27	170.054	.374	.834
Technology for learning_3	138.30	170.263	.342	.834
Technology for learning_4	138.03	174.301	.233	.837
Technology for learning_5	138.42	166.725	.475	.830
Technology for learning_6	137.76	168.078	.431	.832
Technology for learning_7	137.52	169.074	.586	.830
Technology for learning_8	138.72	180.192	-.040	.846
Technology for learning_9	137.76	170.682	.456	.832
Technology for learning_10	137.66	169.058	.529	.831
technology for social_1	137.80	167.797	.420	.832
technology for social_2	138.14	177.246	.067	.843
technology for social_3	137.52	171.699	.396	.834
technology for social_4	138.85	170.708	.285	.836
technology for social_5	137.58	171.578	.421	.833
technology for social_6	138.32	169.311	.308	.836
technology for social_7	137.70	170.813	.426	.833
technology for social_8	138.01	169.823	.409	.833
technology for social_9	139.26	172.998	.176	.840
technology for social_10	138.50	172.887	.175	.841

c. Communalities

Items	Initial	Extraction
A_01 Technology_1	1.000	0.616
A_02 Technology_2	1.000	0.541
A_03 Technology_3	1.000	0.500
A_04 Technology_4	1.000	0.657
A_05 Technology_5	1.000	0.581
A_06 Technology_6	1.000	0.643
A_07 Technology_7	1.000	0.662
A_08 Technology_8	1.000	0.574
A_09 Technology_9	1.000	0.618
B_01 Online learning_1	1.000	0.612
B_02 Online learning_2	1.000	0.675
B_03 Online learning_3	1.000	0.707
B_04 Online learning_4	1.000	0.579
B_05 Online learning_5	1.000	0.525
B_06 Online learning_6	1.000	0.549
B_07 Online learning_7	1.000	0.636
B_08 Online learning_8	1.000	0.460
C_01 Technology for learning_1	1.000	0.650
C_02 Technology for learning_2	1.000	0.622
C_03 Technology for learning_3	1.000	0.633
C_04 Technology for learning_4	1.000	0.689
C_05 Technology for learning_5	1.000	0.577
C_06 Technology for learning_6	1.000	0.552
C_07 Technology for learning_7	1.000	0.686
C_08 Technology for learning_8	1.000	0.789
C_09 Technology for learning_9	1.000	0.552
C_010 Technology for learning_10	1.000	0.541
D_01 Technology for social_1	1.000	0.602
D_02 Technology for social_2	1.000	0.544
D_03 Technology for social_3	1.000	0.583
D_04 Technology for social_4	1.000	0.465
D_05 Technology for social_5	1.000	0.599
D_06 Technology for social_6	1.000	0.589
D_07 Technology for social_7	1.000	0.602
D_08 Technology for social_8	1.000	0.642
D_09 Technology for social_9	1.000	0.714
D_010 Technology for social_10	1.000	0.669

d. Scree Plot


Scree Plot
Eigenvalue
0
2
4
6
Component Number
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 32 33 34 35 36 37

e. Component Matrix

Component Matrix[a]

	Component										
	1	2	3	4	5	6	7	8	9	10	11
A01	0.478	-0.13	0.126	0.165	0.424	0.017	0.082	0.079	-0.291	0.186	-0.121
A02	0.164	-0.04	-0.122	-0.07	0.278	-0.109	0.366	-0.39	0.273	0.197	0.059
A03	0.391	0.293	-0.217	-0.026	0.077	0.162	-0.156	-0.044	-0.314	-0.074	0.226
A04	0.291	-0.327	0.146	0.349	0.313	0.2	0.21	-0.016	-0.328	-0.14	0.111
A05	0.517	-0.129	0.35	0.148	-0.043	-0.049	0.259	-0.119	-0.143	-0.21	0.049
A06	0.391	0.237	-0.095	-0.053	-0.253	0.472	0.028	-0.125	0.21	0.252	0.112
A07	0.467	-0.184	0.205	-0.065	0.185	0.366	-0.18	0.237	0.257	-0.201	-0.024
A08	0.68	-0.112	-0.177	0.111	-0.042	-0.044	0.181	0.05	-0.122	0.017	-0.038
A09	0.25	0.456	0.108	0.569	0.008	0.006	-0.002	-0.038	0.03	0.102	-0.004
B01	0.31	-0.113	0.621	-0.109	0.032	0.053	-0.114	-0.202	0.133	-0.165	-0.051
B02	0.589	-0.005	0.454	-0.068	-0.102	0.039	-0.198	0.08	-0.135	-0.183	-0.089
B03	0.274	0.508	-0.099	0.043	-0.06	0.338	-0.455	0.015	0.062	0.182	0.019
B04	0.58	-0.047	0.082	0.147	-0.172	-0.22	-0.258	-0.155	-0.095	-0.155	0.105
B05	0.37	0.507	0.148	0.174	0.074	-0.107	-0.115	-0.067	0.19	0.021	0.084
B06	0.427	0.471	0.01	0.274	0.052	-0.104	0.178	0.005	0.003	-0.144	0.06
B07	0.241	-0.194	0.262	0.246	-0.311	-0.113	0.294	0.062	0.136	0.43	-0.092
B08	0.281	0.33	0.045	-0.206	0.057	0.412	0.068	0.029	-0.148	0.017	-0.163
C01	0.345	-0.221	0.131	0.162	0.39	-0.192	-0.405	-0.076	0.134	0.192	-0.157
C02	0.456	0.125	-0.34	0.091	0.01	0.024	0.126	-0.134	0.154	-0.291	-0.362
C03	0.35	0.462	-0.224	0.274	0.152	-0.321	-0.07	-0.035	0.097	-0.15	-0.083
C04	0.316	-0.224	-0.014	0.01	0.158	-0.016	-0.099	0.659	-0.056	0.221	-0.133
C05	0.484	0.389	-0.122	-0.062	0.017	-0.135	0.201	0.217	0.169	0.085	-0.175
C06	0.549	-0.166	-0.045	-0.206	-0.159	0.179	0.102	-0.236	-0.083	-0.17	-0.14
C07	0.725	-0.221	-0.281	-0.13	-0.071	0	-0.101	0.014	-0.016	-0.018	0.017
C08	-0.075	0.206	0.016	-0.068	0.212	-0.051	0.201	0.406	0.234	-0.27	0.597
C09	0.547	-0.201	-0.17	0.1	0.119	0.3	0.048	-0.067	0.102	0.164	0.157
C10	0.645	-0.157	-0.245	-0.01	0.089	0.07	0.072	0.009	0.145	-0.015	-0.022
D01	0.504	0.035	0.031	-0.235	-0.426	-0.189	0.116	0.169	-0.102	0.125	-0.076
D02	0.171	-0.361	-0.375	0.243	0.026	0.067	-0.016	-0.156	-0.202	0.176	0.289
D03	0.491	0.001	-0.227	0.013	-0.457	-0.058	-0.056	0.095	-0.164	-0.002	0.198
D04	0.284	0.356	0.149	-0.219	0.008	0.091	0.375	0.16	-0.019	-0.08	-0.073
D05	0.528	-0.119	-0.268	-0.259	0.06	-0.362	-0.067	0.078	-0.117	-0.081	-0.03
D06	0.352	0.008	0.472	0.168	-0.312	-0.186	-0.088	-0.016	0.033	0.135	0.236
D07	0.541	-0.278	-0.123	-0.216	0.146	-0.221	-0.152	0.006	0.24	0.088	0.106
D08	0.511	-0.35	0.187	-0.318	0.03	0.023	0.079	-0.101	0.276	-0.004	0.168
D09	0.115	0.398	0.296	-0.357	0.31	-0.048	0.129	-0.069	-0.265	0.361	0.081
D10	0.169	0.392	0.012	-0.535	0.169	-0.223	-0.123	-0.226	-0.199	0.077	0.102

a. 11 components extracted

f. Component Transformation Matrix

Component Transformation Matrix

Component	1	2	3	4	5	6	7	8	9	10	11
1	0.663	0.36	0.351	0.336	0.269	0.221	0.085	0.17	0.096	0.149	0.076
2	-0.356	0.648	-0.117	0.024	-0.284	0.286	0.353	0.329	-0.155	-0.1	-0.099
3	-0.401	-0.059	0.794	-0.159	0.073	-0.095	0.203	0.059	0.335	0.062	-0.074
4	-0.293	0.528	-0.096	-0.041	0.434	0.01	-0.513	-0.332	0.238	0.031	0.07
5	0.177	0.148	-0.046	-0.672	0.38	-0.143	0.331	-0.107	-0.355	0.244	-0.146
6	-0.14	-0.318	0.062	-0.192	0.28	0.768	-0.251	0.265	-0.191	-0.016	0.02
7	0.068	-0.045	-0.275	-0.141	0.323	-0.256	-0.015	0.636	0.426	-0.317	-0.203
8	-0.119	-0.047	-0.119	0.166	-0.081	-0.071	-0.191	0.247	0.04	0.811	-0.416
9	0.342	0.156	0.129	-0.494	-0.537	0.153	-0.368	-0.053	0.245	-0.089	-0.284
10	0.02	-0.101	-0.332	-0.115	-0.026	0.35	0.432	-0.244	0.626	0.251	0.205
11	0.011	-0.076	-0.024	0.258	0.177	0.181	0.182	-0.373	0.023	-0.272	-0.785

