Investigating the e-readiness of subject supervisors to adopt e-learning in the State of Kuwait

By

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Abstract

The focus of this research is to investigate the e-readiness of subject supervisors to adopt e-learning in schools in the State of Kuwait. Subject supervisors, who were appointed to oversee teachers and bring about change in e-learning beliefs and practices in Kuwaiti schools, lacked adequate skills in using technologies, and did not have adequate training or professional development to train or assess teachers. Therefore, this thesis investigated the factors that influenced the perceptions of teachers and subject supervisors, as well as their readiness for the adoption of e-learning practices.

A critical realist approach was taken to apply a mixed methods research design for this study. A qualitative case study approach was adopted to better understand the perspectives of subject supervisors and teachers. The participants were selected from schools in Kuwait that had adopted e-learning or were in the process of implementing it. Questionnaire data was analysed using factor analysis, descriptive statistics and multiple regression. Statistical analysis were be performed using SPSS 23.0 while semi-structured interviews were analysed thematically by using NVIVO. The quantitative results show that attitude and culture, confidence, equipment or infrastructure and technological skills were key factors for e-learning implementation. The subject supervisors did not have the confidence or confidence to support teachers. Although there was adequate equipment or infrastructure there were areas that were not ready, such as attitude and culture and teachers' technological skills.

On the other hand, the qualitative findings show that there was a lack of operational e-learning policies, a lack of professional training programmes, and a lack of policy maker's commitment to motivate schools and teachers to be ready for e-learning implementation which is essential for its sustainability.

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Contents

Chapter One

1.1. An overview of e-learning

Educational institutions worldwide are adopting e-learning technologies in order to deal with shortfalls in education and improve pedagogy (Godwin-Jones, 2014). E-learning does not only involve the use of information and communications technologies to create unique learning experiences in formal, informal and flexible learning environments, but also includes a range of methods, mechanisms, and delivery approaches. It also provides an open venue for learners and teachers to collaborate and interact (Aparicio, Bacao, & Oliveira, 2016; Olson, Codde, deMaagd, Tarkelson, Sinclair, Yook, & Egidio, 2011). Whether it is blended or purely online, learning is the essential component and includes all levels of education, namely, schools and the higher education system. Recently, emerging technologies such as touch screen mobile devices have changed the e-learning landscape and students are able to interact with learning (for example: content) in a better way. These technologies are not only changing the expectations for e-learning globally and making learning independent of location, but also having a significant impact on the strategies of educational institutions (Corbeil & Corbeil, 2015). Besides interactivity, which emerging technologies and e-learning environments afford, there is more discussion on the 'unmooring' and 'unbundling or disaggregation' of learning environments (Wiley & Hilton, 2009; Prinsloo & Slade, 2014). The terms 'unmooring' (loosening the foundations of learning), 'unbundling or disaggregation' (differentiating learning from traditional methods) refer to the disruption caused by the introduction of new technologies which are prompting educators to rethink traditional educational practices. It is claimed

that emerging technologies are enabling participation and collaboration, allowing delivery of content and information access (Wiley & Hilton, 2009; Prinsloo & Slade, 2014).

With the advent of Massive Open Online Courses, there are claims that students have more opportunities for learning (Wang & Baker, 2015). The increase in open e-learning opportunities has led to claims that there is a major shift in the higher education landscape and an increase in opportunities for lifelong learning (Plenderleith & Adamson, 2009). In such environments learners deploy social software in order to make the e-learning experience more meaningful and engaging. A major shift in the delivery of content online, using social software and leaning management systems, has even led some to believe that emerging technologies, especially disruptive technologies may represent a threat to educational institutions world-wide (Finkle & Masters, 2014). Nevertheless, more institutions are implementing e-learning. Therefore, there is the need to understand if institutions are paying attention as to how technologies and e-learning environments are impacting teaching and learning. In other words, there is the need to examine the readiness of educational institutions to support the use of e-learning by students and teachers. The e-readiness of these institutions may have to be assessed by evaluating the digital literacy skills and technical competency of the stakeholders to interact with technology (Omoda-Onyait & Lubega, 2011).

In the Middle East, most nations began implementing e-learning just over a decade ago and it is claimed that educational institutions have achieved various levels of success (Mirza & Abdulkareem, 2011). The factors influencing the potential of e-learning are the expectations of young learners, the intention of the countries to reduce dependency on the oil sector, and the priority being given to the professional development of their citizens (Ramady, 2012). However, only some nations have been successful. Recent statistics show that the United Arab Emirates is leading the way in implementing e-learning and ranks 1st among Arab nations and 23rd in the world (Dutta, Geiger, & Lanvin, 2015). Kuwait ranks a dismal 72nd in the world with all the other Gulf Cooperation Council

nations performing better (Qatar - 27th, Bahrain - 30th, Saudi Arabia - 35th, and Oman - 42nd) (Dutta et al., 2015).

These statistics seem to suggest that there is a lack of a very strong commitment to ICT development and e-learning implementation by the Kuwaiti government in educational institutions. Although, the Ministry of Education, which is responsible for e-learning implementation within schools in Kuwait, has introduced reforms which have focused on technology, this has been largely superficial (Al-Nakib, 2015). The Ministry had also nominated subject supervisors, who already work in the school districts supporting various disciplines, and given them the role of supporting e-learning in schools. However, there is a lack of research on how effective such measures have been in enhancing the e-readiness of the education system. Therefore, this thesis gathered insight into how the subject supervisors are supporting the implementation of e-learning and teachers' perceptions of the support and training they receive in overcoming the deficits in education.

1.2. Purpose of the study

The Ministry of Education, which sets the educational goals in Kuwait has introduced major educational reforms and made significant investment in ICT resources and ICT implementation in schools (Buabbas, 2010). These reforms efforts include, for example, providing easy access to the Internet and online resources, training teachers, integrating technology with the curriculum reform, and improving teachers' ICT proficiency by applying the International Computer Driving License (ICDL) for all Kuwait in-service teachers. The policy maker has also given subject supervisors the responsibility of addressing current educational needs, and to change teachers' e-learning beliefs and practices (Toumi, 2010). The role of the subject supervisors in Kuwait is similar to that of subject supervisors in the United Kingdom, who are responsible for the specialised delivery of the curriculum

(Ofsted, 2013). These supervisors are accountable for helping teachers to cope with the educational reforms, and for assessing the content of curricula and ensuring it meets the needs of the students. However, the subject supervisors, who are responsible for assisting and monitoring teachers, designing teacher-training programmes, modernizing teaching methods, and ensuring that teachers remain abreast of the latest changes and technological developments in education, lack adequate skills in using emerging technologies (Aldhaen, 2012). Moreover, most subject supervisors, who are expected to train teachers have no training in e-learning and lack professional development (Aldhaen, 2012; Ghaith, 2013). Therefore, there is the need to investigate the factors that have an impact on educator's capability and readiness for e-learning. This suggests that the appointment of supervisors have not had any impact on teacher attitudes toward e-learning, and on teachers' competence in the use of ICT as a pedagogical tool. The study explores the relative factors in subject supervisors' e-learning readiness and how they are influencing the adoption of e-learning in schools. Given the significant investment made to implement e-learning, there is an urgent need to understand the integration of e-learning in schools.

1.3. Study aim/research questions

This aim of the study is to investigate the e-readiness of subject supervisors to support e-learning in schools in the State of Kuwait. The study is guided by the following research questions:

Main Research Question:

What are the factors that have influenced the e-learning readiness of subject supervisors in schools?

Sub Research Questions:

Q1: What are the challenges facing teachers/schools in applying e-learning? (explored through interviews/ questionnaire)

Q2: What are teacher's perceptions of the role of the subject supervisors in supporting the application of e-learning strategies in schools? (explored through interviews/ questionnaire)

Q3: What are the perceptions of subject supervisors towards elements that can contribute to the development of e-learning in schools? (explored through interviews/ questionnaire)

1.4. Expectations of the Study

The expectations of the study are to

1. Bring a better understanding of the present situation with regard to the way in which schools have adopted e-learning in Kuwait.
2. Bring to light the perceptions and beliefs of subject supervisors and teachers about e-readiness implication on the adoption of e-learning in schools in Kuwait.
3. To reveal to subject supervisors, teachers and educational policy-makers the factors that can contribute to the development of e-learning in schools.
4. To make recommendations to subject supervisors, teachers and educational policy-makers based on the findings of the study.

1.4.1. Research contribution

Most of the previous research performed regarding the area of e-learning has focused on identifying problems related to the diffusion, and on the diffusion of e-learning from a developed country to developing countries instead of within developing countries. This study is about diffusion of e-learning in a developing country. As such it is an important knowledge contribution, as it adds new dimensions to the research area.

1.5. Structure of the Thesis

This thesis portfolio consists of six chapters.

Chapter one is introductory and presents an overview of e-learning, outlines the research problems, presents the objectives that define the specific aims of the study, and the research questions guiding this study.

Chapter two provides an overview of the research background to the study. The chapter provides an overview of e-learning in Kuwait and the state of readiness of educational institutions, and clarifies the role of subject supervisors.

Chapter three reviews literature related to the research topic. It critically reviews the various definitions of e-learning, discusses theories and models of learning, the barriers to e-learning, and e-readiness measurement.

Chapter four discusses the general methodological issues relating to this thesis and the justification for the use of mixed methods research approach. It highlights the issues related to sampling, selection of participants for the questionnaire and interviews, and the research instrument. The chapter also discusses the procedures involved in the data collection, data analysis, ethical issues and methodological challenges.

Chapter five presents the findings relating to the research questions.

Chapter six discusses the results of this study, present the conclusion, and recommendations based on the findings of the study and identify study limitations

Chapter Two

Research Background: Overview of e-learning in the State of Kuwait

2.1. E-Learning in Kuwait and the state of readiness of educational institutions

In order to assess the extent to which subject supervisors in Kuwait are ready for e-learning, it is important to provide background information on e-learning in Kuwait. Throughout this section, the ways in which e-learning is implemented and its growth within the nation is described. An attempt is made to identify and detail all relevant factors that are associated with this form of learning within Kuwait. This should put across a clearer image of the current situation with regards to this teaching approach.

Kuwait took its first major steps towards implementing e-learning in its schools by launching the Kuwait Intermediate School Information Technology Project, which was aimed at the provision of computers for all of the country's schools by 2003 (Al-Sharaa, 2010). The reason behind this was that pupils needed to learn about computers in order to keep up with the world of technology. The initiative also included providing classes in how to use computers. It is not known if the project was successful as there is an absence of research evaluating the outcome of the project. Likewise, teachers were also trained, but only 16% of the teachers had received training by the year 2011 (Aldhaen, 2012).

The government with its plans for facilitating long-distance learning by way of the Internet came to the conclusion that attention has to be paid to improving students' awareness of electronic communication and information technology and its positive and negative sides (Mohammad, Manssour, & Wegerif, 2011). To this effect an objective was put in place stating that there should be one computer available per eight school pupils within educational establishments by the 2006/2007 school year, but these strategies did not produce optimal solutions as is evident from some studies (Mohammad et al., 2011; Alharbi, 2012; Aldhaen, 2012).

The Ministry of Education had also issued a decree in 2008 establishing a supervisory panel for the purpose of facilitating the growth of e-learning (Toumi, 2010). The decree stated that high schools would be the focus of initiatives aimed at supervising the way in which e-learning was implemented for the subsequent three years. It claimed that kindergartens, elementary schools and middle schools would all follow suit shortly afterwards. This move towards e-learning is focused on unlocking the benefits that are associated with being able to interact with teachers to a greater extent due to electronic media, transcending the barriers of time and space, supplementing traditional lessons with e-learning and developing an interactive learning environment (Al- Hunaiyyan, Al-Sharhan & Al-Sharrah, 2012). In the same year, a modernization strategy that highlighted the importance of electronic learning was implemented in Kuwait (Toumi, 2010). It was clear that e-learning was becoming more and more of a priority within the nation. In 2010, the education ministry for Kuwait announced that it was focusing on introducing technology to schools and promoting interactive e-learning experiences to an even greater extent than before. The aim of this initiative was to ensure that the nation remained up to date with regards to its approach to learning and to make sure that students were able to keep abreast of global scientific developments. This move was centred on enhancing the creative capabilities of pupils, developing the teaching capacities of teachers and promoting new learning methods (Toumi, 2010).

In recent years, it appears there is an increased focus upon the issue of e-learning in Kuwait (Toumi, 2010; Al- Hunaiyyan et al., 2012). The Ministry of Education has stated that it hopes to integrate this form of learning into all schools in the country, indicating that the nation is on the cusp of an e-learning revolution. This suggests that Kuwait has realised the importance of e-learning and is about to take steps to ensure that it is a major part of the education that Kuwaiti students receive (Al Marwani, 2013). There have been more claims that e-learning strategies in educational institutions have gained a magnified momentum, with massive investments in advanced infrastructure, introduction of modern pedagogical methods, and instilling lifelong learning concepts (Eissa, 2010;

Al Marwani, 2013). However, Internet access in schools is poor, and recent statistics show that Kuwait ranks 80th in the world as compared to its neighbour the U.A.E which ranks 18th (Dutta et al., 2015). Internationally, Singapore, which tops the world in e-readiness index, gave very high priority to improving ICT skills. The country has been able to adopt e-learning measures and maintain high rankings because its citizens who have a very high computer literacy rate do not resist change brought about by technology (Dutta et al., 2015). UAE, on the other hand, ranks first in Middle East Asia, as it has developed the necessary ICT infrastructure, institutions and skills needed to reap the full benefits of technology. UAE has created an enabling Internet environment, one that is based on openness and without excessive restrictions on online activities (Counted & Arawole, 2016). The Gulf state has prioritised use of ICT in education system to enhance learning outcomes and established a fund to support research and development in ICT and advanced communications infrastructure (Watts, 2012; OECD, 2015).

In Kuwait, the progress has been slow and it was in 2011 that the Ministry of Education announced that financial incentives might be offered to teachers who communicate with their students via social media. In an attempt to deploy e-learning in all schools by 2013, all educational textbooks in Kuwait were digitized by 2012 (Adkins, 2012). The Ministry also appointed the Regional Centre for Development of Educational Software (ReDSOFT) for creating apps which allows students or parents to download school text books for all grades and save them in their android tablets (ReDSOFT, 2012). It is clear that e-learning is taking more and more of a central role within Kuwaiti schools. However, despite the range of technological innovations that are now being made available to Kuwaiti classrooms, teachers in the nation have stated that e-learning within the country's schools is was limited (Alharbi, 2012) and that projectors were the only piece of equipment that is regularly utilized in order to deliver learning material. Very basic information technology skills are taught and most teachers only use computers in their lessons approximately once per week. A study of Kuwaiti implementation of computers and other similar innovations within schools revealed that teachers are happy with the technology that is available to them but that it is not used as an educational tool as

often as it could be (Alharbi, 2012). This suggests that the nation is partway through its journey towards the full adoption of e-learning but that it still has some distance to travel before it reaches its final destination and can compete with some of the more technologically savvy nations. Although, a considerable amount of money was spent to acquire latest technologies, Kuwait ranks 118th in the world well below UAE (which ranks 2nd) after Qatar in Government procurement of advanced technology (Dutta et al., 2015). The only consolation is Mobile network coverage rate which is very good and the country ranks top among other countries in the world such as Switzerland, Israel, and Turkey (Dutta et al., 2015).

However, Kuwait's spending on technology and ICT has attracted little research regarding the impact it has had on students and teachers. Buabbas (2010) used an interpretive case study approach to study the use of ICT in secondary schools in Kuwait by using surveys and questionnaires. Alharbi (2012) examined school teachers' perceptions regarding ICT usage by collecting qualitative data from 14 teachers from three primary schools in Kuwait. The findings of these studies show that teachers lack training, skills and schools are unable to integrate technological tools in their teaching (Buabbas, 2010; Alharbi, 2012). The Ministry of Education had made it mandatory that teachers in Kuwait are required to obtain an International Computer Driving Licence (ICDL), and yet most teachers are either reluctant or lack the confidence to use technologies (AlKhezzi & Abdelmagid, 2010; Al Sharija & Watters, 2012). Research suggests that this reluctance is due to teacher's negative perception about using technologies for teaching (Alhashem & Al-Jafar, 2015; Aldhafeeri et al. 2016). Most teachers who enrolled and obtained ICDL certifications perceive that the programmes is ideal only for beginners and that they had done so to get promotions, and for monetary incentives. The lack of adequate training had had an effect on the quality of education as well. According to Dutta, Geiger, & Lanvin (2015), the quality of education is poor and Kuwait is ranked 108th in the world as the system is considered not suitable to meet the needs of a competitive economy. Likewise, the poor education system must have contributed to its lack of capacity for innovation and ranks 128th among 143 countries while the UAE ranks 25th (Dutta et al., 2015).

2.2. Key stakeholders of e-learning in Kuwait's schools

The key stakeholders in Kuwait's school education system are the Ministry of Education, subject supervisors, school principals, teachers, students, parents, and religious groups. Research suggests that it is important to involve all stakeholders when critical decisions in schools are made and implemented, specific actions are taken in accordance with those decisions in order to achieve the plan's objectives (Brazer, Rich, & Ross, 2010).

Stakeholders are, undoubtedly, important in strategic planning; yet it must also be kept in mind that there are some negative aspects associated with involving stakeholders, which must be considered. One potential problem is that stakeholders can become resisters rather than helpers. In other words, some stakeholders may oppose the strategic plan, which could be due to individual interests that the new plans threaten, or the stakeholders may simply resent their inability to participate effectively. Kuwait is a conservative Arab state and all stakeholders may resist change in some way or other. Policy makers who control education resist democratic processes and are not in favour of deliberation. The conservative religious clerics and parents consider the Internet to be evil and resist e-learning while teachers and parents have low esteem for online learning as they feel that it is not comparable to traditional courses (Mirza & Abdulkareem, 2011; Alkharang & Ghinea, 2013).

2.3. Defining the role of subject supervisors

In order to analyse the extent to which the subject supervisors are prepared for e-learning in Kuwait, it is necessary to have a clear understanding of what is meant by the term 'subject supervisor' and what this role entails. According to the Ministry of Education (2011), subject supervisors are charged with a number of different responsibilities that are aimed at helping teaching staff to cope with the latest educational developments and maintain a suitably high standard of teaching. One of their main duties is to clarify both specific and general objectives for study and to take steps to ensure that they are reflected in the behaviour of educators. Another key responsibility is to assess the content

of curricula in order to ensure that the content can be adapted so that it is up to date and relevant to the communities that it is taught in.

In addition to these duties, subject supervisors are expected to design and prepare model lessons, teaching aids and tests in order to provide guidance to educators. They are responsible for encouraging educators to be innovative and creative and to participate in educational research and pilot studies, as this will motivate the educators to display initiative when it comes to modernizing their teaching methods. It is their job to ensure that teachers remain abreast of the latest changes and technological developments in education (Ministry of Education, 2011), suggesting that all subject supervisors should act as e-learning consultants, as e-learning is a crucial step to modernization.

Alhashem and Alkandari (2015), who referred to these subject supervisors as subject supervisors, outlines their role as that of consultants, who support teachers in the school development plan, in improving the quality of classroom teaching, and develop professional development programmes. The ultimate goal was improving student achievement. According to these authors, the subject supervisors or supervisors report to the undersecretary at the Ministry of Education and are involved in monitoring teachers, schools, curricula and assessments. They start as teachers and become subject supervisors through promotion and experience, which suggests they should be qualified teaching practitioners. These stakeholders, based on their seniority, oversee the performance and development of teachers, implement curriculum, and monitor the quality of education (Alhashem & Alkandari, 2015). In other words, subject supervisors are in charge of teachers and responsible for improving working relationship with and among teachers, provide teachers with opportunities to discuss any problems they have identified.

Subject supervisors are also responsible for designing technology-based curriculum, assessment and evaluation techniques and school activities for students. The role involves developing teachers' capabilities so that they can modernize their classroom performances, design creative programmes that are tailored towards the precise requirements of learners and engage in the

classification, diagnosis and planning of training for teachers. They should assess the way that lessons are taught and suggest potential areas for improvement (State of Kuwait Ministry of Education, 2011). The role of the subject supervisor in Kuwait is similar to that of subject supervisors and continued professional development (CPD) staff/teachers in the UK, for example Initial Teacher Training (ITT) where the emphasis is on mentoring and commitment to training (Hobson, Maxwell, Stevens, Doyle, & Malderez, 2015; Hobson and McIntyre, 2013; Walker, Jeffes, Hart, Lord & Kinder, 2011). Although there is a lack of adequate literature on subject supervisor's responsibilities and the challenges facing them, there is a common belief among school teachers in Kuwait that they lack the skills to motivate, mentor or train teachers to be innovative and use technology appropriately for teaching and learning (Aldhaen, 2012). Moreover, these subject supervisors, who are expected to design curriculum and also train teachers have no training and lack professional development.

It is apparent that school principals are not involved in the recruitment or appointment of the subject supervisors. This is because the Ministry of Education and the Department of Planning and Improvement adopts a policy of centralisation, which is embedded in both the formulation and the implementation of technology based reforms (Alkandari, 2013). The central decision-making role taken by the Ministry of Education has widened the trust gap between teachers and principals on the one hand and the policy makers on the other hand (Alsaeedi & Male, 2013). This suggests that stakeholders at the lower levels, particularly at the school-level, have no clear role in the formulation of the strategic plan. Moreover, parents or the community may also not have any clear role in the formulation of the plan. The reason why the goals and objectives of the technology-based reforms and related strategies are primarily constructed by the policy makers, and why they do not involve the input of different stakeholders within the education hierarchy is because power rests wholly with the law makers. Salem (2007) argues that this top down approach taken by the Kuwaiti government, is the main reason why the country has not been able to modernize its economy and match the phenomenal growth of its neighbouring GCC states.

2.4. Summary

This chapter provided background information on e-learning in Kuwait and traces the history and development of policies related to e-learning. The chapter focused on the various stakeholders in Kuwait's school education system, particularly subject supervisors, as the aim of this research is to analyse the extent to which the subject supervisors are prepared for e-learning in Kuwait and how they are enabling schools and teachers to implement e-learning. The chapter also briefly illustrated the role of the Ministry of Education, which exercises control over the working of schools, and asserts its authority by assigning subject supervisors to school districts.

Chapter Three

Literature Review

The focus of this chapter is to evaluate the previous research concerning the nature of e-learning. This literature review is a precursor to this research and expected to not only develop a context for this study, but also identify any gap in knowledge within previous literature so that it can be addressed. It provides background knowledge on the issue and identify learning methods that fall within the category of e-learning.

Throughout the course of this chapter, the nature of e-learning in Kuwait is described, and various definitions for e-learning are identified in an attempt to determine the criteria that are the most commonly associated with this term. This allowed the subject of e-learning in Kuwait to be explored with a clear understanding of what the term means. The way in which it is implemented is detailed in order to provide background information on the nation's adoption of this variety of learning.

3.1. The nature of e-learning

E-learning is a crucial component of the powerful, fast, and disruptive transformations that the world of education is going through (Cabrera, Sangra & Vlachopoulos, 2012). However, in Kuwait e-learning is still to play a key role in education (Alkharang & Ghinea, 2013). The benefits of this form of learning include the ability to easily deliver distance learning, the facilitation of a blended learning/teaching approach that involves both face-to-face interactions and the fact that it enables a variety of different educational activities to be supported by technology.

E-learning is commonly considered to encompass blogs, e-book readers, web services and a host of other technological innovations (Doiron, 2011). However, there is widespread contention as to what the term actually means. There are even disagreements about what the 'e' stands for, and

there is a dispute if it means ‘enhanced’ or ‘electronic’ (Andrews & Haythornthwaite, 2007). However, the latter is the more commonly applied significance of this letter.

E-learning is flexible as it supports synchronous and asynchronous activities, and allows a number of pedagogic approaches, for example through personalised learning (to meet student needs) and by adapting learning materials (Smythe, 2012). However, most students may find it difficult to learn independently without the guidance of teachers, while teachers my also find it problematic to identify, select and adopt pedagogic practices or develop skills to use technology (Gordon, 2014). On the other hand, blended learning combines traditional learning with web-based online approaches, combines different technologies, and uses a number of pedagogic approaches irrespective of learning technology (Morris, 2014). Blended learning allows teachers to use participatory, collaborative and networked learning approaches to improve student outcomes, engagement and enjoyment (Sharpe, Benfield, & Roberts, 2006). Therefore, it is claimed that blended learning represents the future of education (Gordon, 2014).

E-learning emerged with the use of computers few decades ago which led to acronyms and terms such as Computer Assisted Instruction (CAI), Computer Assisted Learning (CAL), and Computer Assisted Language Learning (CALL). Computer Assisted Instruction is the usage of computers to teach subjects such as mathematics, engineering, psychology, physics, business administration, or statistics, while Computer Assisted Learning focuses on individuals rather than tasks, for instance to assist problem-solving (Aparicio et al., 2016). Computer Assisted Language Learning (CALL) is the use of computer applications to learn or practice language. However, it is claimed that these common terms will become redundant and may not be used very soon as laptops, tablet computers, or mobile phones are increasingly being used as the technology of choice (Dudeney & Hockly, 2012).

Another method which is advocated by critics is the use of ‘flipped’ classroom, an approach which is used by instructors to move from the traditional format (which comprises a larger learning

space used by several learners) to an environment which closely resembles an individual's learning space, by using technologies (Davies, Dean & Ball, 2013; Hamdan, McKnight, McKnight & Arfstrom, 2013). It is a new pedagogical approach, which employs asynchronous classroom lectures, group-based problem solving activities and assignments (Moore, Gillett, & Steele, 2014). By blending direct instruction with inquiry-based learning, flipped classroom combines active and problem-based learning activities as well as direct instruction methods (Berrett, 2012). Therefore, it is claimed that flipped Learning can enhance interaction, re-energise teachers, empower students as self-directed learners, and democratise the learning environment (Hamdan et al., 2013).

Technology Enhanced Learning (TEL) is another approach which is widely used in the UK and Europe. It is claimed that the acronym 'TEL' has replaced the term 'e-learning' and is considered to be an intervention that can be used in authentic teaching/learning contexts (Kirkwood & Price, 2014). TEL is defined as "any online facility or system that directly supports learning and teaching" (Walker, Voce and Ahmed 2012, p.2) improving existing processes and the outcomes through radical, positive change in existing processes or introducing new processes (Kirkwood & Price, 2014).

The proliferation of mobile devices has created a new e-learning environment. M-learning, made possible through the use of mobile devices, such as smart phones, and android tablets, allows learners to access up-to-date and relevant educational resources from anywhere and at any time (Ally & Tsinakos, 2014; Roberts, 2013). It is claimed that the educational institutions are introducing these technologies in spite of the belief that it is disruptive to education (Ally & Prieto-Blazquez, 2014). The flexibility of mobile devices which allows anytime learning from anywhere, together with its portability can take e-learning to a new level, as these technologies not only enable learners to communicate and collaborate with each other, but also allows instructors to deliver learning materials and to meet the needs of learners in the 21st century (Ally & Tsinakos, 2014; Swan, Day, Bogle, & Matthews, 2014). M-learning may have transformed e-learning – from a formal and classroom based learning to an informal anywhere, anytime learning. In other words, m-learning may

be considered to be a natural extension of e-learning (Sarrab, Elgamel & Aldabbas, 2012; Abramson, Dawson, & Stevens, 2015).

To sum up, e-learning is used for a variety of different purposes, such as creating a platform for discussion to enable active engagement and peer learning among students (Xia, Fielder & Siragusa, 2013).

3.2. What is E-Learning?

E-learning is a concept that lacks a single, precise definition. Instead, a multiplicity of different definitions of the concept exists. As opposed to being specific about the technology that is used in learning, some definitions are precise concerning details of its delivery.

3.2.1. Definitions that focused on E-Learning

3.2.1.1. Technology based definitions

E-learning involves all learning that is facilitated by various technological devices, and related software and hardware. Definitions of e-learning are more specific in that they dictate that in order for a learning experience to fall within this category, it needs to involve electronic technology. Initially the definitions claimed that e-learning involves the use of electronic media to enhance teaching methods that relied upon techniques that are more conventional. The earlier definitions appear to be inclusive of a vast range of technological innovations delivering an educational experience and included online content distribution (Dickson-Deane, Gaylen & Moore, 2011; Fischer, 2013). The focus is on the delivery function but do not imply that e-learning supports communication and interaction.

E-learning is viewed as the intentional utilization of communications technology and networked information in learning and teaching (Ilechukwu & Njoku, 2014). This is a simple definition which states that e-learning facilitating learning through the use of computer networks. The

reference to networked information within this definition suggests that learning has to entail either the Internet or an intranet for delivery of content besides computerized networks. The definition implies that e-learning does not have to include distance learning. This means that it can be carried out face to face as well as from a remote location. It suggests that the learning does not have to be delivered via a network; it simply needs to entail a network in some way, shape, or form. However, the definition does not propose e-learning is an alternative to more traditional approaches, to gain benefits of flexibility, access, convenience and cost (Maruti, 2010; David, Iahad & Salleh, 2012).

The definition proposed by Asabere and Enguah (2012), describes it as a channel for the provision of flexible, high-quality education via the utilization of information and computer technologies (for example Internet, computers, and mobile devices such as phones and android tablets) phones for the purpose of extending access to learning to individuals who are not capable of attending classes and lectures on campus. This definition is radically different from those that have been proposed by Ilechukwu and Njoku (2014). Firstly, it holds that the education that is delivered needs to be flexible and high-quality in order for it to be classed as e-learning, which is a notion that has not previously been expressed. Secondly, it suggests that if technology-enabled learning is not aimed at facilitating study for people who cannot make it to an educational establishment then it is not technically e-learning.

David, Iahad and Salleh (2012) have stated that e-learning means learning that is boosted by digital technology, is conducted whilst the student is a long distance away from the teacher, involves learning material being accessed via a technological device and involves the student utilizing technology in order to engage in interaction with other learners and/or the teacher. They have put forward the notion that it is a term that incorporates technology-delivered instruction, web-based training and online learning. Therefore, it not only needs to be delivered from a distance but also often does so via the Internet. David, Iahad and Salleh ‘s definition differs from the one provided by Asabere and Enguah (2012) in that it dictates that digital technology needs to be involved in order for

something to be classed as e-learning but does not describe which particular technology should be used.

All the technology-based definitions of e-learning are too narrow and seem to have inconsistencies as none of them have focused on how the technology can enhance the educational experiences of learners. Most definitions of e-learning dictate that not only does a computer need to be involved in an educational experience for the experience to class as e-learning but the computer also has to be part of a network. Thus, all the definitions seem to focus more on the characteristics of the technology, and not on how learning actually takes place. Thus, the technology-based definitions of e-learning did not demonstrate on what pedagogic principles the added value of the 'e' was operating. The definitions also did not clarify whether learners interact with each other. One of the definitions that is commonly cited in literature is that e-learning which supports flexible pedagogies, is the use of technology to enhance the learning experience (Gordon, 2014; Kirkwood & Price, 2014). These authors claim that e-learning can be defined as technologies that are utilized in order to help students to enhance their learning. Thus, e-learning which can be either self-paced or instructor-led includes not only the delivery of content but also learning experience enabled by technology (Behera, 2013). Although these definitions imply that e-learning widens participation they do not address e-learning as a means of addressing the digital divide so that ICT skills can be made available to all those who may want to use them.