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization

g. Rotated Component Matrix

Rotated Component Matrix[a]

	Component										
	1	2	3	4	5	6	7	8	9	10	11
A01	0.236	0.163	0.121	-0.065	0.562	-0.018	0.221	0.037	0.074	0.344	0.156
A02	0.426	0.099	-0.134	-0.349	0.099	-0.033	0.195	0.024	0.219	-0.335	-0.017
A03	0.129	0.24	-0.034	0.328	0.233	0.314	0.226	0.034	-0.331	-0.007	-0.046
A04	0.079	-0.002	0.167	-0.022	0.777	-0.062	-0.106	-0.006	-0.015	0.054	-0.033
A05	0.184	0.159	0.452	0.198	0.42	-0.13	-0.018	0.184	0.187	-0.125	-0.002
A06	0.212	0.088	0.028	0.106	-0.036	0.703	-0.002	0.181	0.175	-0.138	0.006
A07	0.337	-0.028	0.49	-0.117	0.123	0.279	-0.209	0.119	-0.14	0.321	-0.143
A08	0.493	0.22	0.024	0.317	0.334	0.039	-0.044	0.169	0.133	0.105	0.099
A09	-0.189	0.676	0.041	0.015	0.18	0.227	-0.047	-0.025	0.189	0.011	0.036
B01	0.085	-0.012	0.756	-0.101	0.044	0.009	0.077	0.029	0.08	-0.067	0.053
B02	0.133	0.128	0.672	0.295	0.127	0.073	0.073	0.149	-0.009	0.207	0.1
B03	-0.037	0.35	0.048	0.114	-0.17	0.676	0.119	-0.051	-0.182	0.156	0.087
B04	0.292	0.307	0.381	0.435	0.115	-0.008	-0.008	-0.199	-0.005	-0.04	0.103
B05	0.049	0.62	0.216	0.008	-0.08	0.208	0.172	0.008	0.052	-0.014	-0.099
B06	0.066	0.646	0.065	0.134	0.161	0.058	0.052	0.231	0.026	-0.065	-0.121
B07	0.079	0.034	0.087	0.084	0.085	0.008	-0.093	0.039	0.76	0.083	0.114
B08	0.012	0.065	0.095	0.01	0.103	0.393	0.196	0.446	-0.156	0.077	0.118
C01	0.334	0.212	0.284	-0.226	0.1	-0.033	0.098	-0.424	0.022	0.331	0.227
C02	0.433	0.389	-0.026	0.02	0.025	0.021	-0.26	0.319	-0.18	-0.098	0.264
C03	0.178	0.75	-0.074	0.065	-0.049	-0.067	0.03	0.016	-0.143	0.013	0.024
C04	0.221	-0.045	-0.013	0.09	0.123	-0.005	-0.036	0.053	0.115	0.77	-0.064
C05	0.317	0.458	-0.059	0.078	-0.124	0.08	0.123	0.403	0.135	0.196	-0.026
C06	0.45	-0.076	0.264	0.24	0.168	0.129	-0.037	0.274	-0.059	-0.173	0.25
C07	0.683	0.057	0.103	0.367	0.131	0.152	-0.031	0.024	-0.053	0.127	0.101
C08	-0.018	0.107	-0.042	-0.044	-0.021	-0.06	0.013	0.102	-0.112	0.034	-0.863
C09	0.503	0.04	0.034	0.018	0.354	0.389	-0.072	-0.04	0.1	0.038	-0.031
C10	0.644	0.153	0.055	0.095	0.19	0.156	-0.1	0.108	0.014	0.091	0.025
D01	0.283	0.039	0.123	0.525	-0.127	0.004	0.131	0.292	0.293	0.127	0.095
D02	0.271	-0.103	-0.284	0.198	0.417	0.119	-0.089	-0.366	0.037	-0.087	0.026
D03	0.271	0.106	-0.013	0.674	0.028	0.169	-0.069	0.024	0.09	0.004	-0.017
D04	0.052	0.167	0.106	0.04	0.027	0.065	0.195	0.597	0.06	0.022	-0.136
D05	0.581	0.107	0.008	0.338	-0.003	-0.222	0.181	0.032	-0.14	0.17	0.059
D06	-0.025	0.184	0.463	0.32	0.023	0.057	0.079	-0.164	0.436	-0.006	-0.098
D07	0.701	0.027	0.166	0.068	-0.047	-0.016	0.107	-0.178	0.045	0.158	-0.068
D08	0.597	-0.193	0.423	0.002	0.046	0.063	0.071	0.04	0.174	-0.058	-0.151
D09	-0.083	0.067	0.063	-0.103	0.083	0.098	0.788	0.201	0.078	0.056	-0.035
D10	0.139	0.097	0.06	0.111	-0.194	0.01	0.711	0.079	-0.245	-0.12	0.018

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 17 iterations.

3 (b) Lecturers' Perceptions of Technology Use

Correlation Matrix

	A_01	A_02	A_03	B_01	B_02	B_03	B_04	B_05	B_06	B_07	B_08	B_09	B_010	B_011
A_01	1.000													
A_02	0.658	1.000												
A_03	-0.35	-0.34	1.000											
B_01	-0.13	-0.26	-0.33	1.000										
B_02	0.205	0.365	-0.28	-0.29	1.000									
B_03	0.535	0.263	-0.13	-0.18	0.033	1.000								
B_04	0.159	0.251	0.051	0.281	-0.37	0.323	1.000							
B_05	0.136	0.375	-0.34	-0.03	0.181	-0.04	0.084	1.000						
B_06	0.348	0.35	-0.33	-0.02	0.391	0.333	-0.15	-0.03	1.000					
B_07	0.114	0.287	-0.04	0.05	-0.01	-0.06	0.183	0.322	0.479	1.000				
B_08	-0.42	0.017	-0.12	0.167	0.374	-0.38	-0.13	0.077	-0.03	-0.04	1.000			
B_09	-0.06	-0.08	0.317	-0.34	0.216	0.247	-0.09	0.115	0.225	0.116	-0.05	1.000		
B_010	-0.54	-0.42	-0.27	0.648	-0.21	-0.27	-0.1	-0.17	-0.02	-0.15	0.338	-0.32	1.000	
B_011	-0.55	-0.53	-0.09	0.23	-0.1	-0.59	-0.49	0.027	0.098	0.13	0.104	-0.08	0.528	1.000

a. Communalities

Communalities

	Initial	Extraction
A_01	1.000	.883
A_02	1.000	.827
A_03	1.000	.819
B_01	1.000	.812
B_02	1.000	.851
B_03	1.000	.801
B_04	1.000	.896
B_05	1.000	.682
B_06	1.000	.914
B_07	1.000	.845
B_08	1.000	.898
B_09	1.000	.748
B_010	1.000	.870
B_011	1.000	.925