The definitions of e-learning discussed in this section suggest that technologies are required for formal transmission and delivery of educational resources. The rapid technological progress and the need for scientific approaches to engage students led to new formats of e-learning. With the advent of mobile devices and real-time videoconferencing also referred to as cultural resources there was an increasing access to IT resources in informal settings, which changed the balance between formal and informal uses of e-learning (Cox, 2013; Pachler, Bachmair, & Cook, 2013). It is argued that these

new cultural resources should not be exploited to provide informal learning but instead used for the assimilation of learning in both formal and informal contexts (Pachler et al., 2013; Farley et al., 2015).

3.2.1.2. Definitions based on constructivist learning

The new and emerging systems for e-learning allow the achievement of constructivist or constructionist principles or philosophies which assume that students learn best when they construct knowledge through ongoing dialogues or interaction, allowing others to review and criticise content (Rice, 2011). Construction can thus be seen as a social process. This social constructivist model was the main constituent of Tavangarian, Leypold, Nolting, Roser, & Voigt's (2004) definition of eLearning. A social-constructivist pedagogical approach is a cognitive process which conceptualizes students as active learners who construct knowledge based on their personal experiences and through interactions with their instructors and peers (Farkas, 2012). This suggests that there is a shift in the functional role of teachers from being a "sage on the stage" to "guide on the side" (Morrison, 2014, p. 1), or in other words teachers facilitate learning by co-creating knowledge with learners. If these socio-constructivist principles are taken to define e-learning, then the use of technology may be inadequate as a descriptor. Recently, some level of interactivity has been included to make the definition truly applicable in describing the learning experience (Jethro, Grace & Thomas, 2012; Awad, 2014).

Jethro, Grace & Thomas (2012) claim that e-learning refers to educational processes that use technology in order to mediate teaching and learning activities. This suggests that e-learning has a relatively wide scope and encompasses all forms of technology that possess a communicative element. The authors also argue that e-learning is the utilization of technologies to produce learning experiences. Their definition does not restrict e-learning merely to the Internet or to any other single technological innovation. This is a simpler, more inclusive definition of the term. It suggests that any activity that results in learning stemming from a piece of technology that is related to information and

computer technology can be classified as e-learning. However, the authors did not specifically state if mobile technologies also fall within the category of ICT. On the other hand, Awad (2014) claims that e-learning is a form of education that utilizes computerized education systems for facilitating interactions between instructors and students, enabling communication and allowing information to be exchanged. This definition differs from those that have been previously explored throughout the course of this review in that it hinges around the notion that computers need to be used. It also implies that two-way interaction needs to take place between students and teachers. In such environments, technology provides multiple paths for learning. Learning is not only self-directed but also facilitated with teachers providing playing the role of mediators. This suggests that in order to encourage informal and self-directed learning, which is gradually becoming part of daily life, teachers have to actively use emerging Web technologies, provide learners with options to bring and use the technology of their choice, and give students the opportunity to communicate and interact (Numer & Spencer, 2015; Kim, Altuwaijri, Wang & Bonk, 2014).

E-learning permits the exploration of much flexible learning ways, and includes synchronous or synchronous learning (Gedik, Kiraz, & Ozden, 2013). In synchronous learning, the instructor and the students are present at the same time and place, which allows spontaneous and immediate interaction (Martin & Parker, 2014). Asynchronous learning is independent learning, and students can proceed at any time and at their own pace, whether the instructor and the other students are present or not. The tremendous pace at which technology is being developed has led to an increase in synchronous e-learning. On the other hand, asynchronous social constructivist e-learning is built on collaboration. Although, asynchronous and synchronous can be used simultaneously, an appropriate design may allow learners to engage with their learning (Gedik et al., 2013; Swan et al., 2014; Power & St.Jacques, 2014).

It is clear that there are numerous definitions of e-learning in existence that frequently contradict each other. Some are technology based, some confusing e-learning with distance learning,

some use the term to refer to packaged content pieces and others to technical infrastructure. However, the commonalties found in all the definitions is that some form of instruction occurs between a student and a teacher, that e-learning takes place at different times and/or places, and uses varying forms of technologies. Therefore, it is important to formulate a definition based upon the most commonly agreed aspects of this form of learning in order to proceed. Cabrera et al., (2012) conducted a study aimed at getting to the bottom of what e-learning means to the majority of experts within the fields of technology and education. They conducted a detailed literature review in order to gain a view of previously expressed definitions of the term and then administered surveys to thirty-three different experts in sixteen different countries. Fourteen of these experts were female and nineteen of them were female. The conclusion was that the majority of experts believe that e-learning refers to the utilization of electronic devices and media for construction of knowledge, by improving interaction, communication and training in a manner that facilitates new means of comprehending and developing learning. Therefore, this definition, which incorporates the main principles of constructivism, was considered for this study. Researchers agree that constructivism learning theory, which focuses on knowledge construction based on learner's previous experience, is ideal for e-learning because it ensures learning among learners synchronously, asynchronously, or as a combination of the two (Carter & Salyers, 2013). However, there are several approaches to constructivism which are tabulated below:

Epistemological Constructivism	This philosophical view assumes that our knowledge is "constructed" in that it is subject to the views of individuals and their social experience.
Social Constructivism (or Social Constructionism)	This theory assumes that knowledge and reality are actively created by social relationships and interaction

Psychological Constructivism	It is related to how individuals meaningfully understand their worlds and experiences
Genetic Epistemology	It assumes that the methods used to acquire knowledge affects the validity of that knowledge.

Constructivist instructional approaches incorporate student-oriented teaching, whole class interaction and cooperative learning, with teachers allowing students to learn autonomously (Davidson & Major, 2014). In such classrooms or learning environments teachers use a constructivist pedagogy called "scaffolding", which is a method whereby the teacher shapes the preferred learning strategy or task, then progressively transfers responsibility to the students (Lugendo & Smith, 2014). The intention is to move students gradually toward better understanding based on their abilities and, eventually, greater independence in the learning process (Schunk, 2012). In other words, scaffolding is the process of providing learning support to students, and in the process allowing students to personally construct knowledge.

One constructivist pedagogic approach to e-learning is the concept called 'communities of practice' "Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger, 2014, p.1). The simple principle behind communities of practice is that individuals learn from the communities to which they belong. These communities of practice exist everywhere. It is a learning approach nu which learners collectively learn through practice (Hoadley, 2012). The three key characteristics of a community of practice are domain, community and practice (Wenger, 2000). The 'domain' is the common interest that unites the community of learners and holds together the community; the 'community' which involves in collective activities (for instance collaborate, interact, engage in group discussions) within their realm; and, 'practice' which refers to the desired practices of learners or e-learning practitioners who reside in the community.

To sum up, most of the constructivist learning principles focus on the learner. Therefore, it is essential that definitions of e-learning based on constructivism should include key elements such as synchronous and asynchronous learning, student-oriented teaching, social interaction, cooperative learning, scaffolding and communities of practice.

3.3. Models and theories of e-learning

Models of e-learning explain "where technology plays a specific role in supporting learning" (Mayes & Freitas, 2005, p.5). When preparing for change, educational institutions have to adopt appropriate e-learning models to ensure that e-learning environments are properly designed and maintained, as well as to ensure that the institution provides e-learners with a quality learning experience and service.

In order to develop pedagogical strategies and instructional design approaches to suit e-learning or m-learning, it is suggested that there is the need to understand various learning theories (O'Donnell, Lawless, Sharp, & O'Donnell, 2015). Learning theory in the context of e-learning refers to the use of learning models and/or frameworks that may be used during the planning, designing and implementation stages. The critical issue of including learning theories in e-learning has consistently been reported in the literature (O'Donnell et al., 2015). Some of the theories or models are behaviourism, cognitivism, constructivism, and connectivism (Rutherford-Hemming, 2012; Okland, 2012; Clara & Barbera, 2013).

Behaviourist approach

Behaviourism assumes that a learner is fundamentally passive and reacts only to external stimuli (Bates, 2015). In other words, students have no prior knowledge, and their behaviour is shaped by positive and negative reinforcement. Positive reinforcement is presentation of a stimulus by teachers (for instance by commending learners for correct responses) in order to increase the

probability of a learner's response. Negative reinforcement is not punishment to suppress behaviour, but the act of strengthening the response or behaviour of learners by removing or preventing an adverse condition that can increase the probability of a behaviour (for example, completing a classroom project on time to gain extra grade points). Overall the behavioural approach gives utmost importance to rigid instructions and assumes that knowledge is the result of objective experience and rewarding learners as they make gradual progress toward larger learning goals (Ananda, 2015). Behaviourist approaches are still in vogue, and until recently was associated with computer-aided instruction. However, it is claimed that behaviourist approaches are not necessarily required for technology integrated learning (Bates, 2015).

Cognitivist approach

Cognitivists argue that the focus should not be on learner's behaviour but on their mental ability to interpret and make sense of the environment, as well as to integrating new information with previous knowledge (Bates, 2015). Constructivists consider knowledge to be essentially subjective in nature, fashioned by learner's perceptions and mutual agreements (Bates, 2015). One of the foremost cognitivist learning models is Bloom's taxonomy of learning objectives which claims that learning takes place in three domains: thinking, feeling and doing and consists of six categories or levels: evaluation, synthesis, analysis, application, comprehension and knowledge (Adams, 2015). Cognitive approaches to learning, are suitable in higher education as well as in school education. Situated learning (proposed by Lave and Wenger) is a cognitive learning model which suggests that learners who are involved in authentic activities can acquire knowledge through real-life situations (Hillen & Landis, 2014). It gives importance to instructional design.

Constructivist approach

Constructivist teaching approaches, unlike traditional teacher-centred approaches, are student centred and do not consider leaners to receptacles who ***passively receive content*** presented by

instructors or course materials. Constructivism is often associated with pedagogic approaches that promote learning through activities, individually supported and actively directed by the learner. Some of the leading constructivists include Piaget, Vygotsky, Bruner, Dewey and Kuhn. Constructivists assume that learning is subjective and knowledge is constructed by learners and not imposed or transmitted by teachers through direct instruction (Ananda, 2015). Some of the models linked to constructivism are problem-based learning (Martin, 2012), a***ctive learning (***Cotner et al. 2013) and authentic learning (Muganga, 2015). It has also influenced Flipped learning (Fulton, 2012) and mobile leaning, (Chen et al. 2015).

New philosophical learning models

Although conventional models exist, e-learning projects are forcing teachers to apply new philosophical learning models and strategies for better communication, to help design suitable pedagogical and instructional approaches, and to deliver knowledge to learners, thereby making conventional philosophical learning models obsolete (Aldhafeeri, Almulla, & Alraqas, 2006; Wang & Shen, 2012). However, this may require making reference to the considerable body of education theories that are relevant, for example: Vygotsky(1978) inspired theories (socio-constructivist approach whereby students learn by doing), Lave's (1993) situated learning (which advocates that learning is unintentional and situated within authentic activities), Lave and Wenger's (1991) communities of practice (where experts and novices gradually acquire new knowledge), and those discussed earlier in this section, namely behaviourist, cognitive, and constructivist which can all be used in conjunction with each other (by taking a pragmatic approach) so that a new philosophical model of learning emerges. This theory can result in student-centred learning, whereby learners are able to construct meaning through their learning.

The Demand-Driven model (MacDonald et al., 2001) which focuses on five key elements for an effective e-learning environment design includes: curriculum, pedagogy, technology, support and interaction, besides an evaluation process which should provide data on defensibility, flexibility, interactivity, convenience and collaboration Institutions can analyse these elements to determine the

performance of the e-learning environment. This model is ideal for current circumstances when education is not supply driven but increasingly becoming demand driven and when emergent technologies are having significant impact on learning (Cheng, 2011).

The use of technology for leaning in the past two decade affirms that e-learning practice has reached a momentum that will make it a central part of future education (Livingstone, 2015). Most of literature in e-learning is practice-based and lacks theoretical underpinning and to fill this gap it is suggested that e-learning requires a new theory of learning (Andrews, 2011). One of the recent models developed by Siemens (2004), is connectivism, which is claimed to be a theory for the digital age (Clara and Barbera, 2013). This theory proposes that "knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks" (Downes, 2007, para 1). The theory assumes that the society where interactions and collaborations take place is complex and yet it is an ideal environment that can facilitate learning and where learners construct actionable knowledge (O'Donnell et al., 2015). The Internet provides the connectivity while learners collate and assimilate knowledge. In other words, connectivism "offers specific technological opportunities for the learner to be actively involved in the presentation of a body of knowledge" (Duke, Harper, & Johnston, 2013, p.9).

An UNESCO working paper reports that the conventional philosophical learning model, which is a behavioural approach, is still prevalent (especially Kuwait and other Arab states) and involves traditional teaching approaches devoid of technology use (Issacs, 2012). The current philosophical learning model or theory that governments rely on (especially in Kuwait) is probably objectivism, where instructors use traditional teaching methods to meet the objectives, and to satisfy the government 's requirements by making students pass governmentally designed and required tests (Alajmi, 2010). This learning model contradicts the constructivist learning theory. The model adopted in Kuwait also suggests that there is a lack of research, empirical evidence and underlying theory development on e-learning in the region.

3.4 Criticisms of e-learning

E-learning is argued to be more effective, less costly and more satisfying to the students than the traditional methods, but critics who claim that it cannot replace certain types of learning which require direct consultant supervision in medical colleges and hospitals, recommend a combination of both traditional and e-learning methods (blended learning) (Aryal & Periera, 2014). Critiques of e-learning also argue that e-learning within educational institutions could fail (Feenburg 2011) because the learning environments are only sources of online content devoid of active learning (Selwyn 2007, Heirdsfield *et al* 2011). It is claimed that although institutions are continuing with the digitization of education provision, technology-based education is market-driven and is not practiced in earnest (Selwyn, 2014). These arguments suggest that educators and administrators have been misguided by false claims that educational technologies are beneficial and can bring about major changes in the way students learn. According to Selwyn (2014), there is a growing distrust and dissatisfaction that educational technology can really contribute to learning. There is the feeling that producers or designers of educational technology are the only ones who benefit from this exercise. The overall argument is that e-learning approaches taken so far have not increased the learning experiences of students.

Another issue related to successful adoption of e-learning is teacher's epistemic beliefs or beliefs about the nature of knowledge (Harteis et al. 2010). The way instructors teach in is driven primarily by their epistemic beliefs or by the universally established consensus within the academic community about what constitutes valid knowledge in a particular subject area. Most educational institutions apply technology in order to support teacher development through e-learning activities. However, an examination of e-learning practices within institutions shows that the full potential of educational technology for teaching and learning is not often fully utilised. In other words, teacher's subjective or epistemic beliefs are neglected. On the contrary, such belief systems are essential for the successful implementation of e-learning in institutions (Harteis et al. 2010).

There is also a lack of definitional and theoretical clarity in understanding e-learning (Qvortrup, 2008). If this is the case in Europe, this study argues that e-learning implemented in Kuwait may be very much hampered by a total lack of understanding of e-learning as a concept. Policy makers may argue that e-learning is a new phenomenon. According to Qvortrup (2008) approaches to e-learning have to be based on theoretical positions which should be made explicit to all stakeholders in the education system. However, policy makers may not either understand the theories or, if they do understand it may not make it explicit to educators and schools.

Another criticism is that of the theories of learning that drive teaching in e-learning environments. Bates (2015) argues that while most learning theories suggest different ways in which individuals can learn, they do not necessarily inform instructors how to teach. The past theories of learning, namely behaviourism, cognitivism and constructivism were not developed for education. Consequently, teachers have always found it difficult to translate theory into practice or apply these theories within an educational experience. On the other hand, they had to develop teaching methods to match the learning theories (Bates, 2015). An evidence-based approach to e-learning, which is positivist in nature, is commonly used to link research, practice and policy together. Therefore, there is a debate about the use of such a philosophy or quantitative approaches in education and there are calls for a more pragmatic approach (Oliver & Conole (2010). However, most evidence-based researchers prefer to carry out theoretically-informed research as it appeals to policy makers. If a positivist approach is used in evidence-based research, results could be distorted to reflect the interests of policy makers. Moreover, if evidence based approach is taken for 'realising' the value of research, the results may not be realistic or valid and will not offer clear-cut answers (Pachler, 2015). Oliver and Conole (2010) suggest that a more eclectic research paradigm is required to address the interests of all stakeholders (policy makers, schools and educators). The paradigm may have to combine theory and practice, and involve active enquiry into innovation as part of professionalism (Pachler, 2015).

In spite of these criticisms, the researcher in this study argues that e-learning is here to stay and can produce better educational outcomes if all stakeholders, including educators and policymakers use educational technologies in meaningful ways.

3.5. Preparing for change and e-learning

Government policy plays a significant role in respect to e-learning as an agent of change in the education sector. The intentions of governments are to engage with the knowledge economy so that nations can become competitive. According to a recent UNESCO publication, it only through e-learning that nations can transition to a true knowledge economy (Yang, Schneller & Roche, 2015). Besides, UNESCO also emphasises that governments have to support, and along with educational institutions, make lifelong learning which encompasses formal, non-formal and informal contexts a reality (de Viron & Davies, 2015). E-learning policy in the UK as well as globally, focuses on making radical changes which are largely technologically based. However, stakeholders' resistance to change in the education sector has limited the use of emerging technologies for educational delivery (Bengtsson, 2013). Research suggests that in order to reach the goals of personalised, collaborative and non-formalised learning (which are all the hallmarks of e-learning), holistic changes need to be made (curricula, pedagogies, assessment, leadership, teacher training, etc), and mechanisms need to be put in place which make flexible and targeted lifelong learning a reality and support the recognition of informally acquired skills (Redecker, Leis, Leendertse, Punie, Gijsbers, Kirschner, Stoyanov and Hoogveld, 2011). In other words, institutions have to prepare for change.

To benefit from e-learning and making effective pedagogical changes, it is argued that educational institutions have to keep in mind that students need digital literacy skills (for example: finding, using and disseminating information using technology which are employability skills) and 21st century skills (for example: inquiry and critical thinking skills) to select and process useful and reliable information from online sources, and communication and collaboration skills to communicate and collaborate with their peers to complete tasks and share outcomes (Hagel, 2015; Kong et al 2014).

It is therefore expected that educational institutions in the near future have to address the development of 21st century skills. The development of such skills should encompass both formal and informal learning contexts, use of both individualized and collaborative learning approaches, and to be supported by evidence of improvement and awareness of progress (Cox, 2013; Huang, Kinshuk, & Spector, 2013). The JISC Developing Digital Literacies Programme, which funded projects in the UK, has also emphasised the importance of 21st century skills and the need for individuals to be digitally literate to be able to access opportunities to live, work and learn in a digital society (Payton 2012). This includes changing not only what is learnt at educational instituions, but how it is learnt, so that learners become co-creators of knowledge and collaborators in networks of research and professional practice (Ferrell, 2011).

If institutions are to be bring about changes, they have to be ready to implement strategies and technology-led initiatives. Therefore, institutional readiness is key for implementing change in schools, for example e-learning in educational institutions (Weiner, 2009). Since e-learning strategies are more important than technology-led initiatives, institutions have to plan and the planning has to include developing skills 21st century skills (Milrad, Wong, Sharples, Hwang, Looi, & Ogata, 2013; Caballero, van Riesen, Alvarez, Nussbaum, De Jong, 2014). Policy makers, on the other hand, have to improve the digital literacy (the ability to locate, identify, retrieve, process and use digital information optimally) of its citizens because it is required to enhance employability and is a catalyst that enables the acquisition of skills (21st century skills) which are essential for actively participation in a society (UNESCO, 2011).

3.6. Barriers to the implementation of e-learning

The success or failure of e-learning implementation in institutions can be attributed to the individual (for example teachers, subject supervisors, administrators, policy makers), the technology or the educational institution. Some of the individual factors that act as significant barriers to adoption and implementation of e-learning are attitudes towards technology, quality concerns, and lack of

motivation to use technology. Barriers related to teachers and or subject supervisors can be training and professional development.

Teacher's self-efficacy or the lack of it is a significant barrier as they may develop beliefs that they are not capable of participating in e-learning. As a result, individuals may not have the confidence to perform tasks specific to e-learning. Self-efficacy is known to affect determination, perseverance, as well as larger effort to overcome training challenges (Garavan, et al.2010). The lack of self-efficacy is a result of the apprehension that students are fast becoming 'digital scholars' who can use technology for research and analysis (Greener & Wakefield, 2015). Inadequate level of eCompetence is one of the reasons for the slow adoption of e-learning in higher education (Allen & Seaman, 2007; Schneckenberg, 2010). Greener and Wakefield (2015) argue that instructors have to increase the pace of learning how to use technologies, and develop the enthusiasm and skill to learn new competencies in digital education. Institutions are responsible to provide proper training and supporting staff to create an effective E-learning environment (Khan & Iqbal, 2015).

Teachers have a role in educational innovation and as they contribute to the design of technology-rich learning material (Cviko et al. 2014). Technology can change teacher's academic identity and research suggests that it cannot only transform teaching practices but also the role of the teacher (Hanson, 2009; Ross et al. 2014). As a result, technology causes teachers to resist the use of technologies, which in turn compels them to establish their relationships with students through face to face interactions. Teachers also fear that if they integrate technology for learning, it may threaten their academic identity by taking away the intellectual capital created by them. According to Hanson (2009), teachers are concerned technology will enable lesser experienced individuals to deliver the teacher-created learning materials. In other words, e-learning has the potential to "prompt loss of teacher presence and displacement as knowledge experts" which may threaten their academic identity (Hanson, 2009, p. 553).

E-learning approaches adopted by institutions do not take into consideration adequate measures to support the delivery of e-learning (McPherson & Nunes, 2008). Institutional barriers or issues are related to lack of user support, lack of training/ professional development for users, readiness assessment, institutional culture / resistance to change, budgeting and return on investment, financial constraints and quality of teaching (Frehywot et al. 2013; Kidd, 2012; Al-Shboul 2013). Successful deployment of technology depends on addressing the pedagogical issues associated with effective quality services such as training, teaching and learning support (Hornos et al. 2012). The findings of a recent study (Thanaraj & Williams, 2014) show that the most common barriers in institutions are the lack of time for learning the use of new technology and to undertake training, lack of experience with technology, and doubts towards the effectiveness of technology within the curriculum. The lack of accessibility and lack of technical support are also barriers that contribute to the lack of engagement with technology in institutions.

Institutions perform a critical analysis to identify critical success factors before starting e-learning implementation through needs assessment, institutions could examine their needs to plan for E-learning goals (Khan & Iqbal, 2015). Failure to measure readiness factors, for instance finances, infrastructure and cultural readiness can result in failure (Kurniabudi, Assegaff & Buhairah, 2015). The quality of teaching is also crucial for a creating a meaningful learning environment (Bhuasiri, Xaymoungkhoun, Zo, Rho, & Ciganek, 2012; Park and Choi, 2009). Most importantly, the technology chosen to deliver e-learning has to be appropriate. Technological limitations are related to software and hardware costs and maintenance, and security concern about content delivered through the web browser (Kim, 2013; Cook & Triola, 2014). Another barrier related to individuals is policy maker's control of teachers over pedagogy and the curriculum (Mee, 2007; Searson et al., 2011). This instils fear in teachers who feel that they may lose control over the content and its delivery.

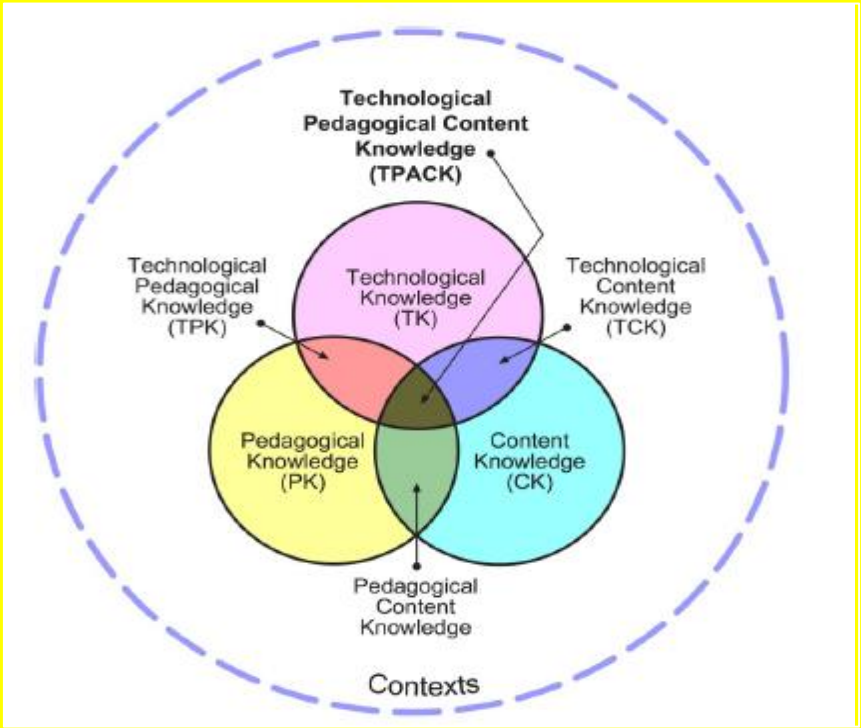
3.7. E-Learning and Readiness

Readiness or preparedness of students and teachers for e-learning has been examined by using various approaches. In order to examine the state of preparedness of teachers to use e-learning, it is necessary to examine their attitudes, technical competency (computer-use skill and Internet navigation skills, skills in using online instructional technology), technical knowledge (for example, knowledge of computing and network skills, managing software, searching for online information, and performing basic software functions), personal characteristics (i.e., age, gender, institutional culture, experience), individual attributes (for instance motivation, procrastination, willingness), and learner control (Albion et al. 2010; Saravani & Haddow, 2011; Keramati et al., 2011; Kidd, 2012; Al-Shboul 2013; Kovalik et al. 2013; Koh et al. 2014).

Researchers have used different ways to define levels of teacher proficiency in using technology for learning and teaching, which include indicators (Kovalik et al. 2013), the TPACK (Technological, Pedagogical, and Content Knowledge) framework that uses descriptors of teacher knowledge and skill (Schmidt, Baran, Thompson, Mishra, Koehler & Shin, 2009; Albion et al., 2010; Ho & Albion, 2010; Koh et al. 2014), and Technology Acceptance Model (TAM) (Al-Adawan et al. 2013; Tarhini et al. 2013; Liu et al., 2010; Saravani & Haddow, 2011).

The TPACK consists of three components or bodies of knowledge which are pedagogical knowledge, subject or content knowledge, and technological knowledge (Koehler & Mishra, 2009). The original TPACK model was modified and additional components were included, namely technological pedagogical knowledge, technological content knowledge, and pedagogical content knowledge (see: Figure 1).

Figure 1: TPACK



The TPACK has been adapted by researchers and has been used to measure confidence (for example Albion et al. 2010). This detailed instrument consisting of 150 items was designed to measure "interest in and attitudes toward using ICT; confidence to use ICT for specific teaching and learning tasks (TPACK); competency with ICT applications; Technology Knowledge (TK); and their TPACK Vocational Self-efficacy" (p. 3772).

Research has shown that teachers' attitudes towards technology influence their acceptance of the usefulness of technology and its integration into teaching. The Technology Acceptance Model (TAM) has been widely acknowledged to be used in the e-learning context due to its explanatory power (Park, 2009; Liu et al. 2010). TAM explains how and when users come to accept and use technology. Acceptance is the important factor that determines preparedness and ultimately the failure or success of e-learning implementation. However, it is unclear whether the model can be used in Arab countries for examining e-learning preparedness (Tarhini et al. 2013). The model has been criticised for its cultural bias especially when tested in countries other than those in the West (McCoy et al. 2005; Srite & Karahanna, 2006; Tarhini et al. 2013). TAM is a significant theory whose lens may be used to observe the preparedness of lecturers to use e-learning (Ai-Adawan et al. 2013)

E-learning readiness has been defined as how prepared stakeholders or institutions are to implement e-learning (Ehlers, Sammour and Schreurs, 2008). It incorporates a number of different aspects and should be assessed before e-learning is introduced (Ehlers, Sammour & Schreurs, 2008), indicating that it is a characteristic that should be measured prior to the propagation of e-learning. It includes students' capability to adapt to changes in technology, collaborative synchronous e-learning and asynchronous, self-paced learning. It is dependent upon students' discipline and motivation to engage in a self-driven learning experience and respond to instructions that are issued via the Internet (Ehlers, Sammour & Schreurs, 2008).

It is not only students who have to be prepared for e-learning; institutions and their staff also need to be ready for this development. According to Ehlers, Sammour and Schreurs (2008), in order for an institution to be classed as being ready for e-learning, it needs to display economic readiness, which is its willingness to invest in the necessary measures that are used in order to facilitate the adoption of this learning method. The institution also needs to exhibit technological readiness, which refers to putting technological systems in place that are capable of facilitating e-learning, and human readiness, which is the skills and knowledge of the staff.

In addition to these points, 'e-maturity' was identified as a component of both individual and institutional e-learning readiness (Ehlers, Sammour & Schreurs, 2008). Naace (2007) defines e-maturity as the ability to apply information computer technology in a strategic and discriminating manner, taking a balance of alternatives and advantages into consideration. It is essentially the quality of being able to decide when to use e-learning and when to opt for other teaching methods. It also entails incorporating e-learning into lessons in a manner that improves the students' intake of knowledge.

Chapnick (2000) stated that there are eight different components of e-learning readiness: technical skill readiness, content, equipment, financial, human resource, environmental, sociological

and psychological. An institution can be assessed according to each of these factors in order to gain a picture of its overall readiness for e-learning (Chapnick, 2000). The main way in which this framework for defining e-learning readiness differs from that what was suggested by Ehlers, Sammour and Schreurs (2008) is that social and psychological preparedness also play a major part. This indicates that it is insufficient for subject supervisors to merely be knowledgeable about e-learning; they need to be in the correct mental state to implement it and a suitable socio-cultural environment needs to exist in order for this variety of learning to be able to flourish within an institution. Since e-learning centres learning around the student, subject supervisors require not just training but also the awareness that there is a difference between what learners know and what they need to know. This may result in the creation of excellent training (Chapnick, 2000).

The notion that the mind-set of the stakeholders, such as or subject supervisors, to resist change is a major component in readiness for e-learning has also been expressed by Nihuka & Voogt 2012). The authors identified the reluctance of teachers to put their courses into an electronic format and their preference for traditional methods despite having access to newer technologies. This supports the idea that subject supervisors who represent the Ministry of Education and the schools need to be prepared both in terms of the systems that they have in place for facilitating e-learning and with regards to the psychological condition and attitudes of their employees. It suggests that the thought processes of staff members are just as important as physical processes that have been established in order to accommodate the implementation of this type of learning. According to Krishnakumar and Kumar (2011), for people to be classed as being ready for e-learning, they need to have mind-sets that are characterised by the will to learn and improve. They also need to be willing to get to grips with new technology. This indicates that these criteria are key components of e-learning readiness that should not be overlooked (Krishnakumar & Kumar, 2011).