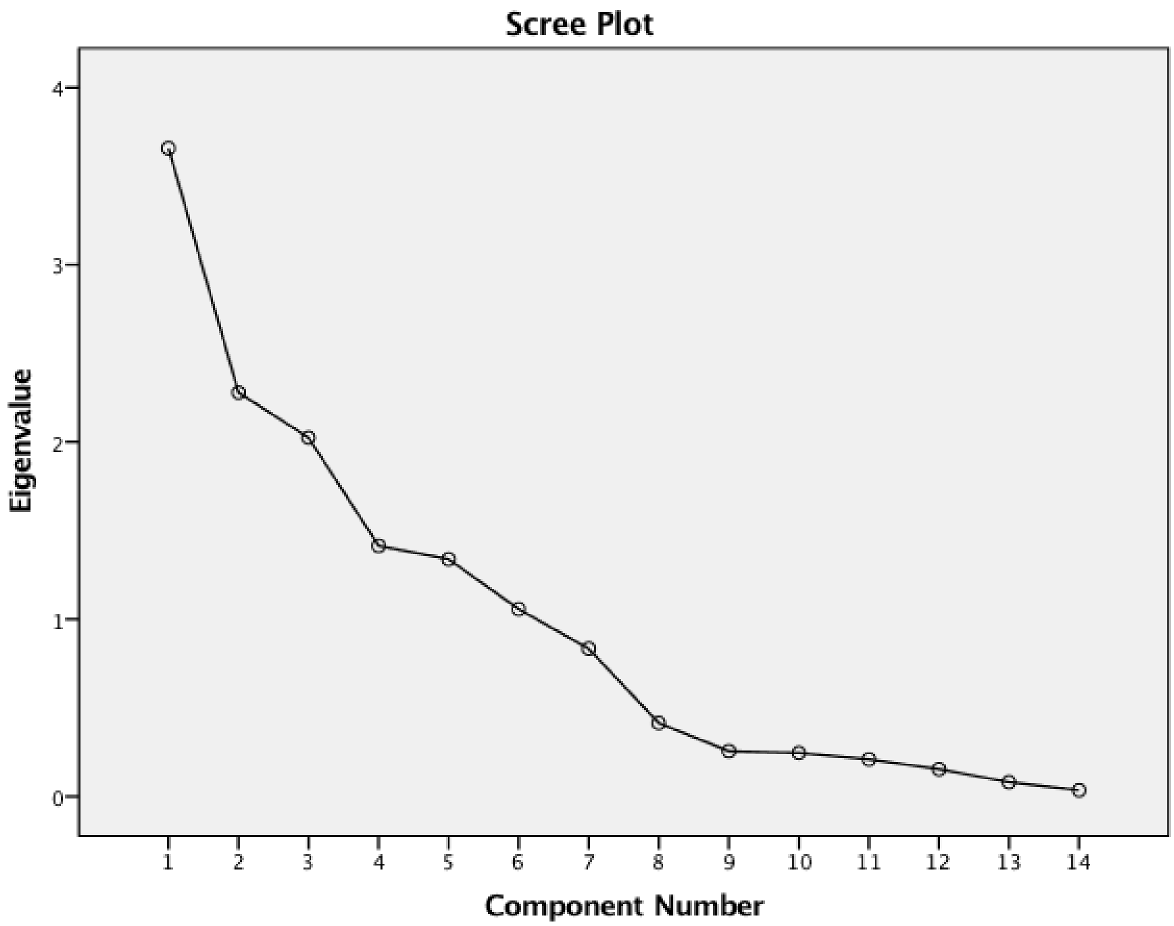
Extraction Method: Principal Component Analysis

b. KMO and Bartlett's test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.414
Bartlett's Test of Sphericity	Approx. Chi-Square	139.151
	df	91
	Sig.	.001

c. Scree Plot



d. Component Matrix

Component Matrix[a]

	Component					
	1	2	3	4	5	6
A_01	.831	.101	.247	-.093	-.214	-.260
A_02	.773	.348	.119	-.164	.255	-.040
A_03	-.156	-.753	-.353	.208	.189	.155
B_01	-.445	.317	.671	.106	-.073	.215
B_02	.338	.515	-.547	-.374	-.054	.171
B_03	.665	-.205	.221	.023	-.431	.285
B_04	.276	-.265	.684	.156	.347	.371
B_05	.266	.417	-.010	.129	.616	-.202
B_06	.396	.552	-.156	.399	-.477	.203
B_07	.243	.366	.016	.754	.287	.028
B_08	-.336	.450	-.203	-.391	.342	.521
B_09	.251	-.196	-.580	.359	-.016	.426
B_010	-.739	.348	.318	-.019	-.235	.215
B_011	-.710	.359	-.236	.364	-.122	-.296

e. Rotated Component Matrix

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
A_01	.500	-.389	.334	.535	.086	-.278
A_02	.498	-.357	.189	.449	.427	.178
A_03	.006	-.230	-.309	-.787	-.137	-.180
B_01	.013	.875	-.017	.209	.041	-.007
B_02	-.059	-.440	.395	.212	-.002	.674
B_03	.673	-.132	.474	.026	-.233	-.224
B_04	.773	.367	-.198	-.121	.281	-.178
B_05	.004	-.166	-.100	.223	.752	.171
B_06	-.018	.005	.936	.100	.158	.036
B_07	-.031	.102	.382	-.152	.800	-.157
B_08	-.098	.246	-.113	-.054	.058	.899
B_09	.068	-.328	.399	-.675	.073	.127
B_010	-.354	.809	.005	.102	-.217	.182
B_011	-.897	.313	.075	-.044	.103	-.061

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 11 iterations.

Appendix 4: Information Sheets for Participants

4 (a) Participant Information Sheet: Questionnaire - Students

The research topic:

I would like you to consider participating in a research project which intends to explore the influence of technology on the academic and social lives of students (and lecturers) in Kuwaiti higher education. This research project is part of a doctoral degree.

What is the purpose of this study?

The purpose of this research is to identify the perceptions of Kuwaiti higher education students (and lecturers) as regards the use of technology in their academic and social lives. It will also explore the challenges they face when using technology.

How have people been chosen for invitation to participate in this study?

144 students and 40 lecturers have been selected from among a population of students and lecturers within the College of Basic Education (PAAET). You have been chosen using a convenience sampling technique so that I can survey only those who are willing to participate in the research, as you have shown an interest in using technology in classrooms.

What will happen in this study?

Your participation in this study is an opportunity to provide information on your experiences of relational aspects of technology use in your academic and social life. The questionnaire will be followed by interviews, classroom observation and an analysis of your reflective diaries.

What are the inconveniences and risks?

The only risk is one of inconvenience, based on the amount of time you have available to complete the questionnaire.

How will this inconvenience be alleviated?

Please be assured that I am grateful for your willingness to provide information relevant to this study. If, in the process, you wish to take a break, then you merely need to let me know. Alternatively, you may choose to stop the process altogether, thereby exercising your right to voluntarily discontinue your participation, without any need for further explanation or justification and without incurring any consequences for yourself.

What are the benefits?

My hope is that this research will provide invaluable insights into how technology is used by lecturers and students in their academic and social lives. That is, the responses/information obtained might provide some understanding of how and to what extent lecturers and students engage in technology use.

How will my privacy be protected?

- Only the researcher and research supervisors will view the responses, in their capacity of overseeing the data analysis.

- On completion of the research, the data will be stored securely for a period of two years, after which the written documents will be shredded and the audio-recording, deleted.

- Your anonymity is assured, in that your name and personal details will not be used in this research report.

How do I get involved in the study?

Your consent to participation in this project is considered granted, once (1) you have read this Participant Information Sheet, (2) clarification has been received for any further questions you may have, (3) you have deliberated on the personal cost involved, and (4) you have signed the Consent Form attached below.

What are the costs of participating in the project?

The cost of participating in this research project is your time, as it may require approximately 15-20 minutes to complete the form.

Opportunity to consider the invitation:

You may wish to deliberate on your involvement in this research. In the event that you need more time to think about it, I just ask that you contact me regarding your eventual decision over participation. My contact details are to be found at the bottom of this sheet.

Opportunity to receive feedback on the research results:

If you so wish, I will be happy to discuss the results of this research with you. Once the study has been completed, I will be seeking opportunities to present the findings at conferences and in publications.

Participants' concerns:

Any concerns regarding the nature of this project should, in the first instance, be addressed to the Project Supervisor. Concerns regarding the way in which the research is conducted should be addressed to the researcher/project supervisor.

The researcher's contact details:

Naser Ali

Email: ngaa201@exeter.ac.uk

Mobile no.: 97978090

The research supervisor's contact details:

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Dated:…………. July, 2015

4 (b) Participant Information Sheet: Questionnaire - Lecturers

The research topic:

I would like you to consider participating in a research project which intends to explore the influence of technology on the academic and social lives of lecturers (and students) in Kuwaiti higher education. This research project is part of a doctoral degree.

What is the purpose of this study?

The purpose of the research is to identify the perceptions of Kuwaiti higher education lecturers (and students) as regards the use of technology in their academic and social lives. It will also explore the challenges they face when using technology. Moreover, this research will look into how Kuwaiti higher education lecturers use technology to support their teaching practice.

How have people been chosen for invitation to participate in this study?

144 students and 40 lecturers have been selected from among a population of students and lecturers within the College of Basic Education (PAAET). You have been chosen using a convenience sampling technique, so that I can survey only those who are willing to participate in this research, due to their corresponding experience and interest in using technology in classrooms.

What will happen in this study?

Your participation in this study is an opportunity to provide information on your experiences of relational aspects of using technology in your academic and social life. The questionnaire will be followed by interviews, classroom observation and an analysis of your reflective diaries.

What are the inconveniences and risks?