Afshari-Mofrad, Kamrani and Keramati (2011) also proposed a number of subcategories of readiness for e-learning. However, they only developed three subcategories as opposed to Chapnick's eight. These categories were social, organizational and technical. 'Social' refers to the attitude and

culture of the staff, 'technical' refers to their technical knowledge and resources and 'organizational' refers to the school's ability to put a structure in place that is capable of accommodating this new form of learning (Afshari-Mofrad, Kamrani & Keramati, 2011). It could be argued that all of the subcategories that Chapnick suggested are incorporated within these three classifications.

All of the literature about readiness for e-learning indicates that a necessary institutional structure needs to be put in place in order to accommodate this type of learning. This indicates that readiness for e-learning is the extent to which an institution is prepared for e-learning both in terms of its students, its infrastructure and in terms of the overall culture and mentality of the staff (Kidd, 2012; Al-Shboul 2013). According to Fullan and Donnelly (2013), merely acquiring a technology may not result in improved learning and may require changing the underlying practices and approaches. This suggests that although institutions may have implemented e-learning students and teachers may not have not integrated the technology for learning and teaching, thus reducing its potential impact. Therefore, e-learning readiness has to be assessed from the point of view of the stakeholders involved and the institution.

An individual's readiness includes assessing the knowledge, adaptability and ability to get to grips with the technology. The Technology Acceptance Model (TAM), and other related adaptions of the model, provides techniques for learning more about students and teachers' level of readiness for change to accept new technology (Abramson et al., 2015). On the other hand, another model 'readiness for technology adoption' focuses on institutional-level characteristics affecting the deployment of new technology. It refers to the capacity of an institution to implement a new technology, make it reliably available for use, and train users to effectively employ it (Karp & Fletcher, 2014).

To sum up, the overall academic performance of an institution may improve if all stakeholders are deeply involved. Thus, e-readiness in educational institutions includes students' capability to accept and adapt to changes in technology, training teachers, the need for institutions to exhibit

technological readiness or ‘e-maturity’, financial support, social and psychological preparedness, and the mind-set of people involved. However, readiness may also have to also include institutional policies and practices that support and develop students’ uses of technology for learning (Karp & Fletcher, 2014).

3.7.1. E-**readiness Models**

Bimar (2009) stated that there is a limited number of tools used to assess e-readiness and this fact forced a lot of governmental and international organisations to use e-readiness assessment tools for countries (Al-Solbi, 2005). However, a number of models for e-readiness assessment of countries have been developed by different organizations. Each model measures how ready a society or economy is to benefit from information technology in various fields. These models mainly are categorised in four categories as: ready-to-use tools available on the web, case studies, third party surveys and reports which rank and rate countries and other e-readiness assessment models (Hourali, et al., 2008). Therefore, it could be expected that an assessment model is unlikely to cover all topics and deliver a whole set of required data. Generally, e-Readiness assessment models cover one or more of the following topics: physical infrastructure, ICT use, human capacity, policy environment and ICT economy (Zaied et al., 2007). There are a number of proposed e-readiness assessment models and tools developed to measure a country’s e-readiness. These models which are discussed below have similar purposes yet different indicators to measure e-readiness.

APEC (2000): The key indicators of this general framework are basic infrastructure and technology, access to necessary services, current level and type of the internet, promotion and facilitation activities, skills and human resources and positioning for the digital economy.

Bridge.org (2001): The purpose is to build an e-readiness assessment model and the indicators are the number of users or computers, infrastructure, access, affordability, training, relevant content, poverty, IT sector, geography, race, age, religion, gender and disability.

Economist Intelligence Unit (2001): This model is used to assess and rank a country's e-readiness. The main indicators of this model are connectivity (30%), business environment (20%), e-commerce

consumer and business adoption (20%), legal and regulatory environment (15%), social and cultural infrastructure (5%), and supporting e-services (10%).

United Nations Economic Commission for Europe (2002): Tthis model recommends interdependent and mutually reinforcing categories of indicators to assess e-readiness. Its key indicators are network access, networked society, network policy, media, networked economy, networked learning, intellectual capital, labour force, research and development and education.

Applied Research and Communications (ARC) (2002): This model was used to assess the Bulgarian e-readiness and its main indicators are network access, e-education, e-society and e-economy.

Center of International Development at Harvard University (2002): This can be used to develop an e-readiness assessment model. The main indicators are network access, networking learning, networked society, networked economy and network policy.

Ifinedo (2005): This model classifies the indicators of e-readiness assessment which are demand forces, measuring the supply forces and societal infrastructure.

Peters (2005): This model summarises the criteria used in assessing a country's e-readiness and its indicators are Legal and regulatory environment for ICT use, appropriateness of ICT, affordability of ICT in the local context, ICT capacity and training, availability of locally relevant content and services, use of ICT in business, integration of ICT into peoples' lives, physical access to ICT, socio-cultural factors that affect ICT use, security and peoples' trust in ICT, macroeconomic environment affecting ICT use; and Government's role in driving e-readiness.

In the Middle East each country has its own unique cultural characteristic that affects its e-readiness factors. National policies regarding information infrastructure and technological developments have often been noticeably similar, however each nation should identify its own e-readiness factors (Al-Solbi, 2005).

E-readiness models have been subject to a lot of criticisms. The indices of countries indicating their readiness do not reflect the magnitude of the problems existing. The lack of standardisation is another problem; each tool has its own advantages and disadvantages. The individual characteristics of each country are not considered. Therefore, there is a large gap between theoretical frameworks and practical implications. Measures used in determining e-readiness for countries often do not represent the real situation. Therefore, final results of e-readiness are not always accurate and misunderstood by policy makers (Dada, 2006). Therefore, from the critiques found in the literature concerning e-readiness models, it could be concluded that a country may have the entire required infrastructure that enables it in gaining a high e-readiness rank, yet its society is not yet ready to use a specific technology.

Despite the intermediate technological readiness present in Kuwait in terms of the percentage of individuals using the Internet, the high ranks of Internet bandwidth available could be an encouraging factor for technology adoption. Since e-readiness models are criticised by not reflecting real country readiness for technology, there is a need to have a deeper look in order to analyse the readiness of stakeholders in the Kuwaiti schools system towards e-learning adoption in terms of driving forces (contributors) and opposing forces (inhibitors).

3.8. E-Learning Readiness Measurement (through development of surveys)

Educational institutions that implement e-learning have to only be well prepared but also know if they are e-ready. Literature on e-readiness suggests that there several strategies, models and instruments for assessing the readiness of institutions to adopt and implement e-learning (Okinda, 2014; Aydin and Tasci, 2005; Chapnick, 2000). Although it could be argued that readiness is wholly subjective, a number of different methods have been suggested for measuring characteristics that are related to it. However, questionnaire surveys are one of the most common methods used to assess the perception of e-learning within an institution (Pinto & Anderson, 2013; Watkins, Leigh, & Triner,

2004), the extent to which the staff are prepared for e-learning with regards to their skills (Ehlers, Sammour & Schreurs, 2004) and the degree to which staff are ready for this variety of learning in terms of possessing a positive attitude towards it (Kyalo & Mulwa, 2013).

Watkins, Leigh, & Triner (2004) assessed a number of different surveys that have been administered for the purpose of measuring readiness for e-learning in order to determine the standard characteristics of these surveys so that their construct validity and consistency could be assessed. The majority of the surveys that they looked at involved filling in multiple-choice questions and the results being quantitatively assessed. The number of questions ranged from six to forty-seven and each of the surveys was intended to be carried out online. The exact questions that were asked were not listed in Watkins, Leigh, & Triner's (2004) assessment. The majority of the surveys involved a five-point Likert scale for each question and results were obtained by calculating the percentage of participants who opted for each response. It was concluded that most of the surveys were likely to have a high degree of validity, as attention was paid to structuring them so that the questions were unambiguous and non-leading and it was obvious what the subjects had to do (Watkins, Leigh, & Triner, 2004). However, it is notable that Dolnicar, Grun and Leisch (2011) have criticized Likert scales by stating that the fact that different participants will use different response styles when deciding upon which of the options to pick could bias the results. For example, one participant may rate his readiness for e-learning as poor based upon the fact that he has not completely mastered it, whereas another might be less self-critical and rate his readiness as good despite them both being at the same level. The surveys that were included in Watkins, Leigh, & Triner's study were all intended to assess students' readiness for e-learning as opposed to that of staff (Watkins, Leigh, & Triner, 2004). This indicates that they might not be suitable for utilising in order to assess the extent to which subject supervisors are prepared for e-learning, as the factors that dictate students' preparedness are not likely to be the same as those that apply to members of staff. The findings of the study by Watkins and colleagues show that connectivity, capability, culture and content are all important for the successful implementation of e-learning. Nevertheless, the authors also found that the e-learner is not always ready for indulging in carrying out tasks online and that the learner may need teachers to facilitate

the learning process. It can be argued that if teachers are to facilitate learning, they may need training and adequate developmental support from technical staff or external mentors such as subject supervisors (Hobson et al., 2015; Hobson and McIntyre, 2013).

Okinda (2014) developed a detailed system for using surveys to measure readiness for e-learning. It involved asking participants to assign a rating for the extent to which they agreed with the statement that their institutions were ready for e-learning in five different areas using a Likert scale with five points for each area. The five areas were readiness of individual learners, content, I.T. technologies, organizational culture and organization and industry (Okinda, 2014). However, it is notable that in the context of education, this neglects other factors that might affect readiness, such as staff's attitudes and financial resources. Okinda's (2014) system involved classing the responses of 'strongly agree' and 'agree' as agreement and the responses of 'disagree' and 'strongly disagree' as disagreement and working out the percentage of individuals who agreed and disagreed with the statement that their institutions were ready for e-learning with regards to the five different areas that the survey focussed upon. The population sample consisted of a mixture of lecturers and students. One hundred and seventy-two people responded to surveys that were given to a total of one thousand seven hundred and twenty-four people. The study enabled an insight to be gained into the dominant attitudes concerning issues relating to e-learning readiness. Ten percent of the overall population that Okinda studied returned questionnaires. The findings of the study show that students were ready for e-learning, the institution's ICT infrastructure was complete, for instance availability of wireless internet connectivity and resources, well-developed content and supporting institutional culture. He developed conclusions and recommendations based upon the information that was gathered and aggregated the five different areas that he studied in order to ascertain the level to which the participants believed their overall readiness for e-learning was at (Okinda, 2014). However, the author had not demonstrated evidence of internal consistency and construct validity of the questionnaire scales and therefore the items were not adapted for the current thesis.

Ehlers, Sammour & Schreurs (2008) also used a Likert scale but developed a survey in which participants were invited to rate a number of different factors related to e-learning on a scale from one to four in terms of their importance, the level of skill that the respondent believed that he or she displayed, the quality of related e-learning facilities and the way in which the given area of e-learning was evaluated. The factors that they were asked to rate were learning resources, e-learning solutions investment, learners, enabling the learning process and learning results. The researchers believed that it was important to gauge participants' perceptions of the resources and investment, as previous studies demonstrated that e-learning can be held back by insufficient resources and funding. They stated that readiness in terms of learners centred on their learning styles and competence and that enabling the learning process involved the time allocated to learning and the way in which it was facilitated (Ehlers, Sammour & Schreurs, 2008). The results are clearly also a major consideration when assessing e-learning success. No questions were asked; the participants were simply presented with these factors and asked to rate how ready their institutions were in terms of e-learning with regards to each of them. The study concluded that the institutions that they studied had major deficiencies in terms of the learning resources required to implement e-learning. They deemed their method to be suitable for measuring e-learning readiness (Ehlers, Sammour & Schreurs, 2008). Like in the case of Okinda (2014), the authors (Ehlers, Sammour & Schreurs, 2008) had not demonstrated evidence of internal consistency and construct validity of their scales. Hence, the items were not adapted for the current thesis.

The common ground between the techniques that were proposed by Okinda (2014) and Ehlers, Sammour and Schreurs (2008) is that they both involve collecting quantitative data. However, in this thesis, the questionnaire also included few open-ended questions. According to Hlebec, Manfreda, Reja and Vehovar (2003), the advantage of using open-ended questions is that they allow for specific information to be gathered that respondents would not otherwise have the opportunity to provide. Although most surveys collect quantitative data, it is important to analyse the psychometric properties of these instruments.

The psychometric properties of Chapnick's instrument is not discussed here as it is outdated. Aydin and Tasci (2005) developed a research instrument (E-Learning Readiness Survey) to assess the e-learning readiness of Turkish companies through the use of a five-point response Likert scale consisting of 30 items across four dimensions namely, innovation, personal development, technology, and people. Cronbach's Alpha showed that the reliability of instrument was quite high (0.92). Watkins, Leigh, & Triner (2004) have stated that surveys can be utilised in order to assess the extent to which organisations and institutions consider themselves to be ready for e-learning. This allows the staff at institutions to self-define their successfulness at implementing e-learning experiences. Watkins, Leigh, & Triner (2004) have demonstrated evidence of internal consistency and construct validity of their readiness scales which comprises of technological skills, online discussion, access to technology, motivation, which are all crucial for the success e-learning implementation. It is a method that has been utilised in a multitude of different studies, including Al-Furaydi's (2013) research into the e-learning readiness of EFL teachers in Saudi Arabia, which involved administering surveys to teaching staff, and Akaslan and Law's (2011) study of the e-learning readiness of university students in Turkish universities, which involved administering surveys to the students. The authors (Akaslan and Law, 2011) used a confirmatory factor analysis (CFA) to determine the construct validity of their items which compromised of technology (hardware, software, stability), people (attitude towards technology, confidence in using technology, experience in using technology), content (theory and practice), acceptance (perceived usefulness and ease of use) and training. Pillay, Irving, & Tones (2007) assessed readiness of tertiary students for online learning an Australian higher education using a seven-point response Likert scale consisting of 20 items. A confirmatory factor analysis (CFA) was used to determine the construct validity of the items. Items from the scales developed by Aydin and Tasci (2005), Watkins, Leigh, & Triner (2004) and Akaslan and Law (2011) were used in developing the questionnaire for the current thesis to measure e-readiness of subject supervisors in Kuwait. The rationale for selecting these three studies and adapting the scales was that the developed by the authors had proven the validity of their respective instruments.

Kyalo and Mulwa (2013) have stated that attitudes towards e-learning can also be measured in order to gain an insight into readiness for e-learning. As previously stated, the skills required for e-learning involve an attitude that is characterised by enthusiasm. Kyalo and Mulwa (2013) assessed attitudes when measuring the readiness of e-learning among Kenyan secondary schools and administered surveys to teachers and students in order to do this. Readiness for e-learning can be assessed by getting staff members and students to fill in questionnaires and getting them to rate their attitudes with regards to a number of different areas of e-learning (Kyalo & Mulwa, 2013). According to Aydin and Tasci (2005), staff possessing negative attitudes towards the implementation of this form of learning is a major indicator of lack of readiness. They have stated that negative attitudes include scepticism towards technology and cynicism towards potential for self-development (Aydin & Tasci, 2005). However, the researchers claimed that the characteristics of individuals, for example age, gender, age, education, and computer experience, do not have an effect on peoples' perceptions of readiness for e-learning (Aydin & Tasci, 2005).

To sum up, the current study assesses e- readiness by administering surveys to subject supervisors and teachers followed by interviews. These measures are expected to provide an indication of the level to which subject supervisors are ready for e-learning in Kuwait. The survey also measured negative attitudes of subject supervisors in conjunction with their overall feelings of preparedness and knowledgeableness.

3.9. Assessing Readiness of Subject Supervisors in E-Learning

E-learning readiness for students and teachers have been examined in several studies, but the current study which investigates the readiness of subject supervisors in Kuwait schools is an addition to that assemblage. It is assumed that the issue of assessing the readiness of subject supervisors may be the same as that of instructors in e-learning. Although it is well documented that e-learning can assist educational institutions to advance academic goals, it is important to note that e-learning initiatives fail to take effect because of resistance and scepticism towards new technologies. Some of

the domains which have been suggested for consideration when assessing the readiness of e-learning are the knowledge, digital literacy, technical and educational competencies, experience and attitudes of staff, individual's characteristics, and motivation. Cultural readiness is also an important factor (Mafenya, 2013; Azimi, 2013). The readiness of subject supervisors who are expected to support e-learning initiatives cannot be overemphasised, as their role is fundamental to the adoption and use of new technologies and pedagogical methods (Marimo, Mashingaidze & Nyoni 2013).

Kolat (2014) surveyed district superintendents to investigate the nature of, reasons for, barriers and benefits of implementing blended and online programs in 24 traditional public school districts of three rural counties in southwestern Pennsylvania (U.S.A). A survey instrument modified from a previously implemented survey (Picciano & Seaman, 2009) was administered to 25 school district superintendents representing all traditional public school districts within the three-county area. Consistent with reasons schools implement blended and online learning, superintendents reported that they wanted to meet the needs of students, and providing access to courses otherwise unavailable as traditional courses. The study also found that superintendents felt students need more discipline to succeed in an online course than in a traditional, face –to-face course or blended course. Superintendents identified the greatest barriers to offering online courses as concerns about course quality, online course development, and the need for professional development of existing staff members. However, superintendents of this study did not identify limited technology skills of building administrators as a significant barrier to implementing online learning.

3.10. Role and identify of school or subject supervisors/inspectors: An international perspective

There is a paucity of research on the role of subject supervisors in Kuwait and therefore there was the need to review literature from the West. There is a growing body of research showing that school supervisors or school district superintendents in the Unites States or local authority inspectors in the United Kingdom are highly influential in the decisions policy makers or school districts make when they allocate resources to schools. These supervisors use political power to influence decision-

making. In the case of Kuwait, the policy makers give authority to these supervisors to implement e-learning.

School district superintendents in the United States of America

The role of school-district superintendents in the United States of America has evolved since the introduction of the position during the middle of the 19th century. As the changes took place over the period of a century, the purpose of schooling was redefined, shifting from simply ensuring that students were literate and numerate to broadening access and nurturing understanding of the American society and established values and beliefs (Bjork, Kowalski & Browne-Ferrigno, 2014). Economic, social, political and technological changes that ensued over successive eras continued to influence how superintendents' work was defined. The school reform movement that began in earnest in the last decade of the twentieth century heralded a return of the superintendent to matters of instruction and student achievement. Once again the superintendent was being caste in the role of "lead teacher" and superintendents were expected to inspire and train building level leaders, rather than merely manipulate the learning environment with first order change activities such as changing the school class schedule, adopting new curriculum, or modifying the student achievement structure selectively through tracking. Initially, they were regarded as teacher scholars who focused their efforts on academic quality. When the size and complexity of school districts exceeded the capacity of school board members to provide direct oversight of school district affairs, superintendents became managers or chief executive officer (CEO). Roles that were prominent in one era were eclipsed in another, but none of these roles has disappeared. Rather, they became less conspicuous as dictated by a shift in demands on the office or by the determination of the school boards and communities they serve (Bjork, 2005). Bjork identified this change in the superintendent's role in the following manner:

> Thus, the superintendent that articulates the district's goals and then makes structural changes consistent with them in such areas as evaluation and rewards for performance, staff recruitment, selection and socialization, rules and regulations sends important messages and role cues to participants at the lower levels in the organization. In this way, the school

> superintendent may be able to have a more direct influence in changing the behavior of principals and teachers at the building and classroom levels. (p. 10)

A review of the literature provided several contemporary research studies with findings concerning the superintendent and student learning (achievement). Waters and Marzano (2006) conducted a meta-analysis of research concerning the effect of superintendent's leadership on student achievement. The first finding was that district level leadership matters …found a statistical significant relationship (a positive correlation of 0.24) between district leadership and student achievement. The second finding was effective superintendents focus their efforts on creating goal-oriented districts …researchers also identified five district-level leadership responsibilities that have a statistically significant correlation with average student academic achievement. All five of these responsibilities relate to setting and keeping districts focused on teaching and learning goals. (p. 3)

Cuban (1976) identified the superintendent's roles as follows:

> Few people question the importance of the superintendent to the future of a school system. A superintendent somehow influences directly and indirectly the board of education, the bureaucracy he manages, the staff he heads, and the students he is responsible for. What a school chief does and does not do in these areas affect the community. In short, most educators, board members, teachers, and members of the community believe that a superintendent makes a difference in their children's education (p. 7) .

The last part of the quote above, "superintendent makes a difference in their children's education" is at the heart of this qualitative study. Regardless of the other dimensions of the superintendent's role, the ultimate standard for superintendents' success will be based upon how a superintendent "makes a difference" in student achievement.

A national, unitary system of education does not exist in the U.S. in the way that it does in Kuwait where education is centralized and controlled through a ministry of education and operates under the

auspices of school districts. In the U.S, the local school district is the basic administrative unit in state education systems (Bjork, 2005). The superintendent serves as CEO of the district and manages its day-to-day affairs. They are typically hired on multiple-year contracts (usually three years in length) and serve in two to three districts over an average career spanning16 years (Kowalski et al., 2011).They have a central office staff (middle management) that varies in size according to population of the community served. The variation in district size thus influences the degree to which the superintendent engages directly in activities within individual schools or oversees the work completed by central office staff (Bjork, 2005).

Superintendents' managerial role has remained a central aspect of their work for decades (Kowalski et al., 2011). In small districts, for example, the superintendent may be very involved in the management of food service and transportation, while in larger districts additional staff may be responsible for these services (Kowalski et al., 2011). As the CEO of the school district, the superintendent is responsible for ensuring that legislated mandates, policies and regulations are implemented properly and for providing oversight and support to local schools. Their duties thus include: advising the board of education on education and policy matters; making recommendations to the board regarding personnel hiring; ensuring compliance with directives of state and federal authorities; preparing district budgets for board review and adoption; leading long-range planning activities; providing oversight of instructional programs and student performance; determining the internal organizational structure of the district; and making recommendations regarding school building maintenance and new construction needs (Kowalski, 2006).

The superintendent also enacts the role of a democratic leader which encompasses two dimensions. First, the contemporary superintendent leads democratically by galvanizing diverse stakeholders (teachers, parents, board members, policy makers, etc.) in support of school district initiatives (Kowalski, 2006). Second, engagement with these individuals and interest groups requires an

understanding of the nature of organizational politics and an ability to work in shifting contexts (Kowalski, 2006). In order for superintendents to be effective democratic leaders, they must understand the multiple and diverse interests of the community as well as how they may politically influence district policymaking processes. Because politics in organizations largely occur when decisions are made about the allocation of scarce resources (Bolman & Deal, 2008), the contemporary superintendent must understand the interplay between individuals and or groups who vie for scarce resources (Blase & Bjork, 2010).

Superintendents recognize that conflict in school and district organizations is inevitable (Blase & Bjork, 2010), and leading democratically requires a distinct skill in order to enhance superintendents' effectiveness (Bjork & Gurley, 2005; Kirst &Wirt, 2009). Policy and decision-making processes are inherently political as they determine who gets what, when, and how (Kirst & Wirt, 2009). Consequently, individuals and interest groups that compete for scarce resources attempt to influence policy-making processes, which may result in conflict. If conflict is too severe, it can be destructive and ultimately undermine the organization. However, if conflict is embraced as a natural aspect of organizational life and managed constructively, it can lead to creativity and innovation (Bolman & Deal, 2008). Kirst and Wirt (2009) persuasively argue that contemporary superintendents must be adept at responding to the needs of the communities they serve and be able manage conflict. They observe that the role of the superintendent may be defined as a power-sharing politician, able to navigate a rapidly shifting political landscape and handle conflict in constructive ways through coalition building (Kirst & Wirt, 2009). The broad role of power-sharing politician suggests superintendents possess a wide array of political skills.

The superintendent role as applied social scientist was added as a distinct dimension to superintendents' responsibilities when scholars recognized the scope of societal factors that impact decisions and influence the success of school district education initiatives (Kowalski, 2006). Contemporary "superintendents are expected to have expertise necessary to deal with the effects of

poverty, racism, gender discrimination, crime, and violence" (Kowalski, 2006, p. 46) on children and academic achievement. For example, between 1955 and the 1980s, the expectation that superintendents have a broad understanding of these influences changed their administrative preparation disciplines to include the areas of psychology, sociology, anthropology, economics, and criminology so that superintendents could better understand problems and improve education for all children (Bjork & Kowalski, 2005; Kowalski, 2006). Today, systems theory is more prevalently taught to enable aspiring administrators to understand the complex relationships between multiple societal factors that influence schools, learning, and teaching (Bjork & Kowalski, 2005).

Contemporary superintendents are expected to utilize research findings to address a wide array of the societal problems encountered in their work (Kowalski, 2006). Thus, the role of the superintendent as an applied social scientist is viewed as an essential dimension of their work in overcoming the effects of poverty, crime, discrimination, etcetera that impact public education. Effective superintendents utilize research findings to better understand the nature and scope of problems as well as form viable solutions (Kowalski, 2006). The implementation of solutions may naturally be very difficult, but also politically and emotionally charged (Kowalski, 2006). Consequently, the contemporary superintendent must understand multiple and diverse perspectives of parents, teachers, students, and community citizens to successfully craft, facilitate, and sustain change strategies.

The superintendent role of communicator is a recent addition to contemporary descriptions of the dimensions of their work. This role heightens attention to their need to serve as effective communicators with multiple stakeholders and is essential as collaborative work environments become the norm (Kowalski, 2006). This role is particularly important as superintendents are expected to not only build collaborative cultures with the increasingly diverse communities, but also to communicate effectively with these diverse cultures (Hoyle et al., 2005). Effective communication may yield a healthy and responsive culture, while on the other; ineffective communication may fuel a toxic culture that undermines the purpose of the organization. Effective communication creates a

culture which in turn fuels either positive or negative communication patterns. Attention to maintaining positive communication channels has become increasingly important in an environment of continual change. In these circumstances, in order to change and improve the local school district as a whole successfully, it is essential that superintendents assume a leadership role that creates, nurtures, and sustains communication with a wide array of stakeholders throughout the change process. Kowalski (2005) posits that "necessary improvements are highly improbable unless negative school cultures are transformed through communicative means" (p. 106).

The work of contemporary superintendents has become increasingly complex and more demanding because local, state, and federal reforms mandate that all students are prepared to meet the demands of the 21st century global economy. (Kirst & Wirt, 2009; Kowalski et al., 2011). The complexity of this work is heightened by the condition of student socioeconomic status and circumstances associated with an increasingly diverse population (Kirst & Wirt, 2009). Some of the problems superintendents face are persisting and intractable. According to Kowalski et al. (2011), these problems are: (a) financing schools, (b) school board relations, (c) assessment of student learning outcomes, (d) planning and goal setting, (e) changing priorities in the curriculum, (f) management problems, and (g) accountability and credibility. In sum, superintendents must be cognizant of a wide array of economic, social and political changes unfolding in the nation as well as the state where they serve; be well-versed in national, state-level and local policy initiatives; and have the capacity to translate that knowledge into a systemic implementation plan that will withstand the rigors of continuous public inspection and criticism. Consequently, the nature of superintendents work is as complex as it is intense, requiring multiple and diverse roles (Bjork, 2005).

The superintendents were very powerful when they had the ability to, and chose to, use their sizeable knowledge resources and access to decision-making (Hess & Meeks, 2011). Decision-making in school districts is ultimately then about interests and how to protect them. School superintendents in the U.S use power strategies to leverage their resources and gain influence so that the outcomes of

decision-making protect their organizational interests (Kowalski, McCord, Petersen, Young, & Ellerson, 2011). These decisions are based on the demands of the public, the expertise and experience of the policymakers, the context in which the decision is being made, and the personal characteristics of the individuals in control. A number of factors shape actors' access to power resources and strategies, and determine whether those strategies are successful in affecting the outcomes of decision-making (Kowalski, McCord, Petersen, Young, & Ellerson, 2011). Some of these factors are context-independent, and do not vary from district to district. Other factors are environmental.

Unlike in the case of Kuwait, the role of the superintendents in the U.S is to implement and manage the school boards' decisions, inform members on district operations and status, write district policy based on board priorities, and handle operations such as budget and finance, human resources, facilities and maintenance, transportation, food services, special education compliance, and curricular decisions (Kowalski, 2006). The superintendent is also a district's instructional leader, often its chief politician, and more recently its applied social scientist (Petersen & Barnett, 2005). The position requires maintaining relationships with the school board, district employees, and organized groups like unions, parent organizations, and community groups. Even the most successful superintendents do not have enough individual power to accomplish their goals, so these connections are crucial (Petersen & Fusarelli, 2008).

School boards generally perceive superintendents as trustworthy experts: they frequently seek and often defer to the superintendent's professional expertise (Hess & Meeks, 2011), and nearly always pass superintendent-recommended agenda items (Kowalski, et al., 2011). In turn, superintendents do not feel that their effectiveness is significantly inhibited by the board and are willing to encourage shared decision-making because they see more power in collaboration than in authority (Maeroff, 2010).

A positive relationship, however, does not automatically mean that actors are not using power strategies. Superintendents may feel constrained by the values of a powerful school board and therefore only propose policies that they know the board will pass (Kowalski, 2006). Along with

financial management and success in achieving goals, the school board-superintendent relationship is weighted very highly by school boards when they evaluate the superintendent (Hess & Meeks, 2011); superintendents may be motivated by concerns over their own job security and be particularly attentive to the demands of a powerful and popular board (Maeroff, 2010).

It has been concluded that the distribution of power favours superintendents (Kowalski, 2006). First, more than half of the responding superintendents said that either they or the central office staff had the lead responsibility for developing policy, while the board assumed that role only eight percent of the time. Approximately a third of the superintendents reported that power was shared. Second, more than half said that the board's primary expectation of the superintendent was to be an educational or political leader, while only 36% reported the board expected them to fill their traditional role as the district's managerial leader. Third, superintendents take advantage of their role as mediator and communicator between the community, the board, and the district staff (Kowalski, et al., 2011). While these results suggest that the superintendent may be comparatively more powerful than the board, this does not necessarily imply that he is the most powerful actor in the district.

Local authority inspectors in the United Kingdom

The present system in England comprises not only existing Local Education Authority (LEA) maintained schools, but a raft of free schools and academies- independent from LEA control and free to innovate in terms of their curriculum.

Inspection has been a feature of the education landscape in England since its inception in 1838. The creation of Ofsted (The Office for Standards in Education) in 1992 marked a shift in the culture of inspection in England, placing a far greater emphasis on regulation rather than upon its former focus on development and advice. Today's Ofsted is a highly complex multi-layered organisation: in the current regime 2700 inspectors are contracted and trained by three agencies. The function of the agency is, 'To promote improvement and value for money in the services we inspect and regulate, so

that children and young people, parents and carers, adult learners and employers benefit' (Ofsted, 2017). In this respect the agency acts not purely as a single institution but also as the producer and effector of discourses that influence the way in which standards in English Education are understood and conceptualised (Baxter, 2014).

Local education authorities (LEAs) are the local councils in England and Wales that are responsible for education within their jurisdiction. Local education authorities and its inspectors have some responsibility for all state schools in their area which include distribution and monitoring of funding for the schools, co-ordination of admissions, including allocation of the number of places available at each school, act as the direct employers of all staff in schools, accountable for the educational achievement of children, and appoint or dismiss teachers (Ofsted, 2017).