The only risk is one of inconvenience, based on the amount of time you have available to complete the questionnaire.

How will this inconvenience be alleviated?

Please be assured that I am grateful for your willingness to provide information relevant to this study. If, in the process, you wish to take a break, then you merely need to let me know.

Alternatively, you may choose to stop the process altogether, thereby exercising your right to discontinue your participation, without further explanation or justification and without incurring any consequences for yourself.

What are the benefits?

My hope is that this research will provide invaluable insights into how technology is used by lecturers and students in their academic and social lives. That is, the responses/information obtained may provide some understanding of how and to what extent lecturers and students engage in technology use.

How will my privacy be protected?

- Only the researcher and research supervisors will view the responses, in their capacity of overseeing the data analysis.

- On completion of the research, the data will be stored securely for a period of two years, after which the written documents will be shredded and the audio-recording, deleted.

- Your anonymity is assured, in that your name and personal details will not be used in this research report.

How do I get involved in the study?

Your consent to participation in this project is considered granted, once (1) you have read this Participant Information Sheet, (2) clarification has been provided for any further questions you may have, (3) you have deliberated on the personal cost, and (4) you have signed the Consent Form attached below.

What are the costs of participating in the project?

The cost of participating in this research project is your time, as it may require approximately 15-20 minutes to complete the questionnaire.

Opportunity to consider the invitation:

You may wish to deliberate on your involvement in this research. In the event that you need more time to think about it, I just ask that you contact me regarding your eventual decision over participation. My contact details are to be found at the bottom of this sheet.

Opportunity to receive feedback on the research results:

If you so wish, I will be happy to discuss the results of this research with you. Once the study has been completed, I will be seeking opportunities to present the findings at conferences and in publications.

Participants' concerns:

Any concerns regarding the nature of this project should, in the first instance, be addressed to the project supervisor. Concerns regarding the way in which the research is conducted should be addressed to the researcher/project supervisor.

The researcher's contact details:

Naser Ali

Email: ngaa201@exeter.ac.uk

Mobile: 97978090

The research supervisor's contact details:

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Dated:

4 (c) Participant Information Sheet: Interviews - Students

The research topic:

I would like you to consider participating in a research project which intends to explore the influence of technology on the academic and social lives of students (and lecturers) in Kuwaiti higher education. This research project is part of a doctoral degree.

What is the purpose of this study?

The purpose of this research is to identify the perceptions of Kuwaiti higher education students (and lecturers) as regards the use of technology in their academic and social lives. It will also explore the challenges they face when using technology.

How have people been chosen for invitation to participate in this study?

The students who took part in the questionnaire survey have the option of participating in the interview. If interested, you may sign the accompanying consent form and return it to me (the researcher).

What will happen in this study?

Your participation in this study is an opportunity to provide information on your experiences of relational aspects of technology use in your academic and social life. As you recount your experiences and in order to capture the fullest description of your narrative, your contribution will be audio-recorded, while I make notes on supplementary questions arising from the dialogue.

What are the inconveniences and risks?

The only risk is one of inconvenience, based on the amount of time you have available to take part in the interview.

Alternatively, you may find the audio-recorder somewhat intrusive at first. I apologise for this in advance, but my interest in the research is such that my attention will be on you and your responses. I therefore trust we can work together to lessen the impact of the audio-recorder.

How will these inconveniences be alleviated?

Please be assured that I am grateful for your willingness to provide information relevant to this study. If, in the process, you wish to take a break, you merely need to let me know. Alternatively, you may choose to stop the process altogether, thereby exercising your right to discontinue participation, without further explanation or justification and without incurring any consequences for yourself.

What are the benefits?

My hope is that this research will provide invaluable insights into how technology is used by the lecturers and students in their academic and social lives. That is, the responses/information obtained may provide some understanding of how and to what extent lecturers and students engage in technology use.

How will my privacy be protected?

- The information you contribute will be transcribed and shown to you in the first instance.

- After this, only the researcher and research supervisors will view the transcripts, in their capacity of overseeing the data analysis.

- On completion of the research, the data will be stored securely for a period of two years, after which the written documents will be shredded and the audio-recording, deleted.

- Your anonymity is assured in that your name and personal details will not be used in this research report.

How do I get involved in the study?

Your consent to participation in this project is considered granted, once (1) you have read this Participant Information Sheet, (2) clarification has been received for any further questions you may have, (3) you have deliberated on the personal cost, and (4) you have signed the Consent Form attached below.

What are the costs of participating in the project?

The cost of participating in this research project is your time, as the duration of the interview is expected to be between 30 and 40 minutes.

Opportunity to consider the invitation:

You may wish to deliberate on your involvement in this research. In the event that you need more time to think about it, I just ask that you contact me regarding your eventual decision over participation. My contact details are to be found at the bottom of this sheet.

Opportunity to receive feedback on the research results:

If you so wish, I will be happy to discuss the results of this research with you. Once the study is complete, I will be seeking opportunities to present the findings at conferences and in publications.

Participants' concerns:

Any concerns regarding the nature of this project should, in the first instance, be addressed to the project supervisor. Concerns regarding the way in which the research is conducted should be addressed to the researcher/project supervisor.

The researcher's contact details:

Naser Ali

Email: ngaa201@exeter.ac.uk

Mobile: 97978090

The research supervisor's contact details:

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Dated: ………………..July, 2015

Informed Consent

Students' Consent to Participation in the Research - Interviews

The research topic: The Influence of Technology on the Academic and Social Lives of Students and Lecturers in Kuwaiti Higher Education (HE)

I have read and understood the information provided on this research project (Information Sheet, dated ………………..September, 2015)

I have had an opportunity to ask questions and to have them answered.

I understand that participation is strictly voluntary. I can refuse to answer any question I do not wish to answer.

I understand that the interview will be audio-recorded and transcribed.

I understand that I may withdraw from participation at any time, as well as withdrawing any information I have provided for this project, prior to completion of the data collection and without being disadvantaged in any way.

If I withdraw, I understand that any information I have revealed and all relevant recordings and transcripts, or parts thereof, will be destroyed/deleted.

I agree to take part in this research.

I wish to receive a copy of the research report.

Participant's signature: ....……………………..

Participant's name: ……………………………………………………………….

Participant's contact details (if appropriate):

…………………………………………………………………………………………………

Date:

4 (d) Participant Information Sheet: Interviews - Lecturers

The research topic:

I would like you to consider participating in a research project which intends to explore the influence of technology on the academic and social lives of lecturers (and students) in Kuwaiti higher education. This research project is part of a doctoral degree.

What is the purpose of this study?

The purpose of the research is to identify the perceptions of Kuwaiti higher education lecturers (and students) as regards the use of technology in their academic and social lives. It will also explore the challenges they face when using technology.

How are people chosen for invitation to participate in the study?

The lecturers who took part in the questionnaire survey have the option of participating in the interview. If interested, please sign the Consent Form (see attached below) and return it to me (the researcher).

What will happen in this study?

Your participation in this study is an opportunity to provide information on your experiences of relational aspects of using technology in your academic and social life. As you recount your experiences and in order to capture the fullest description of your narrative, your contribution will be audio-recorded, while I, the interviewer, make notes of supplementary questions arising from the dialogue.

What are the inconveniences and risks?

The only risk is of one of inconvenience, based on the amount of time you have available to take part in the interview.

Alternatively, you might find the audio-recorder somewhat intrusive at first. I apologise for this in advance. My interest in the research is such that my attention will be on you and your responses. I therefore trust we can work together to lessen the impact of the audio-recorder.

How will these inconveniences be alleviated?

Please be assured that I am grateful for your willingness to provide information relevant to this study. If, in the process, you wish to take a break, then you merely need to let me know. Alternatively, you may choose to stop the process altogether, thereby exercising your right to discontinue your participation, without further explanation or justification and without incurring any consequences for yourself.

What are the benefits?

My hope is that this research will provide invaluable insights into how technology is used by lecturers and students in their academic and social lives. That is, the responses/information obtained may provide some understanding of how and to what extent lecturers and students engage in technology use.

How will my privacy be protected?

- The information you contribute will be transcribed and shown to you in the first instance.

- After this, only the researcher and research supervisors will view the transcripts in their capacity of overseeing the data analysis.

- On completion of the research, the data will be stored securely for a period of two years, after which the written documents will be shredded and the audio-recording, deleted.

- Your anonymity is assured in that your name and personal details will not be used in this research report.

How can I get involved in this study?

Your consent to participate in this project is considered granted, once (1) you have read this Participant Information Sheet, (2) clarification has been provided for any further questions you may have, (3) you have deliberated on the personal cost, and (4) you have signed the Consent Form attached below.

What are the costs of participating in this project?