In England head teachers are increasingly called upon to take the role of inspector. Head teachers who inspect are referred to as 'serving practitioners'. A 'serving practitioner' is currently defined by Ofsted as a person who has taught or had direct leadership and management of teaching in a school within the two years immediately prior to carrying out inspections (Ofsted, 2017). Almost all serving practitioner inspectors are head teachers. While the primary task of inspectors and the inspection system is to report without fear or favour on what they evidence, a successful inspection system contributes more than simply delivering inspection judgements on a school by school basis. Inspection enables governance at a distance where schools are deemed not to be trusted to regulate themselves effectively but must be monitored and held accountable by external agencies (Clarke & Ozga, 2011).

De Wolf and Janssens (2007) argued that school visits are the most important instrument for inspectorates. During these visits a school's strong and weak points are systematically vetted, the level of education quality and compliance with statutory regulations are assessed. A school is also informed about how it can improve the quality of its education. By providing feedback on these

findings to schools, but also by publishing the report on the school or institution, inspectorates expect to be able to influence school policy, and by doing so, contribute to an improvement in the quality of education in the school in question.

Inspectors in England are cast in the role of detached and independent external evaluators. Except in the early years sector, they do not normally have regulatory or executive functions. In this important element, therefore, their duties differ from those of subject supervisors in Kuwait, who monitor teachers. According to Clarke and Ozga (2011), the inspector's code of conduct involved: to evaluate objectively, be impartial and inspect without fear or favour; to evaluate provision in line with frameworks, national standards or requirements; to base all evaluations on clear and robust evidence; to have no connection with the provider which could undermine their objectivity; to report honestly and clearly, ensuring that judgements are fair and reliable to carry out their work with integrity, treating all those they meet with courtesy; to respect and sensitivity to endeavour to minimise the stress on those involved in the inspection; to act in the best interests and well-being of service users; to maintain purposeful and productive dialogue with those being inspected, and communicate judgements clearly and frankly; to respect the confidentiality of information, particularly about individuals and their work; to respond appropriately to reasonable requests; to take prompt and appropriate action on any safeguarding or health and safety issues; and to judge and grade schools, subjects and specific lessons fairy and the final judgement to be dominated by criteria of pupils' achievement.

Research on head teachers has focused on them as organisational leaders (Gunter & Ribbins, 2003) and the originality of this study is the focus on those amongst them who choose to inspect, about whom we know little. The head teacher is formally responsible for the proper functioning and management of a school and is the executive representative of its governing body. Significant weight therefore is given to the pivotal role of the head teacher in managing the school, perhaps almost to

the exclusion of all other factors. As a result head teachers carry, almost alone, the responsibility for school failure. Because head teachers are largely accountable for the success or failure of their schools, principally through inspection, this can be felt as a very personal responsibility (Crawford, 2007).

In interviews with 15 head teachers, Coldron et al. concluded that the head teachers were aware that the symbolic capital conferred on them by being graded by Ofsted as at least 'good' and preferably 'outstanding' was what mattered most and that:

> Anything less in future inspections would be a fateful recategorization; a loss of local and national prestige demoting both school and head teacher.'(2014: 398)

In these circumstances it is unsurprising that inspection is a highly emotional activity for the inspected head teachers, and the inspectors. Historically there has been a distinction between them and this has influenced professional dialogue and relationships. The Ofsted regime, at least to date, has not encouraged a sense of collegiality and the policy of public naming and shaming of failing schools may be seen as confrontational. However, in a speech to a conference of head teachers in offering an olive branch to the profession, Her Majesty's Chief Inspector commented that in future head teachers would be able to challenge criticism in inspection reports or the Ofsted grades awarded to their schools (Moreton, 2015).

So, just over two decades since its formation, Ofsted is a major entity in the English education system, arguably one of the most regulated in the world (Lerman, 2006). Many, perhaps even most, head teachers forge day-to-day action and the contemplation of new initiatives with reference to the likely Ofsted reaction (Bottery, 2007) and it seems that head teachers who choose to inspect lend weight to the Ofsted discourse. In this environment of competing power discourses head teachers who inspect,

it may be argued, are part of the, 'culture of compliancy' (Ball, 2000) as opposed to taking more subversive roles in the change agenda.

Nonetheless, inspection is still a 'particularly contentious issue in education' (Waldergrave & Simons, 2014: 4) largely because it is seen as bureaucratised and pressurised (Fielding et al.: 1998). For example, the Workload Challenge consultation conducted by the Department for Education in the autumn of 2014, asked head teachers about, 'unnecessary and unproductive' workloads within schools.

Thus, while inspection can be seen as pressure (or challenge) for improvement, as Chapman argued, it is:

> 'Characterized by 'technical-rational' view of improvement, underpinned by high levels of pressure, lack of support and the claim to provide objective and rigorous judgements.' (2005: 36)

Head teachers who inspect normally need to be leading a successful school and the expectation is that they have led their own schools to an overall inspection outcome of good or outstanding. If not, their suitability to inspect is assessed on a case by case basis. For example, they may have taken over the headship of a school and are demonstrably improving it.

Head teachers normally carry out inspection 20 days a year. Since September 2015 Ofsted's expectation is that practitioners offer 16 days a day, with nonpractitioners committing to 32 days. Practitioners also usually work as team inspectors, rather than leading inspection teams. In terms of remuneration the guidance from Ofsted and the Education Funding Agency advises against direct payments to head teachers for consultancy, which is deemed to include inspection work. The guidance is that fees should be properly remitted to the school rather than to the individual (Moreton, 2015).

The advent of a new inspection system in January 2012 has created new challenges for both the teaching profession and for the inspectors of education given the task of implementing it, as the new framework demands increased involvement by serving teachers and head teachers as part of the inspection process (Baxter, 2013). Since September 2012 only those with qualified teacher status are allowed to inspect in maintained schools and academies. Now, virtually all trainee inspectors are serving practitioners and so an increasing proportion of the inspector workforce is classified as serving practitioners, most being head teachers (Moreton, 2015)..

The position therefore is that some school leaders are being co-opted in increasing numbers from the main body of their colleagues to act as inspectors. Their credibility, it is argued, derives from their knowledge and experience as well as the way they conduct themselves. The underlying theme throughout these moves to recruit head teachers to play a major role in the inspector workforce is that the outcomes of inspection hinge on the capacity of the inspectors. A further step change was made in May 2014 when Ofsted announced that, from September 2015, it will no longer contract with independent contractors for the delivery of school inspections. From then, all inspectors, including the head teachers amongst them, will be contracted directly by Ofsted, giving it more direct control over their selection, training and quality assurance (Moreton, 2015).

3.11. Summary

The literature reviewed the factors that influence the e-learning readiness of various stakeholders in educational institutions, and the challenges facing educators and institutions in applying e-learning. The review included critically examining different definitions of e-learning which is expected to gain a clear understanding of e-readiness of subject supervisors in schools in Kuwait. A brief section highlights some of the criticism that has been levelled against e-learning implementation and the growing distrust with the proponents of e-learning. Models and theories of learning that support e-learning are also discussed. Literature on institutional or organisational readiness, role of policy

makers and barriers to the implementation of e-learning are expected to inform and have a bearing on this investigation. In order to develop a questionnaire, psychometric properties of various validated scales were also critically reviewed.

Chapter Four

Methodology

4.1 Introduction

This chapter presents the philosophical foundations of inquiry and the methodological approach for this thesis. It describes how a mixed methods approach combining both quantitative and qualitative methods allows the researcher to gain a deeper understanding of the extent to which the subject supervisors in Kuwait are ready for e-learning. The researcher's philosophical approach justifies the research design decisions.

The chapter is structured as follows: section 4.2 provides an overview of the philosophical approach the current study subscribes to; section 4.3 gives a detailed account of the mixed methods approach adopted; section 4.4 focuses on the different assumptions of the researcher section; 4.5 emphasises the role of the researcher; and section 4.6 explains the ethical threats which may affect the research.

4.2 Philosophy

The philosophical basis for a research defines the "assumptions about human knowledge and assumptions about realities encountered in our human world" (Crotty, 2003: p.17). These assumptions, derived from a paradigm, guide the researcher in choosing the methodology and the methods for collecting, analysing and interpreting data. Ontology is the "reality" or the researcher's beliefs, and epistemology is the relationship between that reality and the researcher (Sobh & Perry, 2006). Epistemology informs a researcher's choice of methodology and a researcher's ontological position drives epistemological beliefs which in turn shape the relationships between the researcher and reality (Sobh & Perry, 2006).

In this study, the researcher's ontological position is that reality exists independently of the mind therefore the adoption of theories or paradigms. In other words, that reality has to be investigated which suggests a theoretical perspective (of positivism) which is linked to realism. This ontological position leads to the researcher's epistemological position of critical realism. The proponents of critical realism (for example, Bhaskar, Sayer, etc.) are of the view that this position provides a coherent and productive stance for conducting qualitative research (Maxwell & Mittapalli, 2010). Therefore, it is argued that critical realism that is compatible with the essential methodological characteristics of both qualitative and quantitative research while recognizing the limitations of each, can constitute a productive stance for mixed method research (Maxwell & Mittapalli, 2010).

4.2.1. Justification for positivist ontology and critical reality epistemology

Despite its prevalent position among the rest of the paradigms, positivism has been criticized for a "naïve realism" in which reality is apprehendable and knowledge can easily be captured and generalized in a context-free form (Guba & Lincoln 1994). More specifically, realism has been heavily criticized from the philosophies of empiricism and conventionalism (Mingers 2004). As a reaction to this critique, a number of post-positivism paradigms have emerged that strive to address the ontological and epistemological flaws of positivism. Among the most prominent of these is critical realism which was largely established by the writings of Bhaskar (1978, 1989, 1998). Critical realism is often seen as a middle way between empiricism and positivism on the one hand and antinaturalism or interpretivism on the other, thus, reinventing a new and more sophisticated version or realist ontology. Critical realism simultaneously confronts the central concerns of both natural and social science regimes (Zachariadis, Scott & Barrett, 2010). This makes critical realism of particular interest in the study of e-learning or educational technology which bears significant relevance to natural science (due to their technological characteristics) and social science (due to their applications in deeply human contexts such as schools).

An important characteristic of critical realism is that it maintains a strong emphasis on ontology. As a consequence, the first and foremost tenet of critical realism is that the world exists independently of what we think about it (Zachariadis et al 2010). Importantly, this leads us to accept the fallibility of our knowledge and the possibility of getting things wrong. Bhaskar (1998) argues that there are two sides of knowledge and distinguishes between the transitive and intransitive objects of knowledge. Intransitive objects of knowledge are the ones that don't depend on human activity. In other words, it is the knowledge of things which are not invented by humans e.g. gravity, death etc. On the other hand, transitive phenomenons are "artificial objects fashioned into items of knowledge by the science of the day" (pp. 11). These can be established facts, theories, paradigms, models, methods and techniques of study that are used by a particular researcher.

The rationale for adopting critical realism is that it does not commit to a single type of research but rather endorses an extensive variety of research methods which are chosen according to the type of the project and the aims of the study. Critical realism accommodates multiple research methods or allows for the "legitimate" combination of qualitative and quantitative methods. This study examines subject supervisors and their role in the implementation of e-learning in Kuwait and therefore has humanist leanings. Therefore qualitative methods, such as interviews were also used.

4.3 A Mixed Methods Approach

Mixed methods research is a new movement, or research paradigm and its popularity amongst researchers has been growing due to the tensions and differences between quantitative research and qualitative research (Creswell, 2011). It is recognised as the third research paradigm and "a formal methodology that did not exist before and is subscribed to by an emerging community of practitioners and methodologists across the disciplines" (Tashakkori & Teddlie, (2010: p.803-804). Literature suggests that it was Campbell and Fiske (1959) who gave shape to mixed methods research in their article by using multiple research methods and for introducing the concept of triangulation so that

more than one method could be used as part of a validation process (Johnson, Onwuegbuzie & Turner, 2007).

Creswell and Plano Clark (2011) define mixed methods research as:

> "a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems that either approach alone" (p.5).

As previously stated, the mixed methods approach entails research that is aimed at uncovering both qualitative and quantitative data. The advantage of this methodology is that some of the limitations that are involved in qualitative and quantitative methods are cancelled out when both methods are utilized. It is also flexible and can be tailored to the requirements of the researcher due to the fact that it does not rely upon the production of a single, specific type of data. Opting for a mixed methods approach means that words can be utilized in order to provide a supplementary layer of meaning to quantitative data and numbers can be utilized in order to provide a supplementary layer of meaning to qualitative data. The fact that two different types of data are included allows for a deeper level of inquiry. It means that objective facts can be ascertained in addition to the researcher being able to research data that has a subjective element to it and is more descriptive in its nature. Another advantage of mixed methods research is that it remains unlimited by the ontological, axiological and epistemological assumptions that restrain research that is solely centred upon the analysis of either qualitative or quantitative data. This allows the researcher a greater amount of methodological freedom. It means that the approach can be moulded to the requirements of the issue that is being studied to a greater extent than if either of the other two methodologies was used on its own (Symonds & Gorard, 2008).

In order to justify the use of mixed methods, one of the arguments that have been put forward is that through triangulation, mixed research allows compensating the weaknesses of on method with another to improve the quality of data (Salehi & Golafshani, 2010; Venkatesh, Brown & Bala, 2013). 'Triangulation' is when qualitative and quantitative methods are utilized to measure the same phenomenon so that different perspectives provide weight to its interpretation. 'Complementarity' refers to using one method's results to illustrate, enhance, clarify or elaborate upon the findings of another method or to gain a fuller comprehension of a phenomenon by utilizing different methods to research different aspects. 'Expansion' is like complementarity but has a broader scope and the facets of the phenomenon that each method studies are less closely linked to one another. 'Development' uses sequential methods that involve the findings of the first method being utilized to refine or implement the second method. 'Initiation' entails carefully analysing the findings of the qualitative and quantitative components in order to locate areas of discordance and concordance. Once this has been done, those juxtapositions can be used to gain new insights into the phenomenon that is being studied (Porcino & Verhoef, 2010).

The advantages of triangulation are that it can create innovative ways of comprehending phenomena, reveal unique findings and integrate or challenge theories (Thurmond, 2001, as cited in Diehl, Guion & McDonald, 2011). Another benefit of this method is the diversity of data that it generates. This diversity means that it is capable of adding depths to results in a way that is not possible when relying upon a single-strategy study. This increases the utility and validity of the results (Diehl, Guion & McDonald, 2011). Triangulation also brings about more reliable results. This is due to the fact that it does not rely upon a single method (Symonds & Gorard, 2008). Triangulation is used to enhance the trustworthiness of findings (Shenton, 2004). This means that the researcher can have a greater amount of confidence in the findings. The researcher in mixed methods research, gives importance to the context or setting in order to collect, analyse and interpret rich context and detailed information from participants (Venkatesh Brown & Bala, 2013). In other words, qualitative data is

collected and analysed in order to triangulate and validate quantitative results. Using triangulation can also provide additional context to the issue that is being studied (Wald, 2014). It is particularly useful for analysing social reality and human nature in their complete complexity (Cohen, Manion & Morrison, 2013). It is arguable that using strictly qualitative or quantitative methods would be less effective at doing this.

Studying e-learning preparedness in Kuwait entails human nature being examined, as human nature could be a determining factor in the way in which subject supervisors prepare for the onset of e-learning. It also deals with a social reality. Therefore, triangulation is a suitable method for exploring this issue and is likely to produce detailed results. However, there are also a number of pitfalls that are involved in this variety of mixed methods research. Attention was taken to avoid falling prey to them.

A deficit of understanding about the reason why triangulation is used in a given study can harm its methodological construction. This is one of the main pitfalls of this methodology (Thurmond, 2001, as cited in Diehl, Guion & McDonald, 2011). However, the fact that the reasoning behind opting for this method has been detailed above means that the risk of this pitfall affecting the findings has been removed. The main purpose for triangulation in this instance was to allow the quantitative data to corroborate the qualitative data and vice versa.

There is also a possibility that researcher bias will skew the results of research that involves triangulation (Thurmond, 2001, as cited in Diehl, Guion & McDonald, 2011). A number of steps can be taken to minimize the impact of researcher bias when administering surveys and conducting unstructured interviews, which form the quantitative and qualitative aspects of this study respectively. When developing the questions for the survey, attention was paid to choosing words that would have very little influence upon the way in which the respondents think about e-learning readiness. Attention was paid to ordering the questions so that the answer to a question does not exert an influence upon the way in which the subject is likely to answer the subsequent question. Clear, unbiased instructions were also provided (Kitchenham & Pfleeger, 2003).

Researcher bias in unstructured interviews can be reduced by the interviewer keeping his personal opinions to himself so that they do not influence the answers that the interviewee gives. The interviewer avoided wording that may lead the interviewee towards responding in a certain manner and ensure that his voice pitch and tone and the stress that he places upon specific words and phrases remain neutral so that the responses that the interviewee provides are not unduly influenced by them. The more time the interviewer spends listening to what the interviewee is saying, the less directive he will be and the lower the likelihood of researcher bias having a significant effect upon the results there will be (Fontanella, Campos & Turato, 2006). Therefore, the interviewer posed questions only when it was necessary to do so and allowed the subject to do the majority of the talking during the interview. By taking these steps to reduce the extent of the researcher bias that is present, this pitfall of triangulation was mitigated. This means that the strengths of this method can be realized and the risks that are associated with it can be avoided. It will be used to provide two different varieties of data that corroborate one another.

Mixed methods research has other limitations which are not restricted to triangulation alone. These limitations have been highlighted by researchers in diverse fields of education as the disadvantages of mixed methods impact different disciplines. The use of mixed methods in social research (counselling and psychology) has led to claims that a researcher may not have the competence to carry out both qualitative and quantitative research, especially if two or more approaches have to be done simultaneously (Ponterotto, Mathew & Raughley, 2013). Researchers in management studies who had used mixed methods caution that researchers have to be aware of the limitations of traditional methods, and learn how to use and mix these multiple methods and approaches in the same study (Bazeley, 2004). Researchers in nursing claim that who used mixed methods research have the possibility to subtly promote quantitative research within the positivist and post positivist research paradigms (Giddings, 2006). Another argument from health researchers is that mixed methods research can be used in only if researchers are fully trained (O'Cathain, Nicholl & Murphy, 2009). It is not cost-effective but also time-consuming as more time is required for completing a study comprising of multiple methods (Caruth, 2013; Ponterotto, Mathew & Raughley,

2013). Moreover, it is not easy to fully work out the problems of paradigm mixing, mix, analyse and interpret different types of data (Cronholm & Hjalmarsson, 2011). Therefore, in this study the researcher kept these limitations in mind and considered the three categories suggested by Creswell & Plano Clarke (2011) that are important to when mixing methods. These categories are: time and resources, pre-knowledge of the methods and the question of convincing researchers of the value with mixed methods.

In order for mixed methods to be used successfully, it needs to have a clear, defensible rationale (Plano Clark & Ivankova, 2015). In this case, the reason for utilizing it is both due to the fact that it is capable of providing diversity of data (Diehl, Guion & McDonald, 2011) and the fact that the two forms of data can be used to validate one another, providing that they lead to similar findings. This allowed for a thorough and comprehensive study of whether or not subject supervisors are ready for the onset of e-learning in Kuwait, using both qualitative and quantitative data to assess this issue and utilizing them for the purpose of corroboration.

4.3.1 Phase I: Confirmatory – Survey

The first phase of the study is to conduct a survey of subject supervisors and teachers in Kuwait in order to ascertain the extent to which they believe that subject supervisors are ready for the onset of e-learning. All participants were granted anonymity in order to ensure that they answer the questions as honestly as possible without fear of being reprimanded for being critical of schools' e-learning initiatives. It helped to guarantee that an accurate picture was painted of the extent to which subject supervisors are capable of doing the job that they are paid to do.

A survey is a descriptive, non-experimental research method which is useful when gathering data based on opinions (Rose, Spinks & Canhoto. 2015), as the perspectives of others cannot be observed directly. A cross-sectional survey was used to study perspectives on e-learning readiness amongst subject supervisors in Kuwait. This research technique entails gathering data from the subjects at a single, given point in time as opposed to repeatedly gathering it throughout an extended

period of time. It is appropriate for providing a snapshot of e-learning readiness at a precise moment. In addition to readiness, the age, number of years of professional experience and gender of each participant were asked as part of the survey. This allowed the researcher to ascertain whether or not any of these variables had an effect upon the responses that were provided.

4.3.1.1 Quantitative Data Collection: Sampling frame

The participants selected for the survey were contacted via email and care was taken to opt for subject supervisors and school teachers in a diverse range of geographical locations in order to safeguard against the possibility of geography having an effect upon e-learning readiness. As there is the possibility that some subject supervisors and teachers might not be willing to take part in a study of this nature, convenience sampling was used to choose the participants, which is when individuals are chosen based upon their availability (Peterson & Merunka, 2014).

The targeted population for this study are subject supervisors (specialising in social studies) and teachers from public secondary schools in Kuwait. There are 125 public secondary schools in Kuwait situated in 6 districts Al Asimah or the Capital Educational Area, Hawally Educational Area, Farwaniya Educational Area, Mubarak Al Kabeer Educational Area, Ahmadi Educational Area, and Jahra Educational Area. Due to time and financial constraints the researcher in this study was not able to select participants from all 125 schools. Subject supervisors (specialising in social studies) and teachers were selected from public secondary schools in Mubarak Al Kabeer district only.

Subject supervisors and teachers were drawn from schools for both boys and girls. The sampling frame was derived from a comprehensive list of prospective participants meeting the following criteria: (a) specialising in social studies, (b) with working experience of 5 years and above, and (c) teaching subjects that involve the use of technology. Samples should be as large as possible, in general the larger the sample the more representative and the more generalisable the results of the study are likely to be. The minimum, acceptable sample size for research has been recommended to

be 10% of population (Gay and Diehl, 1992; Krejcie & Morgan, 1970). If probability sampling is used in mixed methods research, a sample of 50 is considered adequate to establish representativeness (Teddlie & Yu, 2007). However, a sample of 144 teachers (out of 236 social studies teachers) and 114 subject supervisors (out of a total of 146 supervisors) from Al Mubarak district were selected for this study, not due to the theoretical and empirical recommendations, but due to time and financial constraints (Omair, 2014).

All prospective subject supervisors and teachers meeting the criteria stated above were contacted for voluntary participation, immediately after the summer school vacation. Once the required number of participants had been selected, the questionnaire was administered online using Survey Monkey. Cover letters were e-mailed to school principals in September which provided the web link to Survey Monkey. The rationale for using Survey Monkey is because it eliminates the possibility of duplicate responses and also ensures participant anonymity. Telephone follow-up was also made to ensure the participants received the letters emailed and to complete the online questionnaire on time.

4.3.1.2 The Instrument

The rationale for administering the survey online and not via courier is because of the low response rate for paper surveys. Telephone surveys were not used as people are less likely to reveal certain information over the phone. There is also a larger chance of researcher bias coming into play when asking survey questions on a face to face basis (Christian, Dillman & Smyth, 2008), which makes the online delivery of the questions the most suitable method to use.

The questionnaire items were generated from a review of previous studies that had developed instruments for assessing e-learning readiness, namely Watkins, Leigh, & Triner (2004), Aydin & Tasci (2005), Pillay, Irving, & Tones (2007), and Akaslan & Law (2011) (Table 2). The table below not only includes the e-learning readiness dimensions but also indicates the specific literature from where each item was derived from.

Table 1: Relationship between literature and questionnaire items

Item Number	Questionnaire items	Literature
Items related to technological skills readiness items		
CI.1	I have the basic skills to use a computer (e.g. using keyboard, shortcuts, using mouse, copying and pasting files, creating, editing and saving files, creating folders)	Aydin & Tasci (2005); Watkins, Leigh, & Triner (2004); Pillay, Irving, & Tones (2007)
CI.2	I can create presentations using Power point, create spreadsheets (e.g. Excel), and word processor for content delivery	Akaslan & Law (2011); Pillay, Irving, & Tones (2007)
CI.3	I know how to download and install software	Akaslan & Law (2011)
CI.4	I have the basic skills to search for information by browsing the Internet and retrieve data	Aydin & Tasci (2005)
CI.5	I know how to communicate using email, Skype, and send text/audio/video files using cloud computing	Akaslan & Law (2011)
CI.6	I can troubleshoot most problems associated with using a computer	Watkins, Leigh, & Triner (2004)
CI.7	I feel that prior experience is required for using online technologies.	Aydin & Tasci (2005); Akaslan & Law (2011)
Items related to equipment / infrastructure readiness		
CII.1	I have access to a computer in the school	Aydin & Tasci (2005)
CII.2	I have access to relevant hardware and printers/scanners/overhead projectors	Aydin & Tasci (2005)
CII.3	I have access to adequate software (e.g. Microsoft Word, Adobe Acrobat)	Aydin & Tasci (2005
CII.4	I have access to reliable high speed Internet	Aydin & Tasci (2005
CII.5	I provide tech support	Akaslan & Law (2011)
CII.6	I think poor infrastructure may hinder the Ministry of Education from developing and implementing e-learning	Kurniabudi, Assegaff & Buhairah (2015)
CII.7	I think the content/curriculum mandated by Ministry of Education may hinder successful implementation of e-learning	Kurniabudi, Assegaff & Buhairah (2015)

CII.8	I think that quick technical and administrative support is important to my success as a Subject Supervisor	Akaslan & Law (2011)
Items related to attitude readiness		
(a) Confidence		
CIII.1	I have the confidence to use advanced technology for training teachers	Akaslan & Law (2011)
CIII.2	I hesitate to use technology for fear of making mistakes	Akaslan & Law (2011)
CIII.3	I learnt most of the things on my own about using e-learning technologies	Akaslan & Law (2011)
CIII.4	I would feel better about using technology if I knew more about them	Akaslan & Law (2011)
CIII.5	I feel threatened when I see teachers using technology in their learning /working	Akaslan & Law (2011)
CIII.6	Knowing how to use e-learning technologies can increase my job possibilities	Akaslan & Law (2011)
(b) **Delight**		
CIII.7	I like using computers for research	Akaslan & Law (2011)
CIII.8	I like to communicate with others using e-mail to support my learning	Akaslan & Law (2011)
CIII.9	I spend a lot of time on the internet	Akaslan & Law (2011)
CIII.10	I enjoy working on tasks on a computer	Akaslan & Law (2011)
CIII.11	I like to try new technologies for teaching, training and/or learning	Akaslan & Law (2011)
(c) **Importance**		
CIII.12	It is important to learn how to use a computer for learning and training, and how to use the internet as a learning resource	Akaslan & Law (2011)
CIII.13	Learning about how to use e-learning technologies is a waste of time.	Akaslan & Law (2011
(d) **Motivation**		

CIII.14	I think that would be able to remain motivated even through the instructor is not online at all times.	Pillay, Irving, & Tones (2007); Watkins, Leigh, & Triner (2004)
CIII.15	I think that I would be able to complete my work even when there are online distractions (e.g. friends sending emails or websites to surf)	Pillay, Irving, & Tones (2007); Watkins, Leigh, & Triner (2004)
CIII.16	I think that I would be able to complete my work even when there are distractions in my home (e.g. television, children, and such)	Pillay, Irving, & Tones (2007); Watkins, Leigh, & Triner (2004)
(e) **Self-Development**		
CIII.17	I think I can spend some time (15, 30 or 60 minutes) for improving myself during some part of the day (morning, afternoon, evening or night)	Aydin & Tasci (2005
CIII.18	I believe that self – development of teachers may strengthen the position of the Ministry of Education	Aydin & Tasci (2005
CIII.19	I am interested to upgrade my academic / professional qualification and/or work performance through e-learning	Aydin & Tasci (2005
(f) **Anxiety**		
CIII.20	I think positively toward the technological interventions in daily /routine tasks	Aydin & Tasci (2005); Pillay, Irving, & Tones (2007); Watkins, Leigh, & Triner (2004)
CIII.21	I feel comfortable with the thought of using technology to deliver instruction	Aydin & Tasci (2005); Pillay, Irving, & Tones (2007); Watkins, Leigh, & Triner (2004)
CIII.22	The thought of using e-learning technologies makes me very nervous	Aydin & Tasci (2005); Pillay, Irving, & Tones (2007); Watkins, Leigh, & Triner (2004)
CIII.23	I get a sinking feeling when I think of trying to use technology for training trainees and/or learning.	Aydin & Tasci (2005); Pillay, Irving, & Tones (2007); Watkins, Leigh, & Triner (2004)
Items related to cultural readiness		

CIV.1	I accepted technological innovation (e.g. start using digital documents instead of hard copies) in routine /daily tasks	Aydin & Tasci (2005); Kurniabudi, Assegaff & Buhairah (2015)
CIV.2	I have accepted any changes that required the use of technology in daily /routine tasks	Aydin & Tasci (2005)
CIV.3	The most effective method of learning is face-to-face	Aydin & Tasci (2005)
CIV.4	The teacher /trainer /instructor is still the best information provider	Aydin & Tasci (2005)
CIV.5	E-learning is an efficient means of disseminating information	Aydin & Tasci (2005)
CIV.6	E-learning enables learners and instructor to communicate and interact better with one another	Aydin & Tasci (2005)

As the survey was aimed at two different types of participants, namely subject supervisors and teachers, two different questionnaires were required: (a) self-assessment of subject supervisors (Appendix A), and (b) assessment of subject supervisors by teachers (Appendix B). The subject supervisors' questionnaire consists of four dimensions and 44 items while the teachers' questionnaire comprises of 3 dimensions and 19 items. The participants were asked to rate how strongly they agree with the statements in the two instruments by using a five-point Likert scale. Besides, the questionnaire included sections on participant's demographic information and their prior e-learning knowledge. The psychometric properties of the instruments (Table 2) used to develop the e-readiness questionnaire are:

Table 2: Psychometric properties of instruments used to develop the e-readiness questionnaire

Previous studies	Objective	Readiness scales	Scales	Validity of scales
Watkins, Leigh, & Triner (2004)	Assessed the online readiness (E-Learning Readiness Self-Assessment) of learners in the US (936 participants	Technological skills, online discussion, access to technology, motivation, crucial for success	Five-point response Likert scale consisting of 67 items	Demonstrated evidence of internal consistency and construct validity

	from the US Coast Guard)			
Aydin & Tasci (2005)	Developed instrument (E-Learning Readiness Survey) to assess e-learning readiness of Turkish companies (50 employees of human resource departments)	Innovation, personal development, technology, people	Five-point response Likert scale consisting of 30 items	Cronbach's Alpha showed that the reliability of instrument was quite high (0.92)
Pillay, Irving, & Tones (2007)	Assessed readiness of 254 tertiary students' for online learning an Australian higher education	Technological skills, computer self-efficacy, user's preferences, attitudes towards technology	Seven-point response Likert scale consisting of 20 items	Authors used a confirmatory factor analysis (CFA) to determine the construct validity
Akaslan & Law (2011)	Web-based survey to measure student's readiness for e-learning in higher education institutions in Turkey (425 student responses)	Technology (hardware, software, stability): people (attitude towards technology, confidence in using technology, experience in using technology); content (theory and practice); acceptance (perceived usefulness and ease of use); and training	Five-point response Likert scale consisting of 39 items	Authors used a confirmatory factor analysis (CFA) to determine the construct validity

The questionnaire developed for the current thesis consists of self-assessment scales and were used to assess the e-readiness of subject supervisors. Ehlers, Sammour and Schreurs (2008) have stated that the extent to which staff perceive that their skills are suitably developed for e-learning can be measured via self-assessment. According to Allen and Van Der Velden (2005), self-assessment is

sometimes criticized for relying upon the opinion of the assessor but assessment by another party also suffers from this flaw. Bias in assessment may occur when both men and women are assessed by men, a phenomenon which is referred to as 'rater bias' and applies to various other qualities as well as gender (Traub, 2013). Self-assessment has an advantage over assessment by another party when it comes to evaluating an individual's skills, as it can illuminate skills that would not otherwise be apparent. It is a popular and widely utilised method for identifying the skills of a staff member (Allen & Van Der Velden, 2005).