The cost of participating in this research project is your time, as the duration of the interview is expected to be between 30 and 40 minutes.

Opportunity to consider the invitation:

You may wish to deliberate on your involvement in this research. In the event that you need more time to think about it, I just ask that you contact me regarding your eventual decision over participation. My contact details are to be found at the bottom of this sheet.

Opportunity to receive feedback on the research results:

If you so wish, I will be very happy to discuss the results of this research with you. Once the study is complete, I will be looking for opportunities to present the findings at conferences and in publications.

Participants' concerns:

Any concerns regarding the nature of this project should, in the first instance, be addressed to the project supervisor. Concerns regarding the way in which the research is conducted should be addressed to the researcher/project supervisor.

The researcher's contact details:

Naser Ali

Email: ngaa201@exeter.ac.uk

Mobile: 97978090

The research supervisor's contact details:

……………………………………………………………………………………………..…………

……………………………………………………………………………………………………

Dated: ………………..July, 2015

Informed Consent

Lecturers' Consent to Participate in the Research - Interviews

The research topic: The Influence of Technology on the Academic and Social Lives of Students and Lecturers in Kuwaiti Higher Education (HE)

I have read and understood the information provided concerning this research project (Information Sheet, dated ………………..September, 2015)

I have had an opportunity to ask questions and have them answered.

I understand that participation is strictly voluntary. I can refuse to answer any questions I do not wish to answer.

I understand that the interview will be audio-recorded and transcribed.

I understand that I may withdraw from participation at any time, as well as withdrawing any information I may have provided for this project, prior to completion of the data collection and without being disadvantaged in any way.

If I withdraw, I understand that any information I have revealed, as well as all relevant recordings and transcripts, or parts thereof, will be destroyed/deleted.

I agree to take part in this research.

I wish to receive a copy of the research report.

Participant's signature: ....……………………..

Participant's name: ……………………………………………………………….

Participant's contact details (if appropriate):

………………………………………………………………………………………………
Date:

4 (e) Participant Information Sheet: Diaries - Students

The research topic:

I would like you to consider participating in a research project which intends to explore the influence of technology on the academic and social lives of students (and lecturers) in Kuwaiti higher education. This research project is part of a doctoral degree.

What is the purpose of this study?

The purpose of this research is to identify the perceptions of Kuwaiti higher education students (and lecturers) as regards the use of technology in their academic and social lives. It will also explore the challenges they face when using technology.

How are people chosen for invitation to participate in the study?

The students who took part in the questionnaire survey have the option of contributing to the study by keeping diaries, in which they can make notes during classroom sessions observed by myself, the researcher. If interested, please sign the Consent Form (see attached below) and return it to me.

What will happen in this study?

Your participation in this study is an opportunity to provide information on your experiences of relational aspects of using technology in your academic and social life. You will keep reflective diaries and recount your experiences. The format for keeping the diary will be provided, so that you can write down your positive and negative experiences, or else respond in other ways to the learning experience during the period of the classroom observation.

What are the inconveniences and risks?

The only risk is one of inconvenience, or the amount of time you have available to devote to this research.

How will this inconvenience be alleviated?

Please be assured that I am grateful for your willingness to provide information relevant to this study. If, in the process, you wish to take a break, then you merely need to let me know. Alternatively, you may choose to stop the process altogether, thereby exercising your right to discontinue your participation, without further explanation or justification and without incurring any consequences for yourself.

What are the benefits?

My hope is that this research will provide invaluable insights into how technology is used by lecturers and students in their academic and social lives. That is, your reflective diaries may provide some understanding of how and to what extent lecturers and students engage in technology use.

How will my privacy be protected?

- On completion of this research, the data will be stored securely for a period of two years, after which the written documents will be shredded and the audio-recording, deleted.

- Your anonymity is assured in that your name and personal details will not be used in this research report.

How can I get involved in this study?

Your consent to participate in this project is considered granted, once (1) you have read this Participant Information Sheet, (2) clarification has been provided for any further questions you may have, (3) you have deliberated on the personal cost, and (4) you have signed the Consent Form attached below.

What are the costs of participating in the project?

The cost of participating in this research project is your time, as you will be maintaining the diary during classroom sessions of 30-45 minutes' duration.

Opportunity to consider the invitation:

You may wish to deliberate on your involvement in this research. In the event that you need more time to think about it, I just ask that you contact me regarding your eventual decision over participation. My contact details are to be found at the bottom of this sheet.

Opportunity to receive feedback on the research results:

If you so wish, I will be happy to discuss the results of this research with you. Once the study is complete, I will be seeking opportunities to present the findings at conferences and in publications.

Participants' concerns:

Any concerns regarding the nature of this project should, in the first instance, be addressed to the project supervisor. Concerns regarding the way in which the research is conducted should be addressed to the researcher/project supervisor.

The researcher's contact details:

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The research supervisor's contact details:

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…………………………………………………………………………………..…………

Dated: ………………..July, 2015

Students' Informed Consent to Participate in the Research – Reflective Diaries

The research topic: The Influence of Technology on the Academic and Social Lives of Students and Lecturers in Kuwaiti Higher Education (HE)

I have read and understood the information provided on this research project (Information Sheet, dated ………………..September, 2015)

I have had an opportunity to ask questions and to have them answered.

I understand that participation is strictly voluntary. I can exclude any diary questions I do not wish to address.

I understand that I may withdraw from participation at any time, as well withdrawing any information I have provided for this project, prior to completion of the data collection and without being disadvantaged in any way.

If I withdraw, I understand that the diaries with their information and transcripts, or parts thereof, will be destroyed.

I agree to take part in this research.

I wish to receive a copy of the research report.

Participant’s signature: ....……………………..

Participant’s name: ……………………………………………………………….

Participant’s contact details (if appropriate):

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…………………………………………………………………………………..…………
…………………………………………………………………………………..…………

Date:

4 (f) Participant Information Sheet: Diaries - Lecturers

The research topic:

I would like you to consider participating in a research project which intends to explore the influence of technology in the academic and social lives of lecturers (and students) in Kuwaiti higher education. This research project is part of a doctoral degree.

What is the purpose of this study?

The purpose of this research is to identify the perceptions of Kuwaiti higher education lecturers (and students) as regards to the use of technology in their academic and social lives. It will also explore the challenges that they face when using technology.

How are people chosen for invitation to participate in this study?

The lecturers who took part in the survey questionnaire have the option of contributing to the study by maintaining diaries, in which they can make notes during classroom sessions observed by myself, the researcher. If interested, please sign the Consent Form (see attached below) and return it to me.

What will happen in this study?

Your participation in this study is an opportunity to provide information on your experiences concerning relational aspects of using technology in your academic and social lives. You can thereby maintain diaries and recount your experiences.

What are the inconveniences and risks?

The only risk is one of inconvenience, or the amount of time you have available to devote to this research.

How will this inconvenience be alleviated?

Please be assured that I am grateful for your willingness to provide information relevant to this study. If, in the process, you wish to take a break, then you merely need to let me know. Alternatively, you may choose to stop the process, thereby exercising your right to discontinue your participation, without further explanation or justification and without incurring any consequences for yourself.

What are the benefits?

My hope is that this research will provide invaluable insight into how technology is used by faculties and students in their academic and social lives. That is, your reflective diaries may provide some understanding of how and to what extent faculties and students engage in technology use.

How will my privacy be protected?

- The information you contribute will be transcribed and shown to you in the first instance.

- After this, only the researcher and research supervisors will view the transcripts in their capacity of overseeing the data analysis.

- On completion of the research, the data will be stored securely for a period of five years, after which the written documents will be shredded and audio-recording, deleted.

- Your anonymity is assured, in that your name and personal details will not be used in this research report.

How do I become involved in the study?

Your consent to participation is considered to be granted upon (1) reading this Participant Information Sheet, (2) having received clarification of any further questions, (3) deliberating on the potential personal costs, and (4) signing the Consent Form (see attached below).

What are the costs of participating in the project?

The cost of participating in this research project is your time, as you will be maintaining the diary during classroom sessions of 30-45 minutes' duration.

Opportunity to consider the invitation:

You may wish to deliberate on your involvement in this research. In the event that you need more time to think about it, I just ask that you contact me regarding your eventual decision over participation. My contact details are to be found at the bottom of this sheet.

Opportunity to receive feedback on the research results:

If you so wish, I would be very happy to discuss the results of this research with you. Once the study is complete, I will be seeking opportunities to present the findings at conference presentations and in publications.

Participants' concerns:

Any concerns regarding the nature of this project should be conveyed in the first instance to the Project Supervisor. Concerns about the way in which the research is conducted should be expressed to the researcher/Project Supervisor.