The instruments for assessing e-learning readiness were mainly developed for organisations or institutions in developed nations where people were aware of e-learning and e-readiness. However, these instruments did not focus on policy makers or teachers. Furthermore, these studies had identified too many dimensions and items to measure e-learning readiness, with some overlapping another. For the purpose of this thesis, these dimensions were regrouped into a set of: 4 dimensions to assess e-readiness of subject supervisors which are technological skill readiness, equipment/infrastructure readiness, attitude readiness, and cultural readiness; and 3 dimensions to assess teacher's opinion of the e-readiness of subject supervisors, which are technological skills, attitude and culture.

4.4 Assumptions of this study

The study worked upon a number of different assumptions. As it included a survey the underlying assumption was that the vast majority of the respondents will tell the truth (a single "truth" independent of personal opinion) (Harwell, 2013). The rationale for this is that the survey would not be asking particularly personal information, reducing the motivation for participants to lie. The fact that no personal questions would be asked throughout the course of the study of e-learning readiness in Kuwait indicates that this percentage will be even smaller when studying this issue. It was also assumed that the participants will be capable of understanding the questions and filling in the survey as required (Harwell, 2013). The rationale behind this assumption is that they will be educated

individuals and the survey that will not be particularly complicated in its nature. It is therefore highly likely that they will have no trouble following the instructions that they are provided with and returning it as requested.

The researcher assumes that the participants are familiar with the term e-learning and its precise meaning. The fact that it is a relatively vague term means that there is a possibility that it might cause confusion. Some people might not know exactly what it means, which would mean that the results of the study could be deemed to be invalid on account of the fact that the subjects did not fully understand the questions that were being put to them. However, the rationale for this assumption is that the subjects who have been chosen for the study that are of a high level of education and are therefore likely to be familiar with the basic concept of e-learning at least to the point where they can identify issued related to preparedness for it. They might not know every possible piece of information about this form of learning but they will know enough information to be able to answer the questions that they are asked. This means that it is unlikely that this assumption will to prove to be untrue.

Another assumption is that identifiable patterns and trends regarding the status of the readiness of subject supervisors in Kuwait for the onset of e-learning will be uncovered. It hinges upon the notion that it will be possible to analyse the results of the surveys and unstructured interviews and identify recurring themes, beliefs, views and opinions. If it is impossible to identify any themes within the data then the results of the study will be inconclusive and no information will be gained from analysing them, meaning that the research will not be deemed to be able to shed any light upon the issue of e-learning readiness in Kuwait. The rationale behind this assumption is that the literature review has pointed to specific trends concerning e-learning readiness within Kuwait. This means that the views expressed in the surveys and interviews will be likely to reflect these trends. It is not probable that no patterns whatsoever will emerge from the data that is collected.

It is also assumed that the subjects will have concrete opinions about the extent to which subject supervisors in Kuwait are ready for the onset of e-learning. If they have no opinion on this matter and have never given it any thought, then they will not be able to answer any of the questions

that are put to them. This will result in the failure of the study and mean that no useful results can be gained from it. The rationale for this assumption is that it is highly unlikely that the participants will have no opinion whatsoever on this subject. They might not have given the topic a significant amount of thought until they were asked about it but the questions that they are asked will still evoke a response and cause them to consider the issue. Common sense suggests that there is an extremely low chance of them not being able to contribute a response to the questions that are posed to them.

This research also contains a number of assumptions that are associated with mixed methods research. It works upon the assumption that in order to conduct an effective study that results in valid findings, multiple different research methods should be utilized (Teddlie & Tashakkori, 2003). Although it could be argued that this is not true when it comes to all varieties of research, there is evidence that it holds true when it comes to the study of e-learning. Bonk, Brush, Delandshere and Wang (2008) studied the effect of utilizing mixed research when researching online learning and concluded that it enhanced the scientific rigour that was involved in the methodology that was used when studying this topic (Bonk, Brush, Delandshere & Wang, 2008). This suggests that the same will be true when using mixed methods to study readiness for e-learning. It implies that it will result in higher levels of validity and that it will enable generalizations to be made from the results that are uncovered

4.4.1 Paradigmatic assumptions

The debate on the choice of paradigm for mixed methods research led to the identification of the four main paradigms which are post-positivism (hypothesis testing and assumes that researcher remains separate from the research participants), constructivism (which espouses that knowledge is socially constructed -in the minds and worldviews of participants), and critical realism (emphasises researcher-participant relationship) (Hall, 2013). Because of the need for a single paradigm for mixed methods research, a realist approach is suggested as it supports the use of mixed methods (Maxwell & Mittapalli, 2010).

The researcher assumes that a critical realist ontology can enable understanding the extent to which the subject supervisors in Kuwait are ready for e-learning. The strength of the critical realist paradigm is that it is able to validate and support the epistemological, ontological, and methodological positions of both quantitative and qualitative research (Venkatesh, Brown & Bala, 2013). Critical realism does this by identifying some specific limitations of both methods. By mixing both quantitative and qualitative methods the researcher intends to not only inform the research design but also influence the scope of the study.

Mixed methods research also works off assumptions that are associated with qualitative and quantitative methods, as it involved making use of both of these methodologies. The researcher in this study believes that quantitative data can be collected in a value-free manner. This is based on the assumption that the subjective values and opinions of the researcher will not have a significant effect upon the results that are produced (Onwuegbuzie & Leech, 2005; Stanfield, 2006). The qualitative element entails the assumptions that data precedes theory and that context is essential to understanding (Tavallaei & Abu Talib, 2010; Palinkas, 2006).

Irrespective of whether or not these assumptions prove to be true or false, the fact that both qualitative and quantitative methodologies are involved in mixed methods research means that if an assumption associated with either of these methods proves to be untrue, it will be mitigated by the presence of the other methodology. This will ensure that the research is not ineffective due to the paradigmatic assumptions that are associated with either qualitative or quantitative research. The strengths of the qualitative aspect will mitigate the flaws in quantitative research and vice versa (Creswell, 2012; Venkatesh, Brown & Bala, 2013). The objectivity of quantitative research and limited sample size in qualitative studies can be mitigated by he generalisability of quantitative research and the depth of qualitative research. This assumption is crucial for this research because,

by ameliorating the weaknesses of both methods and using them together, it allows the researcher to draw conclusions that would not be possible using either method alone (Maxwell & Mittapalli, 2010).

4.4.1.1 Quantitative Validation

The fact that the survey questions are based upon those which stem from previous results and that the survey uses components such as a Likert scale and a series of statements, which has been done in earlier studies as explained previously during this paper, indicates that it has a high degree of validity, as it indicates that they are relevant to real-world scenarios. In order to preserve the validity and reliability, care was taken to ensure that the survey is presented and administered in the same way to each of the participants.

Before survey data is analysed, it needs to undergo a validation process, which involves ensuring that the responses that are analysed are as complete and consistent as possible. The validation process included missing data, pilot-testing, and psychometric validation (Kitchenham & Pfleeger, 2003; Ishii et al. 2012). A set of rules was drawn up that details what to do if participants omit answers to specific statements so that no systematic bias is introduced by the researcher deciding how to handle this issue after seeing the results. In the case of this study, the majority of respondents did not miss out specific statements, and therefore the researcher did not make adjustments to omit those statements from the results (Lewis, 2012; Brick & Kalton, 1996). It is suggested that if participants fail to provide a response to a statement in spite of the fact that the majority of the other subjects had responded to them, then the questionnaire from the participant with missing data should not be used in the study (Raghunathan, 2004).

A pilot test could also be carried out to make especially sure the questions contain suitable levels of validity and reliability. This was done by sending the initial draft to the research supervisor and several peer reviewers who were asked to rate the items in order to determine if they are adequate (for instance, if the scale provided was an appropriate way to respond) and understandable.

Subsequently, in order to gain validity and reliability from the research context, a field test was also conducted by administering the initial survey to a few subject supervisors and teachers. Finally, the questionnaire items developed (from literature) were evaluated for their psychometric properties before they were relied on for drawing conclusions from (Furr, 2011).

4.4.1.2 Quantitative Data Analysis

A five point Likert scale questionnaire (ranging from 1 = 'strongly disagree' to 5 = 'strongly agree') was used to ask respondents to indicate their level of agreement to the two questionnaires. The reason for using Likert scales was that they are commonly used and allow for application of descriptive statistics, correlational analyses, factor analyses, analysis of variance procedures, etc. Conventionally 5 point or 7 point scales are used in research. However, for this thesis a 5-point category of scale was chosen because respondents may avoid the extremes in responding to the questionnaire items (Hair, Black, Babin, Anderson, Tatham, 2007).

Factor analysis was performed to evaluate and test the scales in the questionnaire developed (Appendix A & B). It allows for identifying common variation among the groups of items (dimensions). The relationships between the variables were determined using Pearson correlations (Pearson R test), namely, age and experience or gender and experience of subject supervisors. It was followed by descriptive and inferential analyses of the data for all independent and dependent variables in the study were presented including the means, standard deviations, and range of scores for these variables. To help assess the factorability of the data, Bartlett's Test of Sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy were used. Exploratory factor analysis and principal components analysis were used to compare the data of subject supervisors and teachers. This allowed factor reduction and extraction of variance in the variables. Once the data has been obtained, data on a number of variables redundant variables that are correlated with one another (or measuring the same construct) were removed. Thus, the variables were reduced to a smaller number of principal components. After determining the number of components (factors), the factors were rotated (Varimax with Kaiser Normalisation). Statistical analysis were performed using SPSS 23.0.

This allowed examining the extent to which the teachers and subject supervisors perceive that subject supervisors in Kuwait were ready for e-learning to be measured in a numerical form.

4.4.2 Phase II: Exploratory – Semi-Structured Interviews

The second phase of this study involved the use of semi-structured interviews. Subject supervisors and teachers were interviewed in order to provide qualitative data that can be used for the purposes of triangulation and to provide further insight into perceptions on e-learning readiness in Kuwait. This involved following a framework (an interview schedule) without directly scripting each of the questions.

4.4.2.1 Qualitative Data Collection

The data for this phase were collected by interviewing 15 subject supervisors and 15 teachers about subject supervisors' readiness for e-learning. This amount has been chosen, as it provides scope for a smaller, more focussed examination of a section of the overall sample. This time, the participants were selected at random so that there is no researcher bias when picking them. They were selected from the individuals who participated in the surveys. Each potential candidate was assigned a number and a random number generation programme was utilised in order to pick them. The results of the survey analysis guided the interview process.

The survey statements were used as the framework for the interview in order to provide guidance for the interviewer. The researcher posed questions related to each statement and asked follow up questions to any responses that were given by the participants. Leading questions were avoided when conducting the interviews, as they have the potential to bias the results. The interviewer also asked for clarification if a participant provides a response that he deems to be unclear. This minimised the risk of misunderstandings when it comes to analysing the data that is generated during the interview. The interview questions were relatively flexible and it allowed room for emergent ideas to be explored or expanded upon.

The interviews were recorded as opposed to transcribed as notes whilst they were in progress. This produced a more accurate record of the conversation. The interviewees were made aware that they were going to be recorded before the questions were put to them (Josselson, 2007). This ensured that they are able to provide full informed consent.

4.4.2.2 Qualitative Data Analysis

The data from the interview were transcribed verbatim, as according to Mergenthaler and Stinson's (1992, as cited in MacLellan, MacQueen & Neidig, 2003) principles for interview transcription data, the text in transcripts should never be altered or reduced in any way. This is to prevent researcher bias stemming from the way in which the data is translated from oral to written form from coming into play. In order to analyse the interview transcripts, themes were identified within the responses. Sections of text were then categorised according to these themes (Creswell, 2014). In other words, data was analysed thematically. The analysis involved 6 steps as advocated by Braun & Clarke (2006): Getting acquainted with the data by reading and re-reading the interview transcripts; generating initial codes; searching for specific themes; reviewing themes; defining and naming themes; and finally producing the report with excerpts from the interviews. Thematic analysis helps in identifying any recurring concepts that crop up regarding e-learning readiness. It provided an insight into issues that prevent e-learning readiness amongst subject supervisors in Kuwait and shed light upon frequently referenced factors that mean that subject supervisors in the nation were ready for the onset of this form of learning.

4.4.2.3 Qualitative Validation

Qualitative research is often considered to produce results that are less reliable than those that quantitative methods are capable of generating (Kaplan & Maxwell, 2005). This is a matter of opinion, as it is arguable that it is not the case and that the aim is merely different (Johnson & Onwuegbuzie, 2006), but it is still essential for techniques to be implemented that are aimed at

enabling the qualitative phase of this study to preserve the maximum level of validity. Doing so ensured that the findings accurately reflected the true state of e-learning readiness amongst Kuwait's subject supervisors. The fact that quantitative data was used in addition to qualitative data was to ensure valid results. However, there are also methods that can be implemented in order to preserve the validity of the qualitative component of the research.

One of the main ways in which the validity of the results of qualitative research can be harmed is by researcher bias taking place. Therefore, attempts should be made to standardize the data analysis to a higher degree in order to reduce the likelihood of this occurring. In the case of this study, identical methods were used when transcribing all of the interviews. The transcriptions were punctuated in the same manner, nothing was omitted and they were written up without anything being added to them in order to ensure that they were completely untainted by the opinion of the researcher. However, the researcher retained an open mind and was aware of the possibility of emergent themes, which were analysed accordingly.

In addition to this, the validity of the interview data might also be harmed if the interviewer is unable to make out something that a participant says or if the interviewer misunderstandings something that has been said. Therefore, if there were any instances when the subject says something that were either indecipherable or difficult to understand they were asked to repeat it. This ensured that no parts of the data were omitted and that no sections of the transcript were missed out when it came to placing words and phrases within categories on account of the fact that the interviewer does not fully grasp what is meant by them. It also allowed the collection of data that were complete and consistent so that it could be analysed in its entirety.

4.5 The Role of the Researcher

The role of the researcher for this study varied for the qualitative and quantitative components, that is the researcher did not negate the possibility of objectivity or argue for including the subjective views of the participants. In qualitative research, the researcher becomes and effective research instrument in his or her own right and is charged with the task of interpreting the meaning behind the phenomena that is described within the data. The theory behind this subjective role is that only one instrument possesses sufficient levels of complexity to be able to adequately understand and analyse human existence and that this is another human being. Therefore, the researcher is the only tool that is capable of providing an insight into the qualitative data that is uncovered (Biggerstaff, 2012)

In qualitative research, the fact that a human being is being used as an instrument to interpret the data means that the outcome of the research is bound to be influenced in one way or another by the views of the researcher. Therefore, it is essential for the researcher to state what his or her views are in order to provide an insight into any influence that they might have upon the results (Horn, 2002). This ensures that a sufficient degree of transparency is present with regards to this issue.

In quantitative research, the role of the researcher is to act as an expert in both the method and the theory that is being applied and utilise his or her expertise in order to create a tightly-controlled, unbiased research environment. It is essential for the researcher to be able to control this environment in order to maintain reliability and validity. The researcher should be value-neutral and his or her planning and observation should have as little an effect as possible upon the results of the study (Horn, 2002).

In summary, the main difference between the role of the researcher for these two components of the research relates to the ability of the researcher to remain a neutral party that has a negligible impact upon the results. For the qualitative part, it is accepted that it is inevitable that he or she will influence the findings, as the researcher becomes a subjective instrument for analysing the data. However, the researcher should attempt to have as little an effect as possible upon the results when it comes to the quantitative aspect of the research and should attempt to use objective methods at all times when it comes to interpreting the findings.

Carter and Hurtado (2007) have argued that the role of the researcher in quantitative research is not to remain completely objective, as it is impossible to do so. They have stated that the perspectives of the researcher come into play when it comes to establishing how to go about the study and what methods to utilise, as it is impossible to remain truly objective when it comes to these issues. This challenges the commonly held notion that researchers should remain neutral and impartial at all times throughout the course of this variety of research in order to avoid biasing the results.

The notion that it is impossible for a researcher to be completely objective when conducting quantitative research has also been put forward by Goodwin and Goodwin (1996). This supports the notion that the role of the researcher is not to remain totally impartial, as this is not actually possible. It suggests that his personal perspective cannot be completely excluded from the research that is being carried out.

However, just because total neutrality cannot be attained, it does not mean that the role of the researcher should not be to strive to get as close to it as possible when it comes to quantitative researcher. Whilst it may not be possible to achieve it, researchers have to keep it in mind that it is something to aim towards. Therefore, it is important to focus upon attempting to be objective when it comes to the quantitative component of this research. To sum up, the researcher in a mixed methods research has to progress from objectivity to subjectivity or from subjectivity to objectivity depending on the various stages of the study.

4.6 Ethical Threats

There are a number of different ethical threats presented by this study. One such threat is that the participants might compromise their jobs or reputations by taking part. This can be solved by granting them anonymity. That way, they can be assured that no harm will come to them from taking part in the research. Moreover, in any research, participants take part without understanding how the information they provide will be utilised. In order to safeguard against this threat, participants have to be provided with information sheets detailing how their answers will be used. This will also make

sure that their full, informed consent is gained before the study is conducted. According to Hammersley and Traianou (2012), participants in research should be informed precisely about the purpose of study, what their participation entails, as well as their responsibilities and that of the responsibilities of the researcher. This aids transparency and ensures that they comprehend exactly what they will be doing and what will be expected of them. It prevents a situation from coming about in which they are duped into taking part in a study that they would not have consented to participate in if they had known the full details of what they were letting themselves in for. In this study participants may have to obtain consent from their educational establishments in addition to their own consent as they were offering their personal opinions. This ensured that the study was ethically sound. However, the research did not entail observing the participants whilst they were working for the institution and did not involve the identification of any specific schools or educational establishments. Moreover, it was focussed upon subject supervisors in Kuwait as a whole as opposed to those who have worked in any one school. Therefore, it was deemed to be sufficient to merely gain the informed consent of those who participated in the research directly, as the institutions that they worked at only played a minor role within the research.

Researcher bias poses a challenge to most research, especially when interviews are used for collecting data. Researchers have to make sure that his/her personal views or actions should not have an undue influence upon the findings of the study. If the researcher allowed his own opinion to effect the findings to too high a degree, then this could result in misleading conclusions and in a false account of e-learning readiness in Kuwait. This could be deemed to constitute dishonesty and might also lead to inappropriate measures being taken. Although the researcher has to allow his own perspective to come into play when it comes to qualitative research, this should be taken into consideration when analysing the results. Care should be taken to accommodate it and clearly state when the views of the researcher might have influenced the findings.

There is also an ethical threat posed by the possibility of the identities of the participation in the research being revealed and their anonymity being compromised (Ferguson, Myrick & Yonge, 2004). By signing informed consent forms, participants provide records of their names. If they

consent to take part in the research on condition that they are able to remain anonymous and then are not able to do so, this means that they have effectively been included in research that they did not consent to take part in. In order to mitigate this threat, any paperwork that contains details that could be used to identify the participants in this research should be kept under lock and key and should not be revealed to anybody except the researcher. This implies that records of informed consent can be kept without there being a possibility of the subjects having their identities revealed without their wishes. It means that the chance of them having their names or other identifying characteristics provided to third parties would be minimised.

It is sometimes the case that the nature of the data in qualitative research means that it is difficult not to reveal details that could lead to the identification of the participants (Ferguson, Myrick & Yonge, 2004). If an eventuality does arise in which they reveal data that could be used to identify them, steps will be taken to ensure that key identifying factors are obscured when it comes to reporting the findings. Demographic data should be reported carefully, using ranges or means as opposed to precise numerical data that is specific to individual participants. This will ensure that the subjects are not recognised on account of their ages or any other similar characteristics.

Ferguson, Myrick and Yonge (2004) have pointed out that there can sometimes be conflict between the need to avoid omitting contextual data and the need to preserve the anonymity of participants in research, which can pose something of an ethical dilemma. The research instrument should be constructed in a manner where the impact of omitting such data is minimised (Ferguson, Myrick & Yonge, 2004). Ultimately, the ability of the participants to remain anonymous is of the utmost importance so if a conflict arises, they should be given precedence with regards to this issue.

Research indicates that participants in research can sometimes become frustrated at having to remain anonymous and prefer their names to be put to the data that they have generated (Allmark, Boote, Chambers, Clarke, McDonnell, Thompson & Tod, 2009). This provides another ethical threat, as it is arguable that they should be permitted to decide that they do not wish to remain anonymous and have their identities revealed. However, the researcher has a responsibility to protect their careers

and their reputations. They should be allowed to tell people that they have taken part in the study but this should be left in their hands and the researcher should still keep their identities hidden.

There is also the possibility that participants will feel pressured into taking part in the study by the enthusiasm of the researcher. This could mean that they do not feel as if they are free to refuse (Ferguson, Myrick & Yonge, 2004). It should therefore be explained to the subjects that they have the right to state that they do not wish to take part in the study and that this right will be respected if this is what they decide they want to do. This will ensure that they are aware that they can opt not to participate without any hard feelings being directed towards them by the researcher because they have done so. Ferguson, Myrick and Yonge (2004) have pointed out the fact that researchers do not have to deliberately place individuals under pressure to take part in a study in order for them to feel pressurized into participating. The pressure can sometimes be perceived as opposed to real. Therefore, it is essential that potential participants are made aware of their rights with regards to this issue. Participants should also be informed of the fact that they have the right to withdraw from the research at any time before they have completed their part in it. It is possible that they might consent to take part and then come to the conclusion that it constitutes too much effort but feel obliged to continue anyway. Care should be taken to let them know that they are not locked in to taking part in the study once they have said that they consent to participate (Ferguson, Myrick & Yonge, 2004). This will ensure that they are free to decide that they no longer wish to take part at any juncture up until they have already done what is asked of them. If participants are not made aware of their right to withdraw from research, it is arguable that they have not been fully informed about the nature of the study. It is also unethical to manipulate them into doing something that they do not want to do, which restricts the information that they are provided with regarding this issue could be deemed to do. Therefore, for an ethical study to take place, it is essential that they know that they can walk away whenever they wish to do so.

Fernandez, Kodish and Weijer (2003) have stated that there is an ethical threat posed by the possibility of researchers failing to show the study participants the results of the research. They have stated that justice, beneficence and respect for persons are generally regarded as shaping the conduct

that is involved in research entailing human beings, and pointed out that respect for persons can be taken to involve informing participants of the conclusions at the end of the study (Fernandez, Kodish and Weijer, 2003). Therefore, this was taken into consideration with regards to this research.

According to Fernandez, Kodish and Weijer (2003), the results of the study should be summarised to the participants in a manner that is easy for them to comprehend. Failing to do this means that they have been utilised as a research tool and not granted due respect as human beings. It is denying them the self-worth that can be gained from knowing precisely what knowledge the study that they have taken part in has contributed to the world (Fernandez, Kodish and Weijer, 2003). In order to avoid the ethical threat that is posed by failing to deliver the results of the study to them, it is therefore necessary to convey the findings to them as soon as all of the necessary conclusions have been arrived upon based on the data that they have provided.

Research participants can often feel as if they have been exploited if they are not told the findings of the study that they have been involved in. It also means that an opportunity is missed out upon to enhance their trust in the process of research (Fernandez, Kodish and Weijer, 2003). These are further reasons why the information that is arrived upon based upon the data that is provided should be fed back to the individuals who gave their time to take part.

According to Allmark et al., (2009), there are a number of ethical threats involved in the use of interviews for research purposes. Researchers can sometimes ask interviewees questions that they did not expect to be asked (Allmark et al., 2009). This could be argued to be an invasion of privacy. It has the potential to be viewed as invasive and cause distress to participants.

In the case of this study, it is possible that the participants could be asked questions that they believe to be overly probing about e-learning in Kuwait. In order to account for this, they should be provided with details of what the interviews will entail before they are conducted (Allmark et al., 2009). It might be impossible to provide the full details, as the interviewers may not know exactly what they are going to ask. However, this will provide an insight into the areas that are covered so that they do not come as a surprise to the interviewees.

Allmark et al., (2009) have pointed out that there is an ethical risk involved in interviewers asking questions about subjects that the interviewees would prefer to keep private. In order to mitigate this, if an interviewee states that he does not want to talk about a certain issue then this should be respected and he should not be pressured into doing so. This will reduce the risk of the participants feeling as if they have been asked overly invasive questions in spite of the fact that they stated that they were not interested in providing responses to them. Researchers also become overly familiar with the respondents during interviews, a situation which has the potential to compromise the results of the research but could also make the interviewees feel uncomfortable (Allmark et al., 2009). This can be prevented by ensuring that the researcher resolves to remain professional at all times and be aware of his role and his responsibilities to the participants. If the participants in a study have a prior relationship with the researcher, then they might feel as if they are under obligation to take part (Allmark et al., 2009). This poses another ethical threat, as it means that their freedom to decide not to participate is compromised. In order to mitigate this, participants can be chosen that have no prior relationship of any kind to the researcher. This will prevent this eventuality from coming into being.

According to Allmark et al., (2009), emergent ethical issues also sometimes manifest themselves as research progresses. Therefore, it is possible that unforeseen ethical threats will come into being once the research is under way. They should be dealt with as they appear and the researcher should maintain to act in an ethical manner at all times, taking the participants' comfort, safety and reputations into consideration throughout the study. Any threats that come into being that have not been mentioned throughout the course of this section should be mitigated as the researcher sees fit, keeping in mind the fact that sensitivity to the participants' needs is paramount. The ethics of the researcher should not be compromised for the sake of enhancing the levels of data that are generated; all threats should be given due attention and any threats that emerge should be assessed and a course of action should be formulated for dealing with it. Research involving interviews should not be seen as low risk when it comes to ethics. There are numerous different issues that can cause the participants to feel pressured or cause them discomfort (Allmark et al., 2009). Every effort should be taken to ensure that these factors are mitigated and that the research is carried out in a manner that involves

the utmost respect being given to the individuals who have consented to participate in the study that is being carried out.

4.7. Ethics approval process in Kuwait

In order to adhere to ethical principles, multiple approval process had to be navigated. First, the research proposal and a letter stating the purpose of the study, duly endorsed by the research supervisor, were sent to the Kuwait Cultural Office in London. The office situated within the Kuwait Embassy approved the proposal and issued an authorisation letter allowing data collection within the stipulated period. Then, the authorisation along with the ethics form from the University of Southampton were submitted to the Assistant Secretary for Public Education, Ministry of Education, along with the identity card issued by the university and copies of research instruments for the questionnaire and interviews. After obtaining a letter of permission allowing data collection at schools, copies were sent to the selected secondary schools in all the six school districts. The letter included the researcher's name, university name, education level, purpose of research, methods that were used to collect data, and a request to school heads to assist the researcher. Copies of the letters were also taken and handed over to schools before administering the questionnaire or conducting interviews. During each visit to the schools the aims of the study and the purpose for collecting data were explained to school principals, subject supervisors and teachers.

Summary

This chapter outlined the methods that were adopted for investigating the e-readiness of subject supervisors in Kuwaiti schools. It explained why a critical realist approach was taken and the rationale for the mixed methods research design. The chapter presented the research instruments formulated for the investigation. Finally, it briefly explained the data analysis procedures, and the ethical considerations for the study.

Chapter Five

Data Analysis

5.1. Introduction

This chapter analyses both the quantitative and the qualitative data obtained by administering questionnaires and through interviews. Quantitative data (phase I) was analysed using the Statistical Package for Social Sciences (SPSS) version 23.0 which included assessment of reliability and factor analysis, descriptive statistics, and multiple regression analysis. Qualitative data (phaseII) was analysed using NVivo 11.

5.2. Phase I – Confirmatory (Questionnaires)

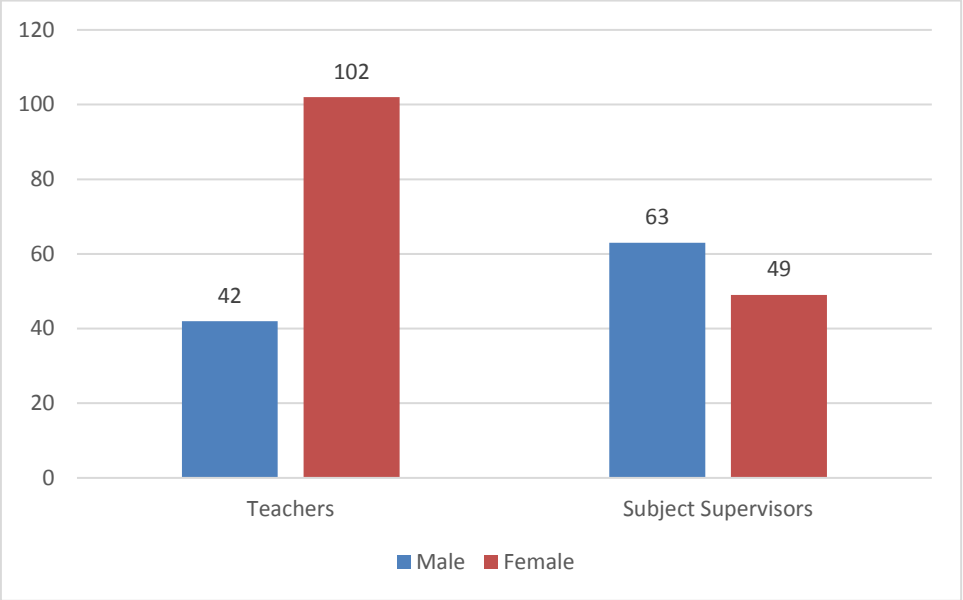
This section deals with the quantitative analysis of the data to answer the research questions. Before attempting to answer the research questions, data is described so as to provide an understanding of the characteristics of the sample and some of the key variables of study.

Sample characteristics

Gender

A total of 144 teachers and 114 subject supervisors were surveyed. Majority of the teachers were female (70.8%) while males constituted 29.2% of the sample (Figure 2). For the supervisors, 56% were males while 44% were females. Two subject supervisors did not disclose their gender and this was treated as missing data.

Figure: 2 Gender distribution of the sample



Age

Most of the teachers were 40 years and below while subject supervisors were older compared to teachers. Table 3 shows that 96% of the subject supervisors were above 40 years. Two teachers and four supervisors did not disclose their age.

Table 3: Age

Age Range	Teachers	Subject Supervisors
Less than 30	62	0
Between 30 and 40	64	4
Between 40 and 50	12	79
More than 50	4	27
Total	142	110

Work experience

A majority of teachers (65%) and subject supervisors (75%) had work experience of 10 years and below (Table 4). Nonetheless, teachers have more work experience compared to subject supervisors. For instance, 35% of the teachers have over 10 years of work experience compared to 25% of the subject supervisors with the same work experience. Four subject supervisors did not disclose their work experience.