The researcher's contact details:

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…………………………………………………………………………………..…………

The research supervisors' contact details:

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…………………………………………………………………………………..…………

Dated: ………………..July, 2015

Informed Consent

Lecturers' Consent to Participate in the Research – Reflective Diaries

The research topic: The Influence of Technology on the Academic and Social Lives of Students and Lecturers In Kuwaiti Higher Education (HE)

I have read and understood the information provided about this research project (Information Sheet dated ………………..July, 2015)

I have had an opportunity to ask questions and to have them answered.

I understand that participation is strictly voluntary and I can refuse to address any diary question that I do not wish to answer.

I understand that I may withdraw myself or any information that I have provided for this project at any time prior to the completion of the data collection, without being disadvantaged in any way.

If I withdraw, I understand that the diaries with their information and transcripts, or parts thereof, will be destroyed.

I agree to take part in this research.

I wish to receive a copy of the research report.

Participant's signature: ....……………………..

Participant's name: ……………………………………………………………….

Participant's contact details (if appropriate):

…………………………………………………………………………………………………
…………………………………………………………………………………..…………
…………………………………………………………………………………….…………

Date:

4 (g) Participant Information Sheet: Classroom Observation - Students

The research topic:

I would like you to consider participating in a research project which intends to explore the influence of technology on the academic and social lives of students (and lecturers) in Kuwaiti higher education. This research project is part of a doctoral degree.

What is the purpose of this study?

The purpose of this research is to identify the perceptions of Kuwaiti higher education students (and lecturers) as regards the use of technology in their academic and social lives. It will also explore the challenges they face when using technology.

How are people chosen for invitation to participate in this study?

Three lecturers will be selected and each of these will be given the opportunity to select three classroom sessions in which they wish to be observed. Therefore, as a student, you are also asked for your consent to being observed, because you will attend a session taught by a participating lecturer. The classroom sessions will be of 30-45 minutes' duration.

What will happen in this study?

Classroom observations form part of this study. Students' and lecturers' experiences in the classroom will be observed. Your contribution (as a student) will be audio-recorded, while I make notes of what transpires in the classroom, as you use the technology and interact with your lecturer. Your experiences and interchange with the lecturer and your peers will be analysed for their underlying significance.

What are the inconveniences and risks?

The only risk is one of inconvenience, based on the amount of time you have available for this research/observation.

Alternatively, you may find the audio-recorder somewhat intrusive at first. I apologise for this in advance, but it will allow me to focus my attention on what happens in the classroom. I therefore trust we can work together to lessen the impact of the audio-recorder.

How will these inconveniences be alleviated?

Please be assured that I am grateful for your willingness to take part in this study. If, in the process, you wish to take a break, then you merely need to let me know. Alternatively, you may choose to stop the process altogether, thereby exercising your right to discontinue your participation, without further explanation or justification and without incurring any consequences for yourself.

What are the benefits?

My hope is that this research will provide invaluable insights into how technology is used by lecturers and students in their academic and social lives. That is, the observations/responses/information obtained may provide some understanding of how and to what extent lecturers and students engage in technology use.

How will my privacy be protected?

- The observations will be transcribed and shown to you in the first instance.

- After this, only the researcher and research supervisors will view the transcripts in their capacity of overseeing the data analysis.

- On completion of the research, the data will be stored securely for a period of two years, after which the written documents will be shredded and the audio-recording, deleted.

- Your anonymity is assured in that your name and personal details will not be used in this research report.

How do I get involved in the study?

Your consent to participation in this project is considered granted, once (1) you have read this Participant Information Sheet, (2) clarification has been received for any further questions you might have, (3) you have deliberated on the personal cost, and (4) you have signed the Consent Form (see attached below).

What are the costs of participating in this project?

The cost of participating in this research project is your time, as you will be taking part in classroom sessions observed by myself for a period of 30-45 minutes.

Opportunity to consider the invitation:

You may wish to deliberate on your involvement in this research. In the event that you need more time to think about it, I just ask that you contact me regarding your eventual decision over participation. My contact details are to be found at the bottom of this sheet.

Opportunity to receive feedback on the results of research:

If you so wish, I will be happy to discuss the results of this research with you. Once the study is complete, I will be seeking opportunities to present the findings at conferences and in publications.

Participants' concerns:

Any concerns regarding the nature of this project should, in the first instance, be addressed to the project supervisor. Concerns regarding the way in which this research is conducted should be addressed to the researcher/project supervisor.

The researcher's contact details:

Naser Ali

Email: ngaa201@exeter.ac.uk

Mobile: 97978090

The research supervisor's contact details:

…………………………………………………………………………………..…………

…………………………………………………………………………………..…………

Dated: ………………..July, 2015

Informed Consent

Student's Consent to Participate in the Research - Classroom Observation

The research topic: The Influence of Technology on the Academic and Social Lives of Students and Lecturers in Kuwaiti Higher Education (HE)

I have read and understood the information provided on this research project (Information Sheet, dated ………………..September, 2015)

I have had an opportunity to ask questions and to have them answered.

I understand that participation is strictly voluntary.

I understand that the observations will be audio-recorded and transcribed.

I understand that I may withdraw from participation at any time, as well as withdrawing any information that I have provided for this project, prior to the completion of the data collection and without being disadvantaged in any way.

If I withdraw, I understand that any information and all relevant audio-recordings and transcripts, or parts thereof, will be destroyed.

I agree to take part in this research.

I wish to receive a copy of the research report.

Participant's signature: ....……………………..

Participant's name: ………………………………………………………….

Participant's contact details (if appropriate):

……………………………………………………………………………………………

……………………………………………………………………………..…………

Date:

4 (h) Participant Information Sheet: Classroom Observation - Lecturers

The research topic:

I would like you to consider participating in a research project which intends to explore the influence of technology on the academic and social lives of lecturers (and students) in Kuwaiti higher education. This research project is part of a doctoral degree.

What is the purpose of this study?

The purpose of this research is to identify the perceptions of Kuwaiti higher education lecturers (and students) as regards the use of technology in their academic and social lives. It will also explore the challenges they face when using technology.

How are people chosen for invitation to participate in this study?

Three lecturers will be selected and each of these will be given the opportunity to select three classroom sessions in which they wish to be observed. The lecturers will be selected from among those who have been interviewed. The interview sessions will present an opportunity to select only those who are interested and willing to be observed. The classroom sessions will be of 30-45 minutes' duration.

What will happen in this study?

Classroom observations form part of this study. Your experiences (as a lecturer) in the classroom will be observed. Your contribution will be audio-recorded, while I (the researcher) make notes of what transpires in the classroom, as you use technology and interact with the students. Your experiences and interchange with the students will be analysed for their underlying significance. Please be informed that each observation will include a brief discussion or interview with you.

What are the inconveniences and risks?

The only risk is one of inconvenience, based on the amount of time you will have available for this research/observation.

Alternatively, you may find the audio-recorder somewhat intrusive at first. I apologise for this in advance, but its purpose is to leave me free to focus more on what happens in the classroom. I therefore trust we can work together to lessen the impact of the audio-recorder.

How will these inconveniences be alleviated?

Please be assured that I am grateful for your willingness to take part in this study. If, in the process, you wish to take a break, then you merely have to let me know. Alternatively, you may choose to stop the process altogether, thereby exercising your right to discontinue your participation, without further explanation or justification and without incurring any consequences for yourself.

What are the benefits?

My hope is that this research will provide invaluable insights into how technology is used by lecturers and students in their academic and social lives. That is, the observations/responses/information obtained may provide some understanding of how and to what extent lecturers and students engage in technology use.

How will my privacy be protected?

- The observations will be transcribed and shown to you in the first instance.

- After this, only the researcher and research supervisors will view the transcripts in their capacity of overseeing the data analysis.

- On completion of the research, the data will be stored securely for a period of two years, after which the written documents will be shredded and the audio-recording, deleted.

- Your anonymity is assured in that your name and personal details will not be used in this research report.

How can I get involved in this study?

Your consent to participate in this project is considered granted, once (1) you have read this Participant Information Sheet, (2) clarification has been provided for any further questions you may have, (3) you have deliberated on the personal cost, and (4) you have signed the Consent Form (see attached below).

What are the costs of participating in the project?

The cost of participating in this research project is your time, as you will be taking part in classroom sessions to be observed by myself for a period of 30-45 minutes.

An opportunity to consider the invitation:

You may wish to deliberate on your involvement in this research. In the event that you need more time to think about it, I just ask that you contact me regarding your eventual decision over participation. My contact details are to be found at the bottom of this sheet.

An opportunity to receive feedback on the research results:

If you so wish, I will be happy to discuss the results of this research with you. Once the study is complete, I will be seeking opportunities to present the findings at conferences and in publications.

Participants' concerns:

Any concerns regarding the nature of this project should, in the first instance, be addressed to the project supervisor. Concerns regarding the way in which this research is conducted should be addressed to the researcher/project supervisor.

The researcher's contact details:

Naser Ali

Email: ngaa201@exeter.ac.uk

Mobile: 97978090

The research supervisor's contact details:

…………………………………………………………………………………………….…………

Dated: ………………..July, 2015

Informed Consent

Lecturers' Consent to Participate in the Research - Classroom Observation

The research topic: The Influence of Technology on the Academic and Social Lives of Students and Lecturers in Kuwaiti Higher Education (HE)

I have read and understood the information provided on this research project (Information Sheet, dated ………………..September, 2015)

I have had an opportunity to ask questions and to have them answered.

I understand that participation is strictly voluntary.

I understand that the observations will be audio-recorded and transcribed.

I understand that I may withdraw from participation at any time, as well as withdrawing any information that I may have provided for this project, prior to the completion of the data collection and without being disadvantaged in any way.

If I withdraw, I understand that any information, as well as all relevant audio-recordings and transcripts, or parts thereof, will be destroyed.

I agree to take part in this research.

I wish to receive a copy of the research report.

Participant's signature: ....……………………..

Participant's name: ……………………………………………………………….

Participant's contact details (if appropriate):

………………………………………………………………………………………………
……………………………………………………………………………………..…………
Date:

Appendix 5: Description of the Research Participants

5 (a) Lecturers Who Participated in the Interviews

Dr. HAN: A lecturer with a PhD in Phonetics and Phonology teaches phonetics transcription at the College of Basic Education. He uses 'Gradekeeper'; software that assists with the authentic assessment of his students. He appears to be a technology buff.

Dr. HAS: A lecturer with a PhD who lectures on the topic of nanomaterials. He completed his higher education in the United Kingdom, where he was exposed to the use of technology for learning. He has also trained as a lecturer.

Dr. HAM: A lecturer who graduated from Tuft University, U.S.A. He lectures in Political Science at the College of Basic Education, Kuwait. He favours interactive PowerPoint presentations and uses a laptop in his teaching. He is also very active in social media.

Dr. MOH: A lecturer in Business Management, who lectures on break-even analysis. She uses Canvas, a learning management system and the Audience Response System, besides PowerPoint and YouTube in her teaching and favours interactive and engaging multimedia presentations for her lessons. However, she has not received any training as a lecturer.

Dr. AB: A lecturer who graduated from the University of Exeter and now teaches English at the College of Basic Education, Kuwait. He uses smartphones, tablets such as iPads, and laptops. He has no specific training as a lecturer, but has taken the initiative to learn to use and implement technologies.

Dr. KH: A lecturer who graduated from Indiana University, Bloomington, U.S.A. and who now teaches computational techniques in Robotics. He uses data show, overhead projectors and PowerPoint. However, he is not a trained lecturer.

Dr. EM: A lecturer who teaches English grammar and vocabulary. She uses YouTube in her language teaching and to help improve learners' language skills.

5 (b) The Technology Used by the Students

Student 1- Smartphone, tablet computer, desktop and laptop.

Student 2- Wikipedia, Google Scholar and smartphone.

Student 3- Desktop, smartphone and preference for YouTube.

Student 4- Tablet computer, preference for YouTube and e-reader.

Student 5- Tablet computer.

Student 6- Smartphone and preference for social networking sites.

Student 7- Preference for using the College library and uses a laptop.

Student 8- Mobile phone.

Student 9- Laptop and mobile phone.

Student 10- Laptop and tablet computers.

Student 11- Laptop and mobile phones.

Student 12- Preference for traditional methods, such as pens and notebooks. Does not use any technology for learning, but uses a mobile phone to make calls, send text messages and chat or view YouTube videos.

Student 13- Preference for traditional classroom lectures. However, owns a laptop, tablet computers and two mobile phones.

Student 14- Tablet computers and smartphones.

Appendix 6: Ethical Approval Form

UNIVERSITY OF EXETER

Ref (for office use only)

D/15/16/07

COLLEGE OF SOCIAL SCIENCES AND INTERNATIONAL STUDIES

When completing this form please remember that the purpose of the document is to clearly explain the ethical considerations of the research being undertaken. As a generic form it has been constructed to cover a wide-range of different projects so some sections may not seem relevant to you. Please include the information which addresses any ethical considerations for your particular project which will be needed by the SSIS Ethics Committee to approve your proposal.

Guidance on all aspects of the SSIS Ethics application process can be found on the SSIS intranet:
https://intranet.exeter.ac.uk/socialsciences/staff/research/researchenvironmentandpolicies/ethics/

All staff and postdoctoral students within SSIS should use this form to apply for ethical approval and then send it to one of the following email addresses:

ssis-ethics@exeter.ac.uk This email should be used by staff and postdoctoral students in Egenis, the Institute for Arab and Islamic Studies, Law, Politics, the Strategy & Security Institute, and Sociology, Philosophy, Anthropology.

ssis-gseethics@exeter.ac.ukThis email should be used by staff and postdoctoral students in the Graduate School of Education.

Applicant details	
Name	Naser Ali
Department	**Graduate School of Education**
UoE email address	**ngaa201@exeter.co.uk**

Duration for which permission is required		
You should request approval for the entire period of your research activity. The start date should be at least one month from the date that you submit this form. Students should use the anticipated date of completion of their course as the end date of their work. Please note that retrospective ethical approval will never be given.		
Start date:09/09/2015	**End date:15/10/2015**	**Date submitted:**Click here to enter a date

Students only	
All students must discuss their research intentions with their supervisor/tutor prior to submitting an application for ethical approval. The discussion may be face to face or via email. Prior to submitting your application in its final form to the SSIS Ethics Committee it should be approved by your first and second supervisor / dissertation supervisor/tutor. You should submit evidence of their approval with your application, e.g. a copy of their email approval.	
Student number	620035240
Programme of study	**Doctor of Philosophy (PhD)**
Name of Supervisor(s)/tutors or Dissertation Tutor	**Professor Jane Seale and DR. Judith KleineStaarman**
Have you attended any	Yes, I have taken part in ethics training at the University of Exeter

ethics training that is available to students?	

Certification for all submissions
I hereby certify that I will abide by the details given in this application and that I undertake in my research to respect the dignity and privacy of those participating in this research. I confirm that if my research should change radically I will complete a further ethics proposal form. Naser Ali Double click this box to confirm certification ☐ *Submission of this ethics proposal form confirms your acceptance of the above.*

TITLE OF YOUR PROJECT

The Influence of Technology in the Academic and Social Lives of Students and Lecturers in Kuwaiti Higher Education.

ETHICAL REVIEW BY AN EXTERNAL COMMITTEE

No, my research is not funded by and does not use data from either the NHS or Ministry of Defence.

If you selected yes from the list above you should apply for ethics approval from the appropriate organisation (the NHS Health Research Authority or the Ministry of Defence Research Ethics Committee). You do not need to complete this form, but you must inform the Ethics Secretary of your project and your submission to an external committee.

MENTAL CAPACITY ACT 2005

No, my project does not involve participants aged 16 or over who are unable to give informed consent (e.g.

people with learning disabilities

SYNOPSIS OF THE RESEARCH PROJECT

As a guide - 750 words.

The research aims to identify the perceptions of Kuwaiti higher education (HE) students and lecturers, as regards the use of technology in their academic and social lives. It will also explore the challenges they face when using technology. Moreover, this research will look into how Kuwaiti HE lecturers use technology to support their teaching practice. The research is exploratory in nature.

The research questions guiding this research are:

1. How do Kuwaiti HE students use technology in their academic and social lives to connect informal learning to the formal learning environment? What factors influence that use?
2. How do Kuwaiti HE lecturers use technology to support their teaching practice? What factors influence that use?
3. Are there any differences or gaps between Western and Gulf Cooperation Council (GCC) students and lecturers in their use of technology for their academic and social lives?

The literature review identifies and reports on current and previous research literature examining the impact of technology on the academic and social lives of students and lecturers in HE in Western countries, as well as in Kuwait and the adjoining Gulf states. The literature on this topic is profoundly impacted and led by research originating from the UK and the US. Studies from Kuwait or the Gulf in general, however, are limited and have not yet formed a connected or comprehensive body of knowledge. The literature reviewed pertaining to technology use in education in Kuwait shows that there are problems in ICT integration, which in turn may have influenced students and lecturers' academic and social lives. This situation may could have existed in the West a decade ago, representing a period where promises were being made in the UK and Australia that technology would enable teachers and schools to become more 'learner-focused' (Hargreaves, 2004; Higham, Hopkins &Ahtaridou, 2007). However, one of the biggest differences is that in the Arab states, there is a lack of access to resources (Bingimlas, 2009) – which, incidentally, is one the main barriers to educational technology.