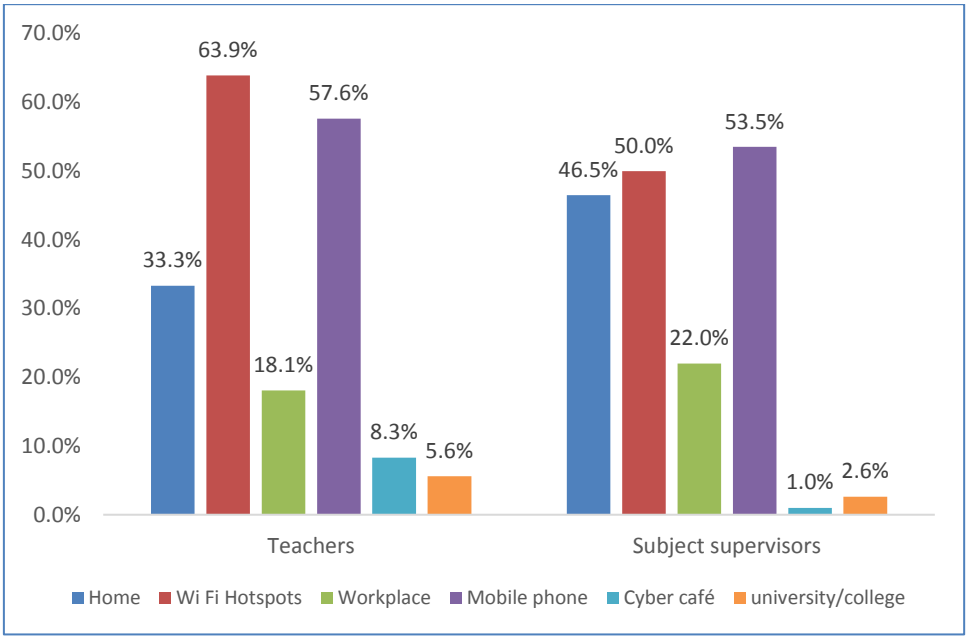
Table 4: Work experience

Range of years	Teachers	Subject Supervisors
Less than 5 years	54	39
Between 5 and 10 years	39	43
Between 10 and 15 years	24	17
More than 15 years	27	11
Total	144	110

Access to internet

Teachers and subject supervisors access the internet mostly from Wi-Fi hotspots [teachers=63.9%, supervisors=50%], mobile phones [teachers=58%, supervisors=53.5%], and the home [teachers=33%, supervisors=46.5%]. On the other hand, both groups are less likely to access internet from the internet café [teachers=8%, supervisors=1%], university/college [teachers=5.6%, supervisors=2.6%].

Figure 3: Access to internet



Use of social media in teaching

Both teachers and subject supervisors use some social media platforms in teaching. The most used are: WhatsApp [teachers=68%, subject supervisors=83%], Instagram [teachers=51.4%, subject supervisors=44%], and Twitter [teachers=33%, subject supervisors=33%]. About 8% and 9% of the

teachers and supervisors do not use any social media in their teaching. Though rarely used, some a few teachers and supervisors named other platforms including YouTube, educational website, internet, Snap chat, google, and Pdf. These may not be social media but they were mentioned by the two groups.

Table 5: Use of social media in teaching

Social media	Teacher	Subject Supervisors
Facebook	15%	11%
Instagram	51.40%	44%
Twitter	33%	33%
WhatsApp	68%	83%
None	8%	9%
Others		
YouTube	1.40%	
Educational website	1.40%	
Internet	1.40%	
Snap Chat	4.20%	3.50%
Google		1.80%
Pdf		1.80%

Online conference tools used by teachers and subject supervisors

The table (6) below indicates a similar trend in usage of online conference tools. Majority of the teachers (58%) and subject supervisors (43%) do not use any of the conference platforms listed in the table. Skype and google hangout are slightly preferred as an online conference tool by both groups.

Table 6: Online conference tools used by teachers and subject supervisors

Tools	Teachers	Subject Supervisors
Skype	22%	24%
Google hangout	14%	25%
Yahoo Messenger	14%	15%
Adobe Connect	1.4%	3.5%
WebEx	3.5%	2.6%
None	58%	43%

E-learning competences possessed by teachers and subject supervisors

Majority of the respondents in both groups can develop and use computer generated instruction material such as slides. From the table (7) below, 55% and 65% of the teachers and subject supervisors indicate ability to develop instruction media such as slides using the computer. Similarly, 63% and 68% of the teachers and subject supervisors indicate that they are able to use instructional media such as slides in their teaching. This implies that respondents possess the very basic the E-learning competences. From the results, both groups lack most of the e-learning competences. The frequencies drop drastically for more advanced e-learning competences such as graphic design, content expertise, and developing Computer Assisted Instructional (CAI). Equally, 10% and 6% of the teachers and subject supervisors confessed to not having any e-learning competence, respectively.

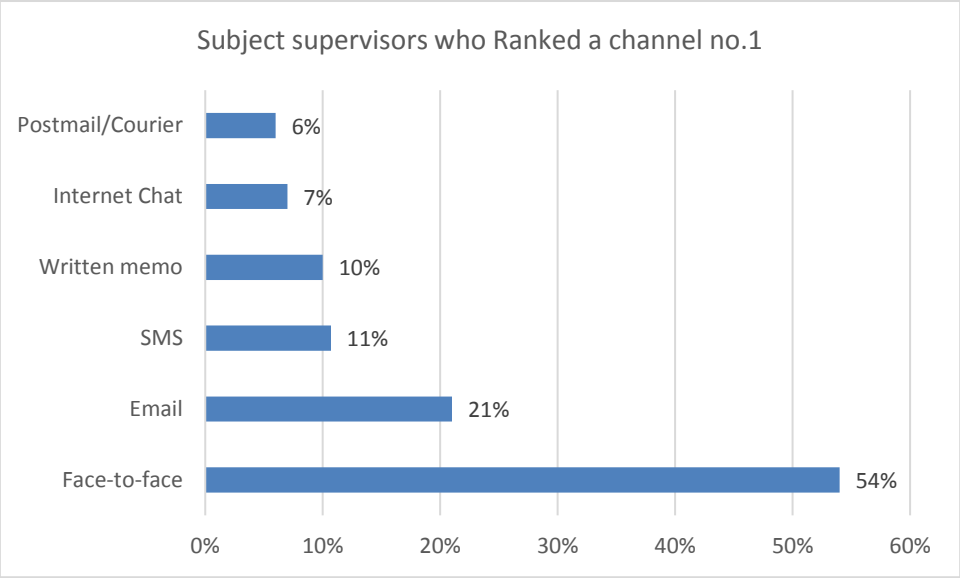
Table 7: E-learning competences

E-learning competences	Teachers	Subject supervisors
Content expert	17%	24%
Graphic design	4%	7%
Develop CAI	19%	21%
Use CAI	33%	33%
Video production	31%	14%
Develop Instructional Media	55%	65%
Photography	35%	20%
Use Instructional Media	63%	68%
Story boarding	28%	27%
None	10%	6%

Communication channels commonly used

This question was posed to only the subject supervisors. They were required to rank in order of preference the communication channels they frequently used or preferred to use to communicate. As seen from the graph below, majority of the subject supervisors (54%) ranked face-to-face as the most commonly used channel of communication. About 10% of the respondents ranked email and SMS as their number one channel of communication. This implies limited proliferation of the e-platforms for daily communication. Postal/courier and internet chatting were the least used or preferred means of communication

Figure 4: Communication channels commonly used



5.2.1. Answering research questions

After describing the key sample and the key study variables, it is time to embark on answering the study questions. The purpose of this study is to investigate the e-learning readiness of subject supervisors to adopt e-learning in Kuwait. Moreover, the study is interested in examining the challenges facing teachers/schools in applying e-learning. Teachers' assessment of the role of the subject supervisors in supporting the application of e-learning strategies is investigated. Equally, the subject supervisors' perceptions towards elements that contribute to the development of e-learning are investigated.

E-learning readiness of subject supervisors

Section C of the subject supervisors' questionnaire has 44 items dedicated to exploring the e-learning readiness of the subject supervisors. Data reduction methods such as factor analysis would be more appropriate to make sense out of all these items of the questionnaire. Factor analysis would enable the establishment of various dimensions thought to constitute e-learning readiness. Equally, factor analysis would enable the evaluation of all the items for internal consistence in measuring the underlying construct (e-learning readiness) and the dimensions that constitute e-learning readiness.

Items evaluation and analysis

Before embarking on factor analysis, individual item statistics are analyzed and evaluated for their suitability to measure the underlying construct (Table 8).

Table 8: Descriptive statistics

	Descriptive Statistics							
Item no.	Item description	N Statistic	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis
CI.1	I have the basic skills to use a computer (e.g. using keyboard, shortcuts, using mouse, copying and pasting files, creating, editing and saving files, creating folders)	57	1.0	4.0	3.4	0.8	-1.3	0.7
CI.2	I can create presentations using Power Point, create spreadsheets (e.g. Excel), and word processor for content delivery	63	1.0	5.0	3.1	1.1	-0.7	-0.8
CI.3	I know how to download and install software	69	1.0	5.0	3.3	1.2	-0.9	-0.3
CI.4	I have the basic skills to search for information by browsing the Internet and retrieve data	56	1.0	4.0	2.9	1.2	-0.6	-1.2
CI.5	I know how to communicate using email, Skype, and send text/audio/video files using cloud computing	68	1.0	4.0	3.1	1.1	-0.7	-0.9
CI.6	I can troubleshoot most problems associated with using a computer	76	1.0	4.0	2.9	1.2	-0.5	-1.3
CI.7	I feel that prior experience is required for using online technologies.	69	1.0	4.0	3.3	0.9	-1.1	-0.1
CII.1	I have access to a computer in the school	92	1.0	5.0	3.5	1.2	-0.8	-0.3
CII.2	I have access to relevant hardware and printers/scanners/overhead projectors	84	1.0	5.0	3.7	1.1	-1.0	0.4
CII.3	I have access to adequate software (e.g. Microsoft Word, Adobe Acrobat)	88	1.0	5.0	3.9	0.9	-1.1	1.1
CII.4	I have access to reliable high speed Internet	88	1.0	5.0	3.4	1.2	-0.7	-0.7
CII.5	I provide tech support	82	1.0	5.0	3.5	1.1	-1.1	0.3
CII.6	I think poor infrastructure may hinder the Ministry of Education from developing and implementing e-learning	94	1.0	5.0	3.7	1.1	-0.8	-0.1
CII.7	I think the content/curriculum mandated by Ministry of Education may hinder successful implementation of e-learning	90	1.0	5.0	3.5	1.1	-0.4	-0.9
CII.8	I think quick technical and administrative support is important to my success as a Subject Supervisor	99	1.0	5.0	4.0	1.0	-1.2	1.4
CIII.1	I have the confidence to use advanced technology for training teachers	89	1.0	5.0	3.7	1.1	-0.9	0.0
CIII.2	I hesitate to use technology for fear of making mistakes	90	1.0	5.0	2.4	1.1	0.4	-1.1
CIII.3	I learnt most of the things on my own about using e-learning technologies	91	1.0	5.0	3.5	1.1	-0.7	-0.4
CIII.4	I would feel better about using technology if I knew more about them	94	1.0	5.0	3.8	1.2	-1.0	0.3
CIII.5	I feel threatened when I see teachers using technology in their learning /working	97	1.0	5.0	1.9	1.2	1.6	1.5
CIII.6	Knowing how to use e-learning technologies can increase my job possibilities	96	2.0	5.0	4.5	0.7	-1.8	4.0
CIII.7	I like using computers for research	99	1.0	5.0	4.6	0.7	-2.7	11.4
CIII.8	I like to communicate with others using e-mail to support my learning	100	1.0	5.0	4.3	0.8	-1.7	4.1
CIII.9	I spend a lot of time on the internet	75	1.0	5.0	3.8	1.1	-1.1	0.3
CIII.10	I enjoy working on tasks on a computer	97	2.0	5.0	4.2	0.6	-1.2	3.8
CIII.11	I like to try new technologies for teaching, training and/or learning	95	2.0	5.0	4.5	0.6	-1.3	3.3

CIII.12	It is important to learn how to use a computer for learning and training, and how to use the internet as a learning resource	99	2.0	5.0	4.6	0.6	-1.7	4.4
CIII.13	Learning about how to use e-learning technologies is a waste of time.	95	1.0	5.0	1.8	1.2	1.5	1.1
CIII.14	I think that would be able to remain motivated even through the instructor is not online at all times.	70	2.0	5.0	4.0	0.7	-1.6	4.4
CIII.15	I think that I would be able to complete my work even when there are online distractions (e.g. friends sending emails or websites to surf)	91	2.0	5.0	4.1	0.7	-1.3	3.7
CIII.16	I think that I would be able to complete my work even when there are distractions in my home (e.g. television, children, and such)	90	2.0	5.0	4.1	0.5	-1.2	6.1
CIII.17	I think I can spend some time (15, 30 or 60 minutes) for improving myself during some part of the day (morning, afternoon, evening or night)	97	1.0	5.0	4.2	0.6	-1.7	7.6
CIII.18	I believe that self – development of teachers may strengthen the position of the Ministry of Education	101	2.0	5.0	4.5	0.7	-1.5	3.5
CIII.19	I am interested to upgrade my academic / professional qualification and/or work performance through e-learning	97	2.0	5.0	4.2	0.6	-1.0	4.0
CIII.20	I think positively toward the technological interventions in daily /routine tasks	98	2.0	5.0	4.2	0.6	-1.2	3.9
CIII.21	I feel comfortable with the thought of using technology to deliver instruction	99	4.0	5.0	4.5	0.5	0.2	-2.0
CIII.22	The thought of using e-learning technologies makes me very nervous	95	1.0	5.0	2.3	1.2	0.8	-0.6
CIII.23	I get a sinking feeling when I think of trying to use technology for training trainees and/or learning.	94	1.0	5.0	1.9	1.0	1.3	1.2
CIV.1	I accepted technological innovation (e.g. start using digital documents instead of hard copies) in routine /daily tasks	89	2.0	5.0	4.4	0.6	-1.1	3.0
CIV.2	I have accepted any changes that required the use of technology in daily /routine tasks	90	4.0	5.0	4.4	0.5	0.6	-1.7
CIV.3	The most effective method of learning is face-to-face	81	2.0	5.0	4.0	0.9	-1.2	1.2
CIV.4	The teacher /trainer /instructor is still the best information provider	80	2.0	5.0	3.8	1.0	-0.8	-0.4
CIV.5	E-learning is an efficient means of disseminating information	99	2.0	5.0	4.3	0.6	-0.8	3.1
CIV.6	E-learning enables learners and instructor to communicate and interact better with one another	97	2.0	5.0	4.2	0.7	-1.3	3.2

From the table above, most of the item means are in the agreement zone (above 3 on a 5 likert scale). Also, the minimum and maximum values show that respondents fairly utilized the scale as seen from wider ranges on most of the items. Nonetheless, some items show limited utilization of the scale as seen from very narrow ranges (minimum score is close to the maximum score. Such items include CIII.21, and CIV.2. This implies that respondents did not vary widely on these items. Variability in responses is also reflected in the standard deviation but the values are not so big on most of the items and indication of limited variations in the response pattern. In terms of kurtosis and skewness, most of the items are within the acceptable ranges. For instance, Kline (1994) advises that items should not be above 1 and 2 on skewness and kurtosis respectively. Of course there is a lot of contention on such suggested thresholds. However, some items including CIII.6, CIII.7, and CIII.8, CIII.12, CIII.14 and CIII.17 are of concern given the very high value on kurtosis and/or skewness.

High values on kurtosis would imply that the shape of the response distribution curve is very different from the normally distributed data set. On the other hand, big values of skewness imply that data is either negatively skewed or positively skewed and very different from normally distributed dataset. Some of the items singled out as not falling within the psychometric properties are monitored in the subsequent analysis before a decision to exclude them from further analysis is taken.

Reliability statistics

a. Overall reliability

Items are evaluated with the intent to establish whether they are internally consistent in measuring the underlying construct. Also, internal consistence is investigated for items under each dimension of e-learning. The Cronbach Alpha is used for this analysis. Whereas there is no general agreement on the acceptable value for Cronbach Alpha, Kline (1994) indicates that an Alpha of 0.7 and above is acceptable and a sign of item consistence in measuring the underlying construct.

Table 9: Reliability of questionnaire items

Reliability Statistics	
Cronbach's Alpha	N of Items
0.880	44

The above reliability statistics (Table 9) indicates that all the items are fairly internally consistent (Alpha=0.88) in measuring the underlying construct. In the table below, a further investigation is conducted to establish the extent to which each individual item is internally consistent in measuring e-learning readiness. If deleting an item increases the overall Alpha Cronbach above the earlier overall estimated Alpha of 0.88, this is an indication that such an item is internally inconsistent and uninformative to the scale. On the other hand, if deleting an item lowers the overall Cronbach Alpha (below the estimated 0.88), then such an item should be maintained because that is an indicator that it is internally consistent and informative to the scale (Kline, 1994). From the table (10) below, no item if deleted significantly improves the earlier estimated Cronbach Alpha.

Table 10: Overall reliability statistics

Item-Total Statistics				
Item no.	Item description	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Cronbach's Alpha if Item Deleted
CI.1	I have the basic skills to use a computer (e.g. using keyboard, shortcuts, using mouse, copying and pasting files, creating, editing and saving files, creating folders)	126.61	436.37	0.88
CI.2	I can create presentations using Power point, create spreadsheets (e.g. Excel), and word processor for content delivery	126.94	450.41	0.88
CI.3	I know how to download and install software	127.22	442.18	0.88
CI.4	I have the basic skills to search for information by browsing the Internet and retrieve data	126.89	440.46	0.88
CI.5	I know how to communicate using email, Skype, and send text/audio/video files using cloud computing	126.44	441.44	0.88
CI.6	I can troubleshoot most problems associated with using a computer	127.28	459.98	0.88
CI.7	I feel that prior experience is required for using online technologies.	126.83	451.44	0.88
CII.1	I have access to a computer in the school	126.50	425.79	0.88
CII.2	I have access to relevant hardware and printers/scanners/overhead projectors	126.67	426.47	0.88
CII.3	I have access to adequate software (e.g. Microsoft Word, Adobe Acrobat)	126.78	426.30	0.87
CII.4	I have access to reliable high speed Internet	126.61	435.31	0.88
CII.5	I provide tech support	125.83	451.44	0.88
CII.6	I think poor infrastructure may hinder the Ministry of Education from developing and implementing e-learning	126.22	444.42	0.88
CII.7	I think the content/curriculum mandated by Ministry of Education may hinder successful implementation of e-learning	126.22	451.01	0.88
CII.8	I think quick technical and administrative support is important to my success as a Subject Supervisor	126.17	433.56	0.88
CIII.1	I have the confidence to use advanced technology for training teachers	126.44	429.91	0.87
CIII.2	I hesitate to use technology for fear of making mistakes	126.39	442.13	0.88
CIII.3	I learnt most of the things on my own about using e-learning technologies	126.33	442.00	0.88

CIII.4	I would feel better about using technology if I knew more about them	126.06	442.53	0.88
CIII.5	I feel threatened when I see teachers using technology in their learning /working	127.11	448.93	0.88
CIII.6	Knowing how to use e-learning technologies can increase my job possibilities	124.83	460.97	0.88
CIII.7	I like using computers for research	124.83	464.85	0.88
CIII.8	I like to communicate with others using e-mail to support my learning	124.89	463.75	0.88
CIII.9	I spend a lot of time on the internet	125.22	468.65	0.89
CIII.10	I enjoy working on tasks on a computer	127.28	422.21	0.87
CIII.11	I like to try new technologies for teaching, training and/or learning	125.78	435.36	0.88
CIII.12	It is important to learn how to use a computer for learning and training, and how to use the internet as a learning resource	126.00	428.24	0.87
CIII.13	Learning about how to use e-learning technologies is a waste of time.	126.33	437.88	0.88
CIII.14	I think that would be able to remain motivated even through the instructor is not online at all times.	126.83	423.44	0.87
CIII.15	I think that I would be able to complete my work even when there are online distractions (e.g. friends sending emails or websites to surf)	126.39	438.60	0.88
CIII.16	I think that I would be able to complete my work even when there are distractions in my home (e.g. television, children, and such)	126.67	437.65	0.88
CIII.17	I think I can spend some time (15, 30 or 60 minutes) for improving myself during some part of the day (morning, afternoon, evening or night)	126.94	430.76	0.88
CIII.18	I believe that self – development of teachers may strengthen the position of the ministry of education	126.39	433.78	0.88
CIII.19	I am interested to upgrade my academic / professional qualification and/or work performance through e-learning	127.00	425.06	0.87
CIII.20	I think positively toward the technological interventions in daily /routine tasks	126.94	417.82	0.87
CIII.21	I feel comfortable with the thought of using technology to deliver instruction	126.78	414.77	0.87
CIII.22	The thought of using e-learning technologies makes me very nervous	126.67	456.00	0.88

CIII.23	I get a sinking feeling when I think of trying to use technology for training trainees and/or learning.	127.33	438.35	0.88
CIV.1	I accepted technological innovation (e.g. start using digital documents instead of hard copies) in routine /daily tasks	126.94	426.64	0.87
CIV.2	I have accepted any changes that required the use of technology in daily /routine tasks	126.61	424.96	0.87
CIV.3	The most effective method of learning is face-to-face	126.72	430.33	0.88
CIV.4	The teacher /trainer /instructor is still the best information provider	125.39	460.02	0.88
CIV.5	E-learning is an efficient means of disseminating information	126.83	421.32	0.87
CIV.6	E-learning enables learners and instructor to communicate and interact better with one another	126.56	427.08	0.87

b. Dimensional reliability

After establishing that overall, the items are internally consistent in measuring the overall underlying construct, given that this construct is assumed to be measured by four dimensions, it is critical to evaluate the items that are assumed to constitute each of these dimensions for internal consistency. The dimensions include:

i. Technological skills readiness (labelled CI)
ii. Equipment/infrastructure readiness (labelled CII)
iii. Attitude readiness (labelled CIII)
iv. Cultural readiness (labelled CIV)

Dimensional reliability for Technological skills readiness (labelled CI)

Seven items are assumed to measure this dimension (CI.1-C1.7)

Table 11: Dimensional reliability for Technological skills readiness

Reliability Statistics	
Cronbach's Alpha	N of Items
0.62	7

An Alpha of 0.62 falls below the suggested Alpha of 0.7. Nonetheless, it could as well be argued that 0.6 is not very far from 0.7, therefore, this result can be interpreted as average reliability (Table 11).

Dimensional reliability for Equipment/infrastructure readiness (labelled CII)

The Alpha of 0.82 is an indicator that all the eight items reliably measure this dimension. Only one item (CII.5: I provide tech support) seems unreliable in measuring this dimension given that deleting this item would slightly improve the Alpha to 0.835. Nonetheless, this improvement is very minimal.

Table 11: Dimensional reliability for Equipment/infrastructure readiness

Reliability Statistics	
Cronbach's Alpha	N of Items
0.82	8

Dimensional reliability for Attitude readiness (labelled CIII)

An Alpha of 0.83 implies that the 23 items are consistent in measuring this dimension (Table 12). Nonetheless, three items if deleted would slightly improve the overall Alpha. These include items CIII.2, CIII.5 and CIII.9.

Table 12: Dimensional reliability for Attitude readiness

Reliability Statistics	
Cronbach's Alpha	N of Items
0.829	23

Given that this dimension is measured by 6 sub dimensions including; confidence, delight, importance, motivation, self-development and anxiety, reliability tests are conducted for each of these sub-dimensions. Out of the 6 sub-dimensions of Attitude readiness, only two sub-dimensions have Alpha>0.7. These include motivation (Alpha=0.88) and self-development (Alpha=0.86). All the items that measure these two sub dimensions are consistent. The other four dimensions all have their Alpha's below 0.7, an indication that they are not consistently measured. These include confidence (Alpha=0.45) delight (Alpha=0.56), importance (Alpha=0.26), and anxiety (Alpha=0.32). Given that most of these sub-dimensions are measured by as low as two items, unreliable Alpha Cronbach may be obtained.

Dimensional reliability for Cultural readiness (labelled CIV)

The six items measure this (Table 13) dimension reliably as indicated by an Alpha of 088.

Table 13: Dimensional reliability for Cultural readiness

Reliability Statistics	
Cronbach's Alpha	N of Items
0.88	6

Factor Analysis

The above item analysis and evaluation have provided indications of scales that are well measured and those that are not consistently measured by the respective items. Further analysis was conducted to establish whether the previously assumed dimensions (factors) actually measured the underlying construct. An exploratory factor analysis (EFA) was initially undertaken to explore the possible and meaningful number of factors that are manifested in the data set. This was followed by a confirmatory factor analysis (CFA) where a fixed number of predetermined optimal factors were extracted from the data.

Before conducting factor analysis, preliminary tests were undertaken for sample adequacy and intra item correlation. Sample adequacy was tested using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. According to Kline (1994), a KMO above 0.5 would indicate an adequate sample for factor analysis. On the other hand, Bartlett's test for sphericity was used to test for presence of correlations between items that measure the underlying construct. Kline (1994) indicates that a statistic below 0.05 would be required in this regard.

The Bartlett's and KMO tests

From the table below (Table 14), the KMO is above 0.5 which is an indicator of adequate sampling for conducting factor analysis. Equally, the Bartlett's test indicate presence of correlations between items which is another condition for conducting factor analysis ($X^2(946)=1396.64$, $P<.001$).

Table 14: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.79
Bartlett's Test of Sphericity	Approx. Chi-Square	1396.64
	df	946
	Sig.	.00

After these tests, an Exploratory Factor Analysis (EFA) was undertaken (Table 15).

Table 15: EFA results

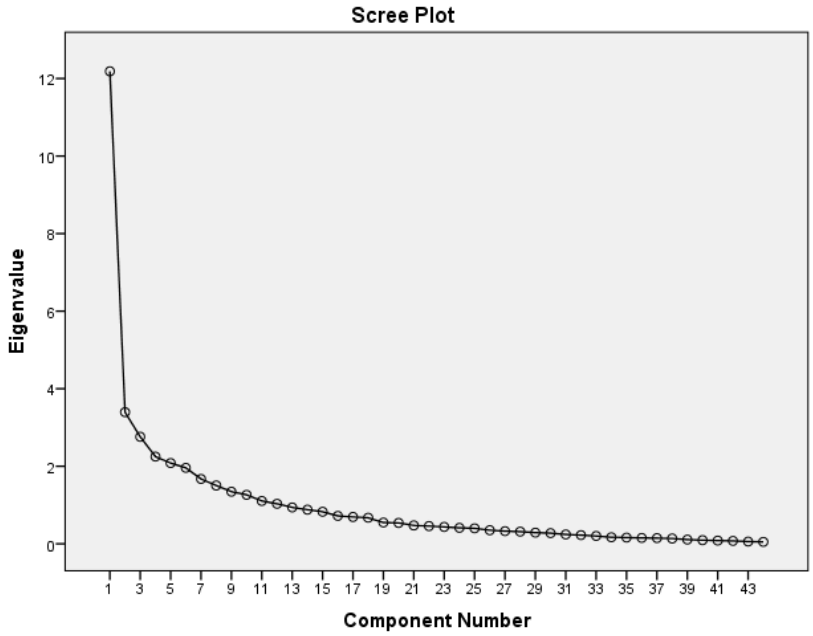
Total Variance Explained						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.2	27.7	27.7	12.2	27.7	27.7
2	3.4	7.7	35.4	3.4	7.7	35.4
3	2.8	6.3	41.7	2.8	6.3	41.7
4	2.2	5.1	46.8	2.2	5.1	46.8
5	2.1	4.7	51.5	2.1	4.7	51.5
6	2.0	4.5	56.0	2.0	4.5	56.0
7	1.7	3.8	59.8	1.7	3.8	59.8
8	1.5	3.4	63.2	1.5	3.4	63.2
9	1.3	3.1	66.3	1.3	3.1	66.3
10	1.3	2.9	69.1	1.3	2.9	69.1
11	1.1	2.5	71.6	1.1	2.5	71.6
12	1.0	2.3	74.0	1.0	2.3	74.0
13	0.9	2.1	76.1			
14	0.9	2.0	78.1			
15	0.8	1.9	80.0			
16	0.7	1.6	81.6			
17	0.7	1.6	83.2			
18	0.7	1.5	84.7			
19	0.5	1.2	86.0			
20	0.5	1.2	87.2			
21	0.5	1.1	88.3			
22	0.5	1.0	89.3			
23	0.4	1.0	90.3			
24	0.4	0.9	91.2			
25	0.4	0.9	92.2			
26	0.4	0.8	93.0			
27	0.3	0.7	93.7			
28	0.3	0.7	94.4			
29	0.3	0.7	95.1			
30	0.3	0.6	95.7			
31	0.2	0.5	96.2			
32	0.2	0.5	96.7			
33	0.2	0.5	97.2			
34	0.2	0.4	97.6			
35	0.2	0.4	98.0			
36	0.2	0.3	98.3			
37	0.1	0.3	98.6			
38	0.1	0.3	98.9			
39	0.1	0.2	99.2			

40	0.1	0.2	99.4			
41	0.1	0.2	99.6			
42	0.1	0.2	99.8			
43	0.1	0.1	99.9			
44	0.0	0.1	100.0			
Extraction Method: Principal Component Analysis.						

Results in table (15) above suggest the presence of about 12 factors in the dataset. The 12 factors would cumulatively explain a total variance of 73.98%. One of the key principles of factor analysis is to try and use a few factors to explain much more variance. To this end, a scree plot is used to establish such factors that explain more variance in the dataset.

From the scree plot below (Figure 5), the slope of the curve flattens after the fourth factor. This indicates that after the fourth variable, lesser variance is explained by the subsequent factors. From the table (15) with the EFA results, the first 4 factors cumulatively explain 46.8% of total variance. This is aligned with the predetermined number of factors as indicated in the questionnaire (4 factors CI, CII, CIII, and CIV).

Figure 5: Scree plot



The Confirmatory Factor Analysis

A Confirmatory Factor Analysis (CFA) is conducted to extract the 4 factors and establish the individual question items that load on to these factors. In the questionnaire, it is indicated that 7, 8, 23 and 6 items constitute factors 1, 2, 3, and 4 respectively. Through the CFA this can either be confirmed or refuted.

The principle components analysis is used as the method to extract the four factors believed to underlie the dataset. To reduce on overcrowding of the matrix solution, smaller coefficients of Eigen values less than 0.3 are suppressed. Further, missing values in the dataset are replaced by the mean score. The unrotated factor matrix is reported below (Table 16).

Table 16: Unrotated factor matrix

Component Matrix					
		Component			
		1	2	3	4
CI.1	I have the basic skills to use a computer (e.g. using keyboard, shortcuts, using mouse, copying and pasting files, creating, editing and saving files, creating folders)	0.37		0.32	0.34
CI.2	I can create presentations using Power point, create spreadsheets (e.g. Excel), and word processor for content delivery			0.60	
CI.3	I know how to download and install software		0.49		
CI.4	I have the basic skills to search for information by browsing the Internet and retrieve data			0.43	
CI.5	I know how to communicate using email, Skype, and send text/audio/video files using cloud computing				0.37
CI.6	I can troubleshoot most problems associated with using a computer				0.32
CI.7	I feel that prior experience is required for using online technologies.		0.31	0.31	0.36
CII.1	I have access to a computer in the school	0.41		0.50	
CII.2	I have access to relevant hardware and printers/scanners/overhead projectors	0.42		0.58	
CII.3	I have access to adequate software (e.g. Microsoft Word, Adobe Acrobat)	0.65			
CII.4	I have access to reliable high speed Internet	0.40	0.32	0.43	
CII.5	I provide tech support		0.38		0.35
CII.6	I think poor infrastructure may hinder the Ministry of Education from developing and implementing e-learning	0.49			
CII.7	I think the content/curriculum mandated by Ministry of Education may hinder successful implementation of e-learning				0.31
CII.8	I think quick technical and administrative support is important to my success as a Subject Supervisor	0.58			0.42
CIII.1	I have the confidence to use advanced technology for training teachers	0.66			0.43

CIII.2	I hesitate to use technology for fear of making mistakes	0.40			0.48
CIII.3	I learnt most of the things on my own about using e-learning technologies	0.55	0.34		0.38
CIII.4	I would feel better about using technology if I knew more about them	0.61	0.31		
CIII.5	I feel threatened when I see teachers using technology in their learning /working				0.32
CIII.6	Knowing how to use e-learning technologies can increase my job possibilities		0.58		
CIII.7	I like using computers for research		0.51	0.34	
CIII.8	I like to communicate with others using e-mail to support my learning		0.73		
CIII.9	I spend a lot of time on the internet				
CIII.10	I enjoy working on tasks on a computer	0.81			
CIII.11	I like to try new technologies for teaching, training and/or learning	0.59			
CIII.12	It is important to learn how to use a computer for learning and training, and how to use the internet as a learning resource	0.66			
CIII.13	Learning about how to use e-learning technologies is a waste of time.	-0.31		0.35	
CIII.14	I think that would be able to remain motivated even through the instructor is not online at all times.	0.74			
CIII.15	I think that I would be able to complete my work even when there are online distractions (e.g. friends sending emails or websites to surf)	0.70			
CIII.16	I think that I would be able to complete my work even when there are distractions in my home (e.g. television, children, and such)	0.73			
CIII.17	I think I can spend some time (15, 30 or 60 minutes) for improving myself during some part of the day (morning, afternoon, evening or night)	0.78			
CIII.18	I believe that self – development of teachers may strengthen the position of the ministry of education	0.76			
CIII.19	I am interested to upgrade my academic / professional qualification and/or work performance through e-learning	0.86			
CIII.20	I think positively toward the technological interventions in daily /routine tasks	0.71			
CIII.21	I feel comfortable with the thought of using technology to deliver instruction	0.76			
CIII.22	The thought of using e-learning technologies makes me very nervous		0.49		
CIII.23	I get a sinking feeling when I think of trying to use technology for training trainees and/or learning.		0.58		
CIV.1	I accepted technological innovation (e.g. start using digital documents instead of hard copies) in routine /daily tasks	0.76			
CIV.2	I have accepted any changes that required the use of technology in daily /routine tasks	0.81			
CIV.3	The most effective method of learning is face-to-face	0.63	0.34		
CIV.4	The teacher /trainer /instructor is still the best information provider				
CIV.5	E-learning is an efficient means of disseminating information	0.83			

CIV.6	E-learning enables learners and instructor to communicate and interact better with one another	0.73			

Extraction Method: Principal Component Analysis.

a. 4 components extracted.

Rotation of the factor matrix

From the unrotated factor matrix some question items measure more than one factor. Yet, each individual question item is expected to measure only one factor. It is therefore difficult to interpret an unrotated factor matrix. To this end, the matrix is rotated using varimax rotation method. Kline (1994) indicates that varimax method maximizes column matrices to the extreme end values so as to avoid an item measuring more than one underlying factor (Table 17).

Table 17: Rotated factor matrix

Component Matrix					
		Components			
	Items	1	2	3	4
CI.1	I have the basic skills to use a computer (e.g. using keyboard, shortcuts, using mouse, copying and pasting files, creating, editing and saving files, creating folders)				
CI.2	I can create presentations using Power point, create spreadsheets (e.g. Excel), and word processor for content delivery				
CI.3	I know how to download and install software				0.48
CI.4	I have the basic skills to search for information by browsing the Internet and retrieve data				0.45
CI.5	I know how to communicate using email, Skype, and send text/audio/video files using cloud computing				0.49
CI.6	I can troubleshoot most problems associated with using a computer				0.47
CI.7	I feel that prior experience is required for using online technologies.				0.56
CII.1	I have access to a computer in the school			0.66	
CII.2	I have access to relevant hardware and printers/scanners/overhead projectors			0.73	
CII.3	I have access to adequate software (e.g. Microsoft Word, Adobe Acrobat)	0.53			
CII.4	I have access to reliable high speed Internet			0.56	
CII.5	I provide tech support		0.47		
CII.6	I think poor infrastructure may hinder the Ministry of Education from developing and implementing e-learning	0.45			
CII.7	I think the content/curriculum mandated by Ministry of Education may hinder successful implementation of e-learning				
CII.8	I think quick technical and administrative support is important to my success as a Subject Supervisor	0.50			
CIII.1	I have the confidence to use advanced technology for training teachers	0.58			
CIII.2	I hesitate to use technology for fear of making mistakes				
CIII.3	I learnt most of the things on my own about using e-learning technologies	0.51			

CIII.4	I would feel better about using technology if I knew more about them	0.50			
CIII.5	I feel threatened when I see teachers using technology in their learning /working				
CIII.6	Knowing how to use e-learning technologies can increase my job possibilities		0.59		
CIII.7	I like using computers for research		0.58		
CIII.8	I like to communicate with others using e-mail to support my learning		0.72		
CIII.9	I spend a lot of time on the internet				
CIII.10	I enjoy working on tasks on a computer	0.76			
CIII.11	I like to try new technologies for teaching, training and/or learning	0.64			
CIII.12	It is important to learn how to use a computer for learning and training, and how to use the internet as a learning resource	0.71			
CIII.13	Learning about how to use e-learning technologies is a waste of time.				
CIII.14	I think that would be able to remain motivated even through the instructor is not online at all times.	0.77			
CIII.15	I think that I would be able to complete my work even when there are online distractions (e.g. friends sending emails or websites to surf)	0.75			
CIII.16	I think that I would be able to complete my work even when there are distractions in my home (e.g. television, children, and such)	0.75			
CIII.17	I think I can spend some time (15, 30 or 60 minutes) for improving myself during some part of the day (morning, afternoon, evening or night)	0.79			
CIII.18	I believe that self – development of teachers may strengthen the position of the ministry of education	0.75			
CIII.19	I am interested to upgrade my academic / professional qualification and/or work performance through e-learning	0.84			
CIII.20	I think positively toward the technological interventions in daily /routine tasks	0.73			
CIII.21	I feel comfortable with the thought of using technology to deliver instruction	0.78			
CIII.22	The thought of using e-learning technologies makes me very nervous		0.55		
CIII.23	I get a sinking feeling when I think of trying to use technology for training trainees and/or learning.		0.62		
CIV.1	I accepted technological innovation (e.g. start using digital documents instead of hard copies) in routine /daily tasks	0.73			
CIV.2	I have accepted any changes that required the use of technology in daily /routine tasks	0.78			
CIV.3	The most effective method of learning is face-to-face	0.64			
CIV.4	The teacher /trainer /instructor is still the best information provider				
CIV.5	E-learning is an efficient means of disseminating information	0.80			
CIV.6	E-learning enables learners and instructor to communicate and interact better with one another	0.75			

Extraction Method: Principal Component Analysis.

a. 4 components extracted.

While it is clear from the rotated matrix that most of the question items measure one of the four factor components, some do not at all. Those that do not measure any of the four factor components include CI.1, CI.2, CII.7, CIII.2, CIII.13, and CIII.5. These are excluded from further analyses. It is also critical to note that many variables have been found to measure different underlying

factors rather than those predetermined ones in the questionnaire. For instance, on rotation, factor component 1 is measured by the following items:

Table 18: Factor Component 1 (Attitude and Cultural Readiness)

Factor Component 1 (Attitude and Cultural Readiness)		
Item label	Item description	Eigen value
CII.3	I have access to adequate software (e.g. Microsoft Word, Adobe Acrobat)	0.53
CII.6	I think poor infrastructure may hinder the Ministry of Education from developing and implementing e-learning	0.45
CII.8	I think quick technical and administrative support is important to my success as a Subject Supervisor	0.50
CIII.1	I have the confidence to use advanced technology for training teachers	0.58
CIII.3	I learnt most of the things on my own about using e-learning technologies	0.51
CIII.4	I would feel better about using technology if I knew more about them	0.50
CIII.10	I enjoy working on tasks on a computer	0.76
CIII.11	I like to try new technologies for teaching, training and/or learning	0.64
CIII.12	It is important to learn how to use a computer for learning and training, and how to use the internet as a learning resource	0.71
CIII.14	I think that would be able to remain motivated even through the instructor is not online at all times.	0.77
CIII.15	I think that I would be able to complete my work even when there are online distractions (e.g. friends sending emails or websites to surf)	0.75
CIII.16	I think that I would be able to complete my work even when there are distractions in my home (e.g. television, children, and such)	0.75
CIII.17	I think I can spend some time (15, 30 or 60 minutes) for improving myself during some part of the day (morning, afternoon, evening or night)	0.79
CIII.18	I believe that self – development of teachers may strengthen the position of the ministry of education	0.75
CIII.19	I am interested to upgrade my academic / professional qualification and/or work performance through e-learning	0.84
CIII.20	I think positively toward the technological interventions in daily /routine tasks	0.73
CIII.21	I feel comfortable with the thought of using technology to deliver instruction	0.78
CIV.1	I accepted technological innovation (e.g. start using digital documents instead of hard copies) in routine /daily tasks	0.73
CIV.2	I have accepted any changes that required the use of technology in daily /routine tasks	0.78
CIV.3	The most effective method of learning is face-to-face	0.64
CIV.5	E-learning is an efficient means of disseminating information	0.80
CIV.6	E-learning enables learners and instructor to communicate and interact better with one another	0.75

It is clear that items from different predetermined dimensions (Table 18) measure factor component 1. It is challenging to have a single name for this factor component. Nonetheless, a close look at the each item, the emerging theme should be "*Attitude and Cultural Readiness".* These 22 items are reliable in measuring this emerging dimension with an Alpha of 0.96 (see table 19 below).

Table19: Reliability Statistics of items related to Factor Component 1

Reliability Statistics	
Cronbach's Alpha	N of Items
0.957	22

The second factor component of the rotated matrix is measured by the items in the following table:

Table 20: Factor Component 2 (Confidence)

Factor Component 2 (Confidence)		
Item label	Item Description	Eigen value
CII.5	I provide tech support	0.47
CIII.6	Knowing how to use e-learning technologies can increase my job possibilities	0.59
CIII.7	I like using computers for research	0.58
CIII.8	I like to communicate with others using e-mail to support my learning	0.72
CIII.22	The thought of using e-learning technologies makes me very nervous	0.55
CIII.23	I get a sinking feeling when I think of trying to use technology for training trainees and/or learning.	0.62

It is again challenging to name this factor component. Given that it related more to "confidence", it should be named so. Reliability analysis for this factor component indicates that the 6 items reliably measure the construct (see table 21 below).

Table 21: Reliability Statistics of items related to Factor Component 2

Reliability Statistics	
Cronbach's Alpha	N of Items
0.73	6

The third factor component of the rotated matrix is measured by the items in the following table.

Table 22: Factor Component 2 (Equipment)

Factor component 3 (Equipment)		
Item label	Question description	Eigen value
CII.1	I have access to a computer in the school	0.66
CII.2	I have access to relevant hardware and printers/scanners/overhead projectors	0.73
CII.4	I have access to reliable high speed Internet	0.56

Only three items measure this component. The items relate more to Equipment/Infrastructure. Reliability analysis (Table 23) indicates that the three items measure well the component with an Alpha of 0.87.

Table 23: Reliability Statistics of items related to Factor Component 3

Reliability Statistics	
Cronbach's Alpha	N of Items
0.87	3

The fourth factor component of the rotated matrix is measured by the items in the following table.

Table 24: Factor Component

Factor component 4 (Technological skills readiness)		
Item label	Item description	Eigen value
CI.3	I know how to download and install software	0.48
CI.4	I have the basic skills to search for information by browsing the Internet and retrieve data	0.45
CI.5	I know how to communicate using email, Skype, and send text/audio/video files using cloud computing	0.49
CI.6	I can troubleshoot most problems associated with using a computer	0.47
CI.7	I feel that prior experience is required for using online technologies.	0.56

This component is measured by items that relate to technological skills (Table 24). The component reliability analysis gives an Alpha of 0.66 which is slightly below 0.7. It can be concluded that the 5 items are consistent in measuring the construct.

Table 25: Reliability Statistics of items related to Factor Component 4

Reliability Statistics

Cronbach's Alpha	N of Items
0.66	5

Overall reliability of the items after factor analysis

After performing reliability analysis for each factor component, an overall reliability analysis is undertaken using such items that have been found to reliably measure the four factor components. The reliability results indicate that the 38 items consistently measure the overall underlying construct (e-learning readiness) (Alpha=0.88)

Table 26: Overall reliability statistics of items after Factor Analysis

Reliability Statistics	
Cronbach's Alpha	N of Items
0.88	38

After conducting factor analysis, the next section deals with answering the research questions.

5.2.1.1. Answering the main research question

What are the factors that have influenced the e-learning readiness of subject supervisors in the schools in Kuwait?

Multiple regression analysis is used to establish the factors that explain e-learning readiness of subject supervisors. Responses from the subject supervisor's questionnaire are used. The dependent variable is e-learning readiness (also called E-Readiness in the analysis). E-learning readiness is measured as the mean score of the 38 items that factor analysis found to measure it. A number of independent variables to be regressed against the dependent variable include:

1. Age (questionnaire item 1): this variable is measured in ordered categories as follows:
    a. Less than 30 (coded as 1)
    b. Between 30 and 40 (coded as 2)
    c. Between 40 and 50 (coded as 3)

d. More than 50 (coded as 4)

Given that this variable is measured using many ordered categories (1, 2, 3, 4) it would be taken as a continuous variable to avoid over-stuffing the model with many dummy variables if it were to be regarded as a purely categorical variable.

2. Gender (questionnaire item 2)
3. Work experience (questionnaire item 3). This variable is measured in ordered categories as follows:
    a. Less than 5 years (coded as 1)
    b. Between 5 and 10 years (coded as 2)
    c. Between 10 and 15 years (coded as 3)
    d. More than 15 years (coded as 4)

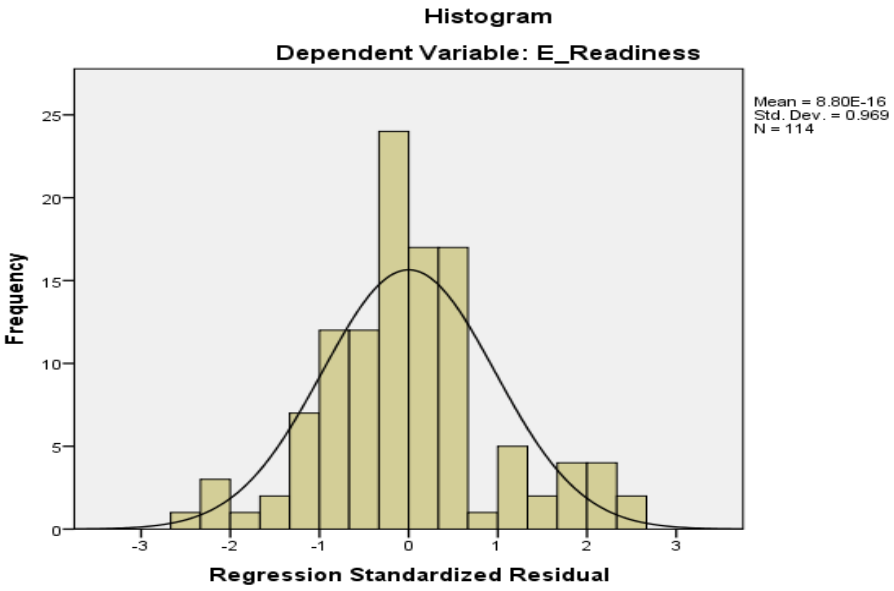
Given that this variable is measured using many ordered categories (1, 2, 3, 4) it would be taken as a continuous variable to avoid over-stuffing the model with many dummy variables if it were to be regarded as a purely categorical variable. This decision is also based on the fact that the categories are ordered and not just labels.

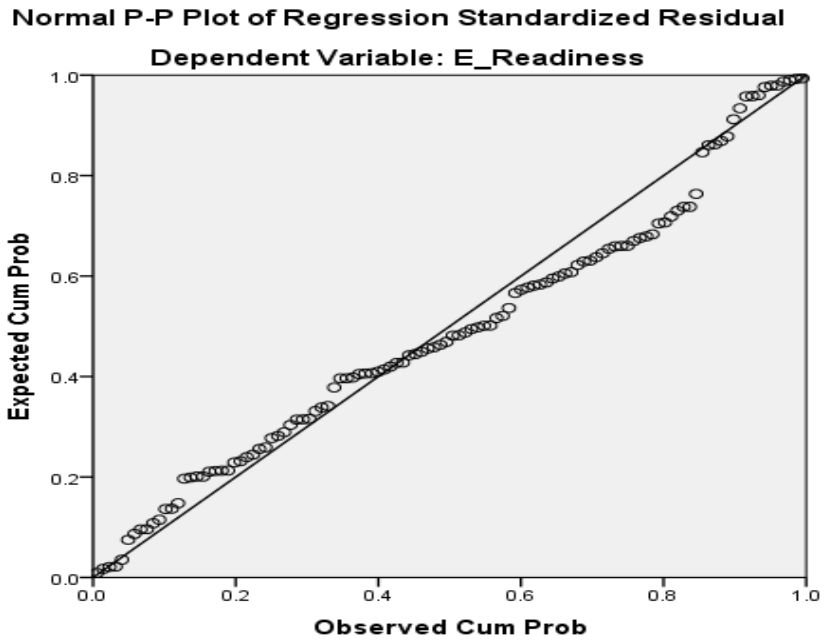
4. Access to internet (questionnaire item 4): to measure this variable, a question was asked for respondents to indicate the where they access internet from. Internet accessibility is measured by the number of avenues stated for accessing internet.
5. Access to social media: This is measured by the number of social media platforms a respondent is reported to be using for teaching and learning (item 5)
6. Access to online conference tools: this is measured by the number of online conference tools a respondent is reported to be using for teaching and learning (item 6)
7. Competences for training in e-learning: this is measured by the number of e-learning skills/competences possessed by a respondent (item 7)

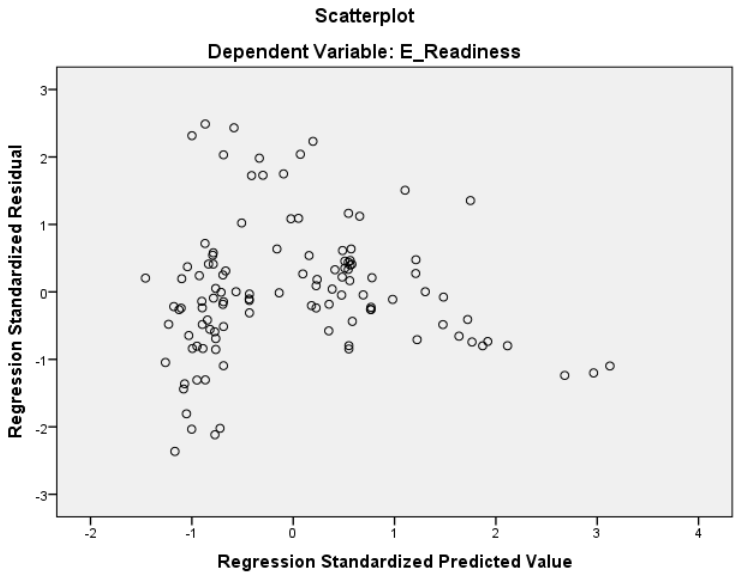
<u>Testing the normal distribution assumption</u>

It is critical to note that before performing the multiple regression analysis, the key assumption of normal distribution needs to be tested. The histogram and probability plots (P-P plots) are used. Equally, the assumption of constant variance is tested using the scatter plot.

Figure 6: Histogram and probability plots







The histogram and the P-P plot do show that the data is fairly normally distributed. The scatterplot does not show a clear trend within the dataset and hence an indication of constant variance. It can be concluded that the dataset meets the key assumptions of linear regressions

The correlation matrix

Before fitting the regression, it is critical investigate existing correlations amongst the variables. Moreover, this step allows for investigating presence of multicollinearities amongst the variables. This is done using Pearson's correlation coefficient.

Table 27: The correlation matrix

Correlations								
		E_Readiness	Age	Work experience	Internet Access	Social Media	Online Conf. Tools	E-Competences
E_Readiness	Pearson Correlation	1	-0.038	-0.045	.588**	-0.021	.715**	.717**
	Sig. (2-tailed)		0.691	0.639	0.000	0.831	0.000	0.000
Age	Pearson Correlation	-0.038	1	.391**	0.108	-.225*	0.006	0.010
	Sig. (2-tailed)	0.691		0.000	0.262	0.019	0.950	0.917
Work experience	Pearson Correlation	-0.045	.391**	1	0.177	-0.051	0.113	0.156
	Sig. (2-tailed)	0.639	0.000		0.065	0.603	0.240	0.110
Internet Access	Pearson Correlation	.588**	0.108	0.177	1	0.048	.750**	.772**
	Sig. (2-tailed)	0.000	0.262	0.065		0.621	0.000	0.000
Social Media	Pearson Correlation	-0.021	-.225*	-0.051	0.048	1	0.064	0.003
	Sig. (2-tailed)	0.831	0.019	0.603	0.621		0.506	0.972

Online Conf. Tool	Pearson Correlation	.715**	0.006	0.113	.750**	0.064	1	.763**
	Sig. (2-tailed)	0.000	0.950	0.240	0.000	0.506		0.000
E-Competences	Pearson Correlation	.717**	0.010	0.156	.772**	0.003	.763**	1
	Sig. (2-tailed)	0.000	0.917	0.110	0.000	0.972	0.000	
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

The correlation matrix (table 27) indicates the presence of correlations between the dependent variable and some of the independent variables. For instance, e-learning readiness is positively and significantly correlated with internet access, online conference tools used in teaching, and the e-learning competence. Some independent variables are also significantly correlated to each other. For instance, age is correlated with work experience, and social media usage. On the other hand, work experience is correlated with internet usage, while internet access is correlated with online conference tools usage and e-competences.

Fitting the regression

An incremental stepwise approach is used where at each step, one independent variable is added to the regression equation. This is critical to assessing the most important explanatory variables and monitoring the changes in the coefficients of the existing independent variables due to the added independent variable. Nonsignificant variables are withdrawn from any further estimation to improve on the parsimony of the model.

Table 28: Age and E-learning readiness

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.588	0.439		8.177	0.000
	Age	-0.054	0.135	-0.038	-0.399	0.691
a. Dependent Variable: E_Readiness						

The results indicate that whereas age is negatively associated with e-learning readiness, this relationship is not significant [t=0.399, p>.05].

Table 29: Gender and E-learning readiness

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.37	0.09		38.29	0.00
	Gender	0.07	0.13	0.05	0.51	0.61
a. Dependent Variable: E_Readiness						

Gender is not significantly associated with e-learning readiness. It is excluded from further analysis

Table 30: Work experience and e-learning readiness

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.46	0.16		22.21	0.00
	Work experience	-0.03	0.07	-0.05	-0.47	0.64
a. Dependent Variable: E_Readiness						

Work experience is not associated with e-learning readiness. This variable is excluded from further analysis.

Table 31: Adjusted R-square statistic

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.588[a]	0.346	0.340	0.56
a. Predictors: (Constant), Internet Access				

Table 32: Internet access and e-learning readiness

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.75	0.10		27.42	0.00

	Internet Access	0.38	0.05	0.59	7.69	0.00
a. Dependent Variable: E_Readiness						

The results indicate (Table 31 and 32) that internet access is significantly associated to e-learning readiness. From the adjusted R-square statistic, internet access explains about 34.6% of the total variance in e-learning readiness. The positive association implies that having many places and options to access internet is more likely to lead to increased e-learning readiness.

Table 33: Adding social media to the previous model (model having internet access)

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.83	0.13		21.83	0.00
	Internet Access	0.37	0.05	0.59	7.52	0.00
	Social Media	-0.03	0.05	-0.05	-0.62	0.54
a. Dependent Variable: E_Readiness						

Adding social media usage to the model does not improve it (Table 33). This implies that the reported number of social media used by respondents does not impact on e-learning readiness [t=0.62, p>.05]. This variable is dropped from further analysis.

Table 34: Adding use of online conference tools to the model

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.91	0.09		32.23	0.00
	Internet Access	0.08	0.06	0.12	1.19	0.24
	Online Conference Tools	0.52	0.08	0.63	6.27	0.00
a. Dependent Variable: E_Readiness						

Table 34 shows that by adding online conference tools to the model there was great improvement. There is an increase in adjusted R-square from 34.6% to 52%. Online conference tool usage is associated with an increase in e-learning readiness [t=6.27, p<.001]. However, adding online

conference tools to the model makes internet access become insignificant. This implies that the two independent variables are correlated or they measure the same aspect.

Table 35: Adding e-competences to the previous model (the final model)

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.92	0.08		35.65	0.00
	Internet Access	0.08	0.06	-0.13	-1.22	0.23
	Online Conference Tools	0.35	0.08	0.47	4.49	0.00
	E-Competences	0.15	0.03	0.46	4.23	0.00

a. Dependent Variable: E_Readiness

Introducing the e-competences to the previous model improves it further as seen from an improvement in the adjusted R-square from 52% to 59.2% (Table 36).

Table 36: Adjusted R-square

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.770[a]	0.592	0.581	0.41658	
a. Predictors: (Constant), E-Competences, Online Conference Tools, Internet Access					

This result implies that possession of e-learning competences increases e-learning readiness. Overall, the results indicate that usage of technological tools and possessing e-learning competences are significantly associated with e-learning readiness.

5.2.1.2. Answering sub-research question 1

What are the challenges facing teachers/schools in applying e-learning

From the descriptive statistics it is noticed that about 10% and 6% of teachers and supervisors lack the e-learning competences necessary for e-learning. Equally, from the teachers' assessment of

the competences possessed by supervisors for supporting e-learning readiness, it is reported that supervisors lack the technical ability to support e-learning readiness.

5.2.1.3. Answering sub- research question 2

What are the teacher's perceptions of the role of subject supervisors in supporting the application of e-learning?

This sub-question was answered using the teachers' assessment of subject supervisors. There are a number of question items that required the teachers to assess the role of subject supervisors in supporting the implementation of e-learning.

The role of providing technical support to implementation of e-learning

Six question items were responded to by teachers to assess whether subject supervisors were technically supportive of the implementation of e-learning. Below (Table 37) are the mean responses.

Table 37: The role of providing technical support to implementation of e-learning

Item label	Question	Mean	Confidence interval		Std. Error
			lower bound	upper bound	
CI.1	Subject supervisors have the basic skills to teach technical and procedural skills	3.20	3.02	3.37	0.09
CI.2	Subject supervisors monitor the way we install/use software to support learning	2.85	2.65	3.05	0.10
CI.3	Subject supervisors communicate with teachers via email	2.72	2.49	2.96	0.12
CI.4	Subject supervisors help teachers to troubleshoot most problems associated with using a computer	2.31	2.11	2.51	0.10
CI.5	Subject supervisors provide quick technical and administrative support	2.67	2.46	2.88	0.11

CI.6	Subject supervisors in Kuwait are able to apply information computer technology in a strategic and discriminating manner, taking a balance of alternatives and advantages into consideration	2.79	2.59	2.99	0.10
	overall mean	**2.76**	**2.55**	**2.96**	**0.10**

The results show that teachers do not agree with the levels of readiness of subject supervisors to provide technical support to the implementation of e-learning. The table (37) shows that the overall mean of 2.76 lies in the disagreement zone on the 1-5 Likert scale. Apart from question item CI.1 where teachers are in the neutral position, they disagree with all the items, implying that they doubt the technical abilities of subject supervisors to support the implementation of e-learning in Kuwait.

Culture for e-learning readiness

Table 38: Culture for e-learning readiness

Item label	Question	Mean	Confidence interval		Std. Error
			lower bound	upper bound	
CIII.1	Subject supervisors helped support the change process	3.0672	2.8815	3.2529	0.09377
CIII.2	Subject supervisors have a clear vision and objectives for the intended change	2.9748	2.7910	3.1586	0.09280
CIII.3	Subject supervisors have the motivation and attitudes to engage with the change and make it work	3.0420	2.8494	3.2346	0.09725
	overall mean	**3.03**	**2.84**	**3.22**	**0.09**

Overall, teachers took a neutral position with regards to the subject supervisors ability to create a culture necessary for e-learning readiness (mean=3.03, SE=0.09).

Subject supervisors' attitudes towards e-learning readiness

Table 39: Subject supervisors' attitudes towards e-learning readiness

	Question	Mean	Confidence interval	

Item label			lower bound	upper bound	Std. Error
CII.1	Subject supervisors have the confidence to train teachers in the use of technology	2.70	2.52	2.8834	0.09
CII.2	Subject supervisors hesitate to use technology	3.12	2.94	3.29	0.09
CII.3	Subject supervisors in Kuwait are capable on getting other people interested in e-learning	3.18	2.99	3.37	.09462
CII.4	Subject supervisors have positive attitude towards e-learning	3.35	3.17	3.35	0.09
CII.5	Subject supervisors are dedicated to facilitating e-learning use and implementation	3.06	2.86	3.25	0.10
CII.6	Subject supervisors motivate teachers	3.45	3.26	3.63	0.09
CII.7	Subject supervisors helped to improve competencies of tutors	2.96	2.78	3.14	0.09
CII.8	Subject supervisors helped improve teacher's work performance	3.11	2.92	3.30	0.10
CII.9	Subject supervisors are instrumental for teacher self – development	2.83	2.64	3.03	0.10
	overall mean	**3.08**	**2.90**	**3.29**	**0.09**

Over all, subject supervisors neither have positive nor negative (neutral) attitudes towards e-learning reading (Mean=3.08, SE=0.09). Nonetheless, on three items (CII.1, CII.7, CII.9) subject supervisors are reported project negative attitudes towards e-learning readiness.

5.2.1.4. Answering sub- research question 3

What are the perceptions of subject supervisors towards elements that can contribute to the development of e-learning in schools?

This sub-question was answered using the subject supervisors' assessment of the factors that affect schools when adopting e-learning systems. The questionnaire items that were categorised as "attitude and cultural readiness", "confidence", "equipment" and "technological skills readiness" are used to answer this research sub-question.

The results show that subject supervisors had positive attitude and were culturally ready to implement e-learning. Most of the item means are in the agreement zone (above 3 on a 5 likert scale (Table 8),

suggesting that subject supervisors had ‘access to adequate software’, the ‘confidence to use advanced technology for training teachers’, were ‘able to enjoy working on tasks on a computer’, were able to ‘ try new technologies for teaching, training and/or learning’, able to ‘complete my work even when there are online distractions’, ‘ think positively toward the technological interventions in daily /routine tasks’, feel ‘comfortable with the thought of using technology to deliver instruction’, and understood that ‘e-learning is an efficient means of disseminating information.’

The subject supervisors also had the ‘confidence’ to ‘provide tech support’, ‘to use e-learning technologies can increase my job possibilities’, use ‘computers for research’, and ‘communicate with others using e-mail to support my learning.’ The responses of the subject supervisors indicate that ‘infrastructure and equipment’ had a significant influence on readiness to adopt e-learning. Frome the responses to the items which were categorised as ‘technological skills readiness’, it can be inferred that the subject supervisors had the technical competencies to use technologies and integrate them for learning and teaching.

5.3. Phase II – Exploratory (Semi-structured interviews)

The purpose of the interviews was to explore in more depth teacher’s perceptions of the role of the subject supervisors in implementing e-learning in public schools in Kuwait, the challenges facing teachers and schools in applying e-learning, and perceptions of subject supervisors towards elements that can contribute to or hinder the development of e-learning.

Data was collected from 4 teachers and 4 subject supervisors from schools in from Al Mubarak district, Kuwait. The data from the interview were transcribed verbatim and care was taken not to alter words or phrases in any way. This was done to prevent researcher bias stemming from the way in which the data is translated from oral to written form. In order to analyse the interview transcripts, themes were identified within the responses. In other words, data was analysed thematically.

The analysis involved 6 steps as advocated by Braun & Clarke (2006): Getting acquainted with the data by reading and re-reading the interview transcripts; generating initial codes; searching for specific themes; reviewing themes; defining and naming themes; and finally producing the report with excerpts from the interviews. Thematic analysis helped in coding the data and in identifying recurring concepts related to e-learning readiness. NVivo 11 was used to code the data, assign labels to codes, and grouping codes into themes (or categories). The results are presented in summary format with illustrative quotes. In order to comply with the terms of ethics consent, the names of the participant' have been anonymised for example teachers (T1, T2) and subject supervisors (S1, S2).

5.3.1. Part 1. Teacher interviews

The themes that emerged from the data analysis of teacher interviews were: lack of operational e-learning policies, lack of policy support, disempowered teachers, awareness of e-learning, and factors affecting resistance to change.

Lack of operational e-learning policies

The transcribed data *were categorised* using several *codes and the categories were* 'teacher motivation', 'faulty decisions', and 'inadequacies'.

Teacher motivation

The teachers interviewed were of the opinion that there were no mechanisms in place to *motivate teachers to use technologies. According to them,* there was a lack of incentives to stimulate them to actively engage in integrating technologies and ultimately implement e-learning. One of the teachers remarked that the incentives were 'minimal and not monetary' (T1). Another teacher stated the obvious and also provided a solution:

> "There is a lot of talk about incentive plans but teachers will be motivated only if they are compensated, for example through cash awards or salary increments. I would like to suggest that the Ministry ought to certify technology-focused teacher professional development programmes. If teachers are successful and get certified their pay scales could be upgraded". (T2)

Similar remarks were also made by other teachers. One particular response was that "teacher's workload could be reduced as an incentive which can motivate them to try employing e-learning initiatives" (T3). While another respondent was of the view that teachers can be motivated "by linking participation in training programmes to incentives such as cash awards or promotion or salary." (T4)

These responses suggest that teachers were not motivated to implement e-learning as there were no incentives, for instance merit pay or paying teachers according to their efficiency in being ready and taking initiatives for e-learning implementation and career ladders or promotions.

Faulty decisions

Most of the major governmental decisions, particularly when it revolves around the decision to implement e-learning were claimed to have been made by small groups within the Ministry of Education or the government. This may have led to poor policy decisions. One teacher in particular mentioned that:

> "e-learning was hastily applied without carefully considering either the accuracy of the content or the professional development of teachers." (T1)

The same teacher elaborated:

> "when I tried to apply some of the courses there were problems as we were trained to only use Microsoft Office 365 but the students had no idea what it was ….because the student's tablet did not have this programme". (T1)

This flawed decision-making by policy makers may have been due to increased pressures to achieve the goals set leaders in the government which needed to be acted upon without delay.

Inadequacies

The teachers interviewed exposed the insufficiencies of the strategies adopted by the Ministry of Education. The *policies* revealed *inadequacies* and according to the teachers:

> "There is no shortage for financial resources and a vast amount of petro dollars has been pumped into school districts for buying hardware and software. However, the infrastructure is weak". (T1)

This suggests that despite the resources at hand and the investments made there were issues which were overlooked. The policy makers had overlooked he significance of infrastructure in e-learning systems, for example providing support to teachers by training them.

> "The strategy encourages schools to consider the use of technology in their teaching but does not set targets or prescribe how technology should be used, in spite of the fact that subject supervisors are around. There is no strategy for transition to e-learning from traditional teaching approaches." (T2)

Besides, there was a "lack of availability and accessibility of technology' (T4). This indicates that the absence of inadequacy of infrastructure is a barrier to access. Teaching and learning in an e-learning environment happens differently than in the traditional classroom. However, from the teacher's responses it is apparent that the policy makers had not developed a solid tactical implementation plan to understand the needs of schools and teachers. The policy makers seemed to have not realised that there would be a change in the instructor's role and responsibilities.

The respondents interviewed also concurred that inadequate technical expertise is a major challenge hindering the implementation of e-learning. In order to make the policies work financial resources alone are not enough. One teacher was of the view that:

> "Although an enormous amount of money had been spent there is still a *lack* of expertise and technical manpower in Kuwait." (T2)

Besides the lack of technical expertise there was also a lack of focus on "content" (T2). Teachers complained of the low "quality of course materials" (T2 & T3). In the words of a respondent:

> "The e-learning strategies are considered to be interactive but there is a lack of high quality content although the content includes photographs, video and graphics. But, the videos, images, and audio are not good enough." (T2)

The poor quality of content is attributed to the placing of existing course materials in mobile apps. This shows that the pedagogical aspects of e-learning are widely undeveloped.

Lack of policy support

The categories that emerged from the coding to develop the theme 'lack of policy support' were 'training', 'policy maker's commitment to sustainability', and 'supervisor's role'.

Training

A common belief of all of the teachers interviews that they preferred to have more experience and professional training in how to use technology for instructional purposes. They expressed their beliefs by making the following statements:

> "The Ministry of Education needs to have strong policies on teacher training and not just use subject supervisors to impart training." (T1)

> "The training is so poor…I mean the content. Moreover, they are very short and inconvenient" (T1)

> "Teacher training does not focus on how to develop abilities such as developing content." (T3)

> "I need training to adapt to a technology-enabled learning environment in which I have to develop relevant learning materials and teach in one-to-one digital classrooms." (T2)

There was also the belief that:

> "The policies related to teacher training in the use of technology and in the development of professional skills essential for content creation have not been made clear to us by the Ministry as well as the subject supervisors." (T2)

All these responses show that support or training were not provided to teachers in order to attain the essential technological skills or use appropriate teaching methods in e-learning environments.

There was a positive attitude towards more training as teachers wanted to "adapt to new teaching style" (T3) but lacked "time to take part in professional development programmes" (T3). The suggestion made by one teacher was there is the "need to allocate more funds for training of teachers." (T4)

In view of the aforementioned claims, one teacher concluded that the policies had not "worked" (T3). Similar views were aired by another respondent:

> "The training policy does not mirror the changes being introduced by the Ministry. Although tablets have been distributed to students, and subject supervisors have been nominated to assist us, there is no focus on assisting teachers to use the tablets for teaching." (T4)

It is evident from these responses that training is crucial for the development of teachers' positive attitudes towards e-learning.

Policy maker's commitment to sustainability

The policy makers were not committed and the policy initiatives were not sustainable. Some of the policy shortfalls, in spite of the vast amounts of money spent for implementing e-learning, were explained by the respondents. Regardless of "the efforts that were taken to promote e-learning, there is no commitment from the policy maker to maximise the potential benefits of the investment made". This is evident in the failure to provide "adequate resources" and "technical support." (T1)

The government has not evaluated strategies to improve educational outcomes for example learning resources, learning design, level of learning flexibility, improvement of learning outcomes and engagement.

Although initiatives were taken to implement e-learning in all public schools there was a "lack of follow-up to the implementation process" (T1). Furthermore, the course content and materials were not "evaluated" (T1 & T2) in order to ensure "if it had achieved its objectives" (T1). This suggests that there was a lack of commitment to continuous quality improvement.

Respondents also considered financial constraints as a challenge hindering the implementation of e-learning. This was evident from the following comments by the respondents:

> "E-learning implementation is not well directed as the Ministry lacks commitment to lead implementation through budget allocations to schools." (T3)
>
> "Schools are not provided continuing support by the Ministry of Education which includes technical and financial support." (T4)
>
> "A lot of money has been spent. However, additional ongoing costs for upgrading and maintaining the systems have not been provided." (T4)

The aforementioned responses which led to development of the theme 'policy maker's commitment to sustainability' reveal that the issues were either out of control of the policy makers or not well understood prior to implementation.

Subject Supervisor's role

The role of subject supervisors was to help teachers to implement e-learning, but the teachers were not satisfied with their roles and the responsibilities assigned to these officials nominated by the Ministry of Education. According to the respondents:

> "Although subject supervisors are present nothing much has changed and we still lack adequate training." (T1)

The teachers believe that the subject supervisors were not "competent" (T1), lacked "experience" to "to help us develop online course materials" (T2), "have not offered any help" (T3), and did not have "pre-service training in the use of technologies for supporting teachers" (T3).

All these responses show that subject supervisors are not capable of providing support or training to teachers. As a result teachers questioned the "inability" of the Ministry of Education "to recruit e-learning professionals from outside Kuwait" suggesting that those experts "may be in a better position to support teachers as opposed to nominating subject supervisors." (T1)

Respondents also reported that there was a lack of "cooperation" between supervisors and teachers (T1), that the supervisors were "not fully qualified" (T4) and that the supervisors did not "offer practical support" (T2). One teacher questioned the "technical competency of subject supervisors" (T3) while another respondent claimed that teachers had "not achieved anything in terms of student learning although the Ministry has nominated subject supervisors or supervisors for this purpose" (T1).

The responses exposed the lack of expertise of subject supervisors in supporting teachers and assisting in curriculum development for e-learning. The teachers interviewed also revealed the lack of previous knowledge and professional experience of the subject supervisors.

<u>Disempowered teachers</u>

A key theme that emerged was teacher disempowerment and the categories that helped develop the theme were 'centralised decisions' and 'coping challenges'.

Centralised decisions

The teachers consider themselves to be *disempowered*, as they feel that the government practices were making them powerless. Teachers were not involved in curriculum development or in the creation of content.

> "There is very little input from teachers. We are not consulted when developing curriculum." (T4)

This response indicates that teacher's suggestions or involvement was not considered and therefore they felt underrated and disenchanted. Not only was the curriculum centrally mandated, but also the directions intended for schools and teachers. According to one respondent:

> "The strategy has a top-down perspective and the directives are given to us from the top. There is no bottom-up approach and the Ministry does not listen to our ideas. Even the decisions made to identify a technical team to provide technical support, or experts to review e-learning are made by the policy makers. Schools or teachers are not allowed to involve in developing strategies. We feel powerless." (T4)

Teachers had earlier stated that training programmes were inadequate, but even suggestions from teachers to reschedule the programmes were not considered by the policy makers.

> "I suggested to the policy makers, through the technical supervisors, that training should start at the beginning of the scholastic year and should be obligatory and not an option. However, I have not received any response yet." (T1)

This demonstrates that teachers are offered little choice but pressurised to use technologies and implement e-learning although the subject supervisors were neither competent nor experienced to assist the teachers. This must have left them feeling disempowered.

Coping challenges

The introduction of e-learning requires teachers to change their teaching style, accommodate digital content, use technologies they have never used before for teaching, assessing students and for administrative tasks. This can be overwhelming and results in "increased workload" (T1 & T2). Teacher's inability to cope with increased workload they may encounter in e-learning is compounded by the "fear of losing control over students and classrooms" (T1). Under such circumstances teachers appeared to have lacked confidence in their competence to succeed. Teachers who feel disempowered may disengage from the process of e-learning implementation.

Awareness of e-learning

There is only one strategy that can stimulate the *teachers* to develop their *awareness* of e-learning, which is training or professional development. However, results of the interviews presented earlier in this section of the chapter had revealed that the Ministry of Education had not provided teachers with opportunities for training. The responses reveal that almost all the teachers had some *awareness* of e-learning but they did not have the capability to integrate *e-learning* into *teaching. The two categories, namely 'understanding' and 'beliefs', helped develop the theme 'awareness of learning'.*

Understanding

The following responses suggest that teachers were aware of e-learning.

> "I can save time and effort …Maybe I will be able to convey information on time to students and provide prompt feedback." (T1)

> "If it is applied correctly, teachers can start acquiring skills to teach differently. I believe that the use of technology will raise the level of performance of the teacher, improve student learning and the overall performance of the school." (T2)

> "I realise that by implementing e-learning in schools, students can develop the skills and competencies needed for the 21st century. They can acquire good communications skills,

learn independently and take own initiates but as teachers we have to guide then and enable them to learn." (T4)

However, the teachers were also aware that they require training to successfully implement e-learning in their schools:

> "If trained I can use the skills acquired to use the time for carrying out other tasks, such as monitoring and assessing students, and designing e-learning courses. I can save on time and be productive." (T4)

As highlighted in the quotes above the respondents alluded that the lack of e-learning related skills and content development were two significant challenges that hindered the implementation of e-learning.

Beliefs

It is evident from the interview responses that teachers were aware of e-learning and the related concepts, but also had some misconceptions. According to one teacher:

> "I feel that e-learning should be implemented and in order for it to be successful a face-to-face or hands-on instruction along with some e-learning may be more productive." (T2)

The rationale behind this argument was elaborated by another respondent:

> "we shouldn't neglect some traditional methods which are still liked by the students and the teachers.. I believe that using technology can enable teachers to teach more students while maintaining learning outcomes." (T4)

There were also misconceptions that the use of technology, for example tablets will not allow students recall what they read.

> "Students will not be able to retain what they read. I think the focus on technology has been largely superficial." (T3)

Teachers were also averse to students using technology to access information.

> "Personally, I do not like the way students nowadays access information …they do not use libraries or are keen on reading books." (T1)

This belief could have been due to misconception that students should access information text book and from libraries. Such responses could have been influenced by the inadequacies of the teachers, for example: "the inability of teachers to adjust to new teaching techniques" (T2), "Teacher's inadequate skills and experience in using technology for teaching" (T4), and the "lack of awareness of technology related teaching methods." (T4)

The results showed that the presence of subject supervisors did not help resolve such misconceptions.

5.3.2. Part 2. Subject Supervisor Interviews

The themes that emerged from the data analysis of the interviews were: 'policy initiatives', 'policy inadequacies', 'beliefs and practices', 'lack of professional development programmes', 'factors affecting resistance to change' and 'culture and contextual issues'.

Policy initiatives

The categories that emerged from the coding to develop the theme 'policy initiatives' were 'increased budget', and 'digitisation'.

The subject supervisors, unlike the teachers, were of the belief the strategies and initiatives taken by the policy makers were 'solid' (S2). This opinion may have been built upon the assumption that the investments made by the Ministry of Education were "massive" (S1) or "huge" (S4). The following statements indicate that the investments were instrumental in digitising content:

"The massive investments have led to countrywide content digitization efforts which I believe will be of considerable help to schools." (S1)

"There has been a large-scale deployment of tablets in schools with an app that contains all their course materials." (S2)

"The Ministry has invested heavily in the widespread adoption of e-learning in schools, and one of the significant achievements has been digitising text books." (S3)

"The investments have been huge. It has enabled digitising all school textbooks and deployed e-learning in all schools." (S4)

Although investments are very essential, and content digitisation is necessary, the success of e-learning depends on how policy makers support and train teachers to use learning technologies in government run schools.

Policy inadequacies

The Ministry of Education had pursued strategies to bring the pedagogical and practical benefits of e-learning to all teachers and students. However, there were policy inadequacies such as the lack of 'stimulus', 'content quality' and 'support'.

Content quality

Like in the case of the teachers, the supervisors were also concerned about the quality of course materials.

"Content is of poor quality and not meaningful. So I am not sure if this strategy would help keep learners fully engaged and motivated to learn. Moreover, there are no clear directions to schools or teachers as to what exactly has to be done. As a supervisor, I am also in a dilemma." (S1)

"poor quality of course materials developed by the Ministry of Education." (S3)

It can be surmised from the responses that the content was not relevant to measurable learning objectives and will not enable students to achieve their learning outcomes.

Support

The results of data analysis of teacher interviews had demonstrated that the policies of the Ministry of Education were short sighted. There was a lack of support especially training as the following responses suggest:

> "The Ministry has not focused on continuous training of teachers." (S3)

> "policy initiatives do not support teachers to master teaching approaches such as collaborative learning or authentic learning." (S2)

> "Lack of management and government support is a major barrier for most schools." (S3)

Training and professional development are required for continuously supporting teachers so that can acquire skills, implement, hone their skills, and effectively integrate technology to enrich and extend the curriculum.

Stimulus

Another major shortfall was that the policy makers had not paid adequate attention to providing teachers with incentives for actual utilisation of technologies for teaching and learning. Similar to the teachers, the supervisors also voiced their concerns.

> "I don't think teachers are being given incentives in the schools." (S1)

> "schools and the Ministry should together come up with incentive programmes to encourage teachers to take part in training, and use technology." (S2)

> "Currently there are no financial incentives. I have recommended incentives such as bonuses for taking part in training programmes and also promoting some teachers to become trainers." (S4)

The responses of the supervisors indicate that teachers should be provided career incentives and training related to e-learning. The integration of digital content into the curriculum requires extra work on the part of teachers and the lack of incentives may result in teacher's resistance to the use of technology. The policy makers have to be made aware that significant development of the teachers is required to implement embedded e-learning.

Beliefs and practices

The supervisors' beliefs determine their practices. The knowledge and commitment of subject supervisors are crucial for motivating teachers to use technologies and implement e-learning. The theme 'beliefs and practices' was created from the category: 'knowledge and commitment'.

Knowledge and commitment

It is apparent from the responses of the supervisors that they were aware of e-learning concepts. According to the supervisors, e-learning "enables self-paced learning" (S1), "can enable learning retention" (S1), "allows students to learn at their own pace" (S2), "can enhance student engagement in learning" (S3), can "help to standardise course contents and learning materials" (S3), and that "teachers can track student's assignments, assess their achievements, and also record attendance." (S4). However, the supervisors were cautious when remarking:

> "If implemented properly teachers can enable students to have control over the amount of material that has been made available to them through the apps incorporated in the tablets provided by the Ministry." (S2)

The response was guarded as the supervisors were not certain if the teachers they were supporting were capable of implementing learning.

However, the supervisors were of the view that teachers were motivated in spite of the fact that they lacked training. Although the supervisors seemed to contradict the statements of the teachers (that they were a motivated lot), the supervisors revealed that they were committed to providing support to the teachers.

> "Teachers are motivated but they feel that the material is irrelevant for learners' needs. I feel that this could be due to lack of training or the confidence in using technology. However, I am willing to work with them." (S1)
>
> "Some teachers want to implement e-learning and lack the ability to do so. I am eager to work with them and guide them." (S2)

The supervisors also appeared to understand the challenges facing teachers and stated that:

> "One of the barriers that prevent supervisors from working closely with teachers is that they are fully occupied most of the time…they lack the time to meet us ….it could be heavy workload or because they are stressed." (S3)

The commitment of supervisors was also evident when one respondent stated that the impact of *overload* on *teachers must be reduced.*

> "There is the need to reduce teacher workload and offer rewards for teachers who are willing to accept technology." (S4)

There was a very apparent commitment to mutual help and support:

> "I have personally encouraged teachers use technology for non-instructional teacher activities such as student attendance, grading, textbook distribution, and preparation of administrative reports." (S2)

The above mentioned responses demonstrate that the subject supervisors wanted to be involved and committed to the development of teachers.

Lack of professional development programmes

This theme pertaining to professional development emerged after coding the text to fit the categories 'limited opportunities', 'lack of awareness', and 'limitations of subject supervisors'.

Limited opportunities

The teachers had in their responses indicated that there were limited opportunities for training and professional development. The interviews with the supervisors elicited similar responses.

> "Teachers are ready and willing to enhance their technical skills through training but they do not have the opportunity to acquire the skills due to lack of professional development programmes." (S4)

One of the training programmes recommended by the Ministry of Education is International Computer Driving License (ICDL) training and certification. According to one supervisor:

> "The government has made it mandatory for all its teachers to get this certification and use it for teaching students. But I don't think ICDL is sufficient." (S1)

This approach, however, did not provide a full range of training that is required for implementing e-learning. Besides, teachers were "unable to update their knowledge to make appropriate use of technologies" (S4). This suggests that an advanced training programme which incorporates *e-learning components* is required if teachers are to be capable of implementing e-learning.

Lack of awareness

Teacher's lack of awareness of e-learning which was voiced by the teachers during the interviews was also echoed by the subject supervisors.

> "used to conventional teaching method." (S2)

The prevalence of traditional methods of teaching is expected to not yield good results.

> "Teachers lack training or professional development, and therefore schools may face challenges in implementing e-learning. For instance, some teachers do not know what is meant by student-centred or teacher-centred learning." (S1)

The lack of awareness of basic concepts which is vital for implementation of e-learning was one of the prominent factors hindering teacher and school readiness.

> "There is a lack of knowledge of concepts such as blended learning, collaborative learning, authentic learning, and active learning….awareness of these concepts is crucial." (S2)

Limitations of subject supervisors

The deficiencies of the subject supervisors who were responsible for imparting training and providing support to the teachers are major barriers that hinder e-learning implementation.

> "There is the need for professional trainers and competent supervisors in the field of technology who can train teachers effectively. This will lead undoubtedly to improving teacher's competence levels. However, this is lacking*." (*S1)

> "Schools do not have trained staff. The teachers seem to be content with textbook resources." *(*S1)

> "Efforts have been made to include quizzes and tests for every course. But I am not sure if teachers can use these elements to boost knowledge retention rates as well. I am struggling to encourage teachers to use technology to administer the quizzes. If these strategies are to succeed, teachers have to be trained." *(*S3)

The aforementioned responses suggest that the subject supervisors were not confident and lacked the expertise to help teachers acquire the essential skills for implementing e-learning. This implies that the investments in supervisors did not yield expected benefits.

Factors affecting resistance to change

One of the consequences of pressurising teachers to use technology without providing continuous support is resistance. Part of their resistance could also have been due to the lack of familiarity with the technology and teaching approaches.

Reluctance

Teachers generally are reluctant to change their teaching styles and habits, and may feel threatened by technology. Such perspectives were voiced by the supervisors:

> "teachers are disconnected, disorganized, and reluctant to use technologies." (S2)

> "There is a lack of motivation as well as reluctance to accept changes…for instance changing teaching styles." (S3)

> "Negative attitudes of teachers and lack of confidence in using technology." (S3)

> "inability of teachers to use technology, lack of support, and workload concerns." (S2)

> "Lack of time and incentives….these are important barriers." (S4)

If teachers are to adopt and use technologies, they require additional motivation and incentives to participate actively in professional development activities.

Culture and contextual issues

The prevailing pedagogical culture in schools mediates how e-learning is adopted. School culture and English play an important mediating role affecting how technology and e-learning approaches are adopted and adapted in Kuwait. According to the supervisors the school culture reflects the national culture and therefore teachers continue to use "traditional teaching methods" (S1). This is because the "schools are yet to come to terms with technology enhanced teaching and learning' (S2). One supervisor remarked that there exists:

> "a school culture that resists adoption of learning technologies, and lack of maturity in assessing readiness for implementing e-learning." (S3)

The suggestion put forward was "there is the need to change the culture of schools" (S2), but:

> "When attempting to change a school culture it is vital that the teachers and principals of schools understand the need for change. There is no e-learning culture within most schools and teachers are not ready to step away from traditional teaching." (S4)

Language, too, can affect the development of content as most of the software, learning materials and Internet is in English, a language in which students and teachers are not very proficient.

> "Most of the e-learning systems are based on English and therefore teachers from Kuwait who rely heavily on Arabic may find it difficult to working with the content." (S1)

> "Language is also a significant barrier as most of the content is delivered in English." (S3)

While this is true, it is also true that the culture must be ready to change.

Summary

Overall the findings indicate that schools were not ready for e-learning but may have the ability to implement e-learning. The teachers felt that there was a lack of clear e-learning policies, lack of commitment and support from the Ministry of Education as well as the subject supervisors nominated by the policy maker. Teacher training that would increase awareness of e-learning and empower teachers as well as help them embrace change were considered critical factors that need to be addressed further in implementing successful e-learning. The findings suggest that teacher motivation, sound policies and support from the Ministry of Education, and increased commitments from subject supervisor were also critical to successfully implement e-learning.

Chapter Six

Findings, Discussion and Conclusion

6.1. Introduction

This chapter presents the research findings by integrating both quantitative and qualitative data analyses. Then it addresses the main research question and the sub-research questions and discusses the research findings. The chapter also includes research contributions, limitations, implications, and future directions of this research.

6.2. The research findings: Addressing the research questions

The main research question and the sub-research questions were addressed by adopting a mixed-methods approach.

6.2.1. Main research question: What are the factors that have influenced the e-learning readiness of subject supervisors in the schools in Kuwait?

Age is one of the factors which is negatively associated with e-learning readiness but it is correlated with work experience, and social media or technology usage. Although the sample comprised of more female teachers (70.8%) and male supervisors (56%), gender is not significantly associated with e-learning readiness. Likewise, work experience is also not associated with e-learning readiness, although experience is correlated with internet usage. These findings corroborate the results of previous studies (for example: Aydin & Tasci, 2005) that age, gender and experience do not have any effect on participants' perceptions of readiness for e-learning.

Access to internet is associated to e-learning readiness but this is conditional on the online conference tools usage. This means that e-learning readiness is positively and significantly correlated with internet access, online conference tools used in teaching, and the e-learning competence. The use of social media by teachers and subject supervisors did not have an impact on e-learning

readiness. However, e-learning competence is crucial to increase e-learning readiness. Therefore, one of the initial findings of this is that internet access, subject supervisors' use of technology for teaching and their e-learning competence are important factors that affect readiness of teachers and schools for e-learning.

6.2.2. Sub-research question 1: What are the challenges facing teachers/schools in applying e-learning?

Quantitative and qualitative analyses were used to determine the challenges facing teachers/schools in applying e-learning. The research question was addressed by exploring and associating the results and findings from both analyses. The questionnaire items or factors that were used to answer this sub- research question are "attitude and cultural readiness", and "equipment". The themes that emerged from the qualitative data analysis and used to address this sub-research question were: 'lack of operational e-learning policies', 'lack of policy support', 'disempowered teachers' and 'awareness of e-learning'.

Interview data reveals that the Ministry of Education had made faulty or poor policy decisions, had no mechanisms in place for teacher motivation, had adopted inadequate policies and strategies, and did not pay attention to infrastructure and technical support. In other words, the policy makers did not focus on the pedagogical aspects of e-learning by exploiting technologies to adapt to the changing learning situations and diverse needs of learners.

Although the Ministry of Education had provided financial incentives to motivate teachers the educators who were interviewed affirmed that such practices had discontinued. This was in contrast to what previous literature suggests. Motivation is seen as one of the critical factors for the success e-learning readiness/implementation (Watkins et al., 2004; Keramati et al., 2011) and a lack of it is as a barrier for e-learning readiness. Moreover, the policy makers had ignored he importance of infrastructure in e-learning systems, as there was a lack of availability and accessibility of technology.

Another finding was the lack of professional training programmes as most teachers lacked understanding and awareness of e-learning, which incidentally is one of the barriers for e-learning implementation (Allen & Seaman, 2007; Schneckenberg, 2010). Teachers had no prior e-learning knowledge, and no formal training had been set up to improve teachers' capacity such as using emerging technologies in the classrooms, and appropriate teaching strategies. Quantitative findings show that face-to-face is still the preferred way to deliver lessons with a majority of the subject supervisors considering this conventional method. Questionnaire data also suggests that large number of teachers and subject supervisor were Internet users, but not all of them had in-depth knowledge about e-learning. This finding support previous research findings that if teachers lack training and the required skills they may not be able to integrate technological tools in their teaching (Buabbas, 2010; Alharbi, 2012).

Moreover, the behaviour of the policy makers had also challenged the control of teachers over pedagogy, the curriculum and students. This barrier has been well documented in previous literature which states teachers lose control over their practice especially when they are asked to follow prescribed curricula (Mee, 2007; Searson et al., 2011). Teachers were helpless because they had to cope with challenges such as increased workload and there was no help forthcoming from the subject supervisors. They felt that there was the intent to make them increasingly reliant on the policy makers for directions or instructions. The top down approach and centralised decision making have had a major impact on teachers. By not involving teachers in decision making, curriculum development or in the creation of content, the policy makers had created feelings of disempowerment. This is quite in contrast to what research suggests. Previous literature reveals that that all stakeholders have to be involved in making critical decisions in schools in order to achieve e-learning objectives (Brazer et al., 2010). The central decision-making role taken by the Ministry of Education has disenchanted teachers who lack faith in the policy maker. These findings corroborate previous research results, for example Alkandari (2013) and Alsaeedi and Male (2013). The policies had not prompted subject

supervisors to rethink traditional educational practices (such as face-to-face approaches) and supplement it with e-learning (Al- Hunaiyyan et al., 2012). As reported in a UNESCO working paper, conventional teaching methods and behavioural approaches are still prevalent (Issacs, 2012). This shows that despite the strategic intent of the Ministry of Education to support teaching enhancement through e-learning, many instances were found where the gap between policy and practice was considerable.

6.2.3. Sub-research question 2: What are teacher's perceptions of the role of the subject supervisors in supporting the application of e-learning strategies in schools?

Quantitative and qualitative analyses were used to determine teacher's perceptions of the role of the subject supervisors in supporting the application of e-learning strategies in schools. The questionnaire items or factors that were used to answer this sub- research question were "attitude and cultural readiness", "confidence", and "technological skills readiness". The theme that was used to address this sub-research question was: 'lack of policy support'.

Teachers perceived that subject supervisors, whose role was to train and guide teachers were not qualified to impart training. The subject supervisors did not co-operate with the teachers and therefore were of no help to teachers, especially in designing and preparing model lessons, to suggest potential areas for improvement and to ease the transition from traditional teaching methods to e-learning. This finding suggests that there was a lack of policy support. Instead of providing teachers with the opportunities for professional development, the policy makers had appointed subject supervisors, given them the responsibility of training teachers and changing e-learning beliefs and practices in schools (Toumi, 2010). It is evident from this finding that the Ministry of Education had neither appropriately addressed the current needs of teachers and schools nor accommodated continuous adaptation to change. Most importantly, these findings verify that subject supervisors did not have the technological skills, and were not competent to train teachers to implement e-learning. This shows the policy maker's lack of commitment to sustainability. Sustainability involves the continuation of the benefits of e-learning initiatives, but policy makers were not committed.

One of the key findings of this study was that the appointment of subject supervisors to enable teachers to bring about change in e-learning beliefs and practices in Kuwaiti