Even with all the technology available in the West, efforts made in educational research suggest that institutions and educators have still not solved the 'problem' of technology integration in the US, the UK, or elsewhere (Bauer, 2005; Wang et al., 2004; Liu, 2010; Palak& Walls, 2009; Park &Ertmer, 2007; Redmond, 2011; Hermans et al., 2008; Mueller et al., 2008). That is to say, technology is not being used to support the kinds of instruction (e.g. student-centred) believed to be the most powerful.

The reasons for the failure of students to use technology can arguably be attributed to teachers' technology use, their ICT skills and poor integration of technology into their learning and teaching. It can therefore be concluded that instructors seem to rely on traditional teaching methods and 'reflexively resist' curricular and instructional innovation (Ponticell, 2003, p. 15). Although teachers might believe that technology helps them accomplish professional and/or personal tasks more efficiently, they are hesitant to incorporate the same tools into the classroom. This is due to a variety of reasons, including a lack of relevant knowledge (Lawless & Pellegrino, 2007) and existing belief systems (Ertmer, 2005; Subramaniam, 2007). Furthermore, the context/culture in which teachers work often constrains or limits individual efforts (Roehrig, Kruse & Kern, 2007; Somekh, 2008).

The purpose of the literature review is to inform the reader that this study is significant and will fill the following gaps in knowledge:

- The gap that exists between the extent of lecturers' positive attitudes toward ICT integration and the degree to which they actually use technology in their classes
- The gap which exists in students' expectations of learning and teaching, teachers' skills in technology use and the need to improve these skills.

INTERNATIONAL RESEARCH

The research will take place in Kuwait and I will abide by the code of ethics and follow the guidelines for professional conduct stipulated by the research ethics committees in the College of Basic Education. I will be applying to the research ethics committees at the above institution during my trip to Kuwait. During the visit, I will also finalise the selection of locally employed research assistants.

The following sections require an assessment of possible ethical consideration in your research project. If particular sections do not seem relevant to your project please indicate this and clarify why.

RESEARCH METHODS

To study the effects of various factors (for example, perceptions, attitudes, pedagogical beliefs) on teaching and learning in technology-rich environments and real situations, this study will adopt a mixed-method approach or methodology, using surveys, interviews, classroom observations and documents as a means of data collection and analysis, so that answers can be found to the research questions.

Data collection will involve questionnaires, interviews, observations and diaries.

Questionnaire: 144 students and 40 lecturers. Students will be given the option to participate and the right to view all results of the analysis. The data will be analysed using SPSS and the participants will be chosen using a random sampling technique.

Observations: 3 classrooms. Students and lecturers will be notified that they are to be observed and their names/cultural background or any other description will not be referred to. They will have the right to refuse to participate. Observations will be recorded via tape recording, and notes will be taken.

Interviews: 20 teachers and 30 students. I will provide details beforehand of the nature of the interviews for the participants. During the interview, I will refrain from indicating any reactions to their comments. Interviewees will subsequently be given a draft of the transcription and analysis to check their responses and the way in which their views are represented. They will be chosen according to a criterion sample, i.e. that they have completed the questionnaire and are willing to participate.

Students' and lecturers' diaries: 3 teachers and 10 students. Students and teachers will be provided with a diary to maintain in their own time, outside classroom hours. Both students and lecturers will be asked to write about how they prepare for the next lecturer using technology. However, these contributions will be voluntary and participants will be given the opportunity not to participate. As the published research will involve direct quotations from diaries, permission will be sought from the participants beforehand.

Interviews and observations will be analysed using thematic analysis. This involves analysing the data under themes. The data will be taken from audio-recordings and written observation notes. The data will then be destroyed after the thesis has been completed and the researcher has undertaken the viva and received his degree.

The study will not involve any discussion of sensitive topics and will not cause any harm or discomfort to participants. The study will not induce psychological stress or anxiety, or give rise to negative consequences. Neither will the study involve prolonged or repetitive testing.

PARTICIPANTS

Participants will be university and college students aged 18 and over. They will be selected using a purposive sampling method. There are no special needs participants anticipated. The research will take place in Kuwait, at the College of Basic Education. All lecturers and students from the College of Basic Education will be involved in the questionnaire, interviews, and observations. The participants will consist of:

20 lecturers and 30 students for the interviews

184 participants for the questionnaire, comprising 144 students and 40 lecturers

3 classrooms for the observations.

THE VOLUNTARY NATURE OF PARTICIPATION

Participants will be recruited through various contacts, e.g. the use of notice bulletins and text messages. Informed consent will be obtained prior to data collection. This research will be carried out within HE institutions and therefore, will not involve children, individuals with special needs, or vulnerable adults. Moreover, friends or relatives of the researcher will not be considered for participation. Participants will not be coerced or compelled to take part in the project, and the contributions of those who refuse to be observed will be ignored and not taken into account. Informed consent will be obtained and participants will be given the opportunity to freely and willingly take part in the research. They will be duly informed of their right to withdraw from the research at any time. Anonymity and confidentiality will be maintained. The research involves observation, which will take place in a public space, namely classrooms in this case.

SPECIAL ARRANGEMENTS

This study will not involve participants with special needs.

THE INFORMED NATURE OF PARTICIPATION

Participants will be informed of the nature of the project and they will be given an information sheet. The information sheet (attached) clearly states the possible inconveniences participants may face and how discomfort and risk will be alleviated.

ASSESSMENT OF POSSIBLE HARM

This research examines technology use and it is not anticipated that participants will experience any psychological, legal, political, economic, or physical harm. However, participants will be assured that if during the research process, they wish to take a break, then they can do so. Alternatively, they will be given the option to stop the process altogether, thereby exercising their right to discontinue.

I understand that the researcher's safety is also important to consider. I will inform my supervisors and anyone assisting me in my research about my whereabouts (for instance, when going out to meet/interview participants). However, I will be making arrangements to administer questionnaires on campus at the respective HE institutions or via email. The interviews and observations will also take place on these campuses.

DATA PROTECTION AND STORAGE

Participants will be informed of how the data will be used (see attached Information Sheet). Pseudonyms will be used to maintain anonymity and the participants' identities will not be disclosed in research reports, the thesis, or other publications. A list of all the participants and relevant pseudonyms will be maintained separately. All data will be stored securely and in this case, cloud computing will be used (for example: the universities Udrive) and secured with a password. All data, including audio-recordings of interviews and observations will be retained for a period of five years and then destroyed/deleted.

DECLARATION OF INTERESTS

The participants will be informed that the research is sponsored by the Ministry of Higher Education and that there are no commercial motives (see Information Sheet). The results of the study will be published in order to add to the existing literature.

USER ENGAGEMENT AND FEEDBACK

Participants will be informed (see Consent Form) that they have the option to ask for a copy of the results on the completion of the study.

INFORMATION SHEET

Attached

CONSENT FORM

Attached

SUBMISSION PROCEDURE

Staff and students should follow the procedure below.
In particular, students should discuss their application with their supervisor(s)/dissertation tutor/tutor and gain their approval prior to submission. Students should submit evidence of approval with their application, e.g. a copy of the supervisor's email approval.

This application form and examples of your consent form, information sheet and translations of any documents which are not written in English should be submitted by email to the SSIS Ethics Secretary via one of the following email addresses:

ssis-ethics@exeter.ac.uk This email should be used by staff and postdoctoral students in Egenis, the Institute for Arab and Islamic Studies, Law, Politics, the Strategy & Security Institute, and Sociology, Philosophy, Anthropology.

ssis-gseethics@exeter.ac.uk This email should be used by staff and postdoctoral students in the Graduate School of Education.

Appendix 7: Certificate of Ethical Approval

GRADUATE SCHOOL OF EDUCATION

St Luke's Campus
Heavitree Road
Exeter UK EX1 2LU

http://socialsciences.exeter.ac.uk/education/

CERTIFICATE OF ETHICAL APPROVAL

Title of Project: The Influence of Technology in the Academic and Social Lives of Students and Lecturers in Kuwaiti Higher Education.

Researcher(s) name: Naser Ali

Supervisor(s): Professor Jane Seale
Dr Judith Kleine-Staarman

This project has been approved for the period

From: 09/09/2015
To: 15/10/2015

Ethics Committee approval reference:

D/15/16/07

Signature: Date: 14/09/2015
(Dr Philip Durrant, Chair, Graduate School of Education Ethics Committee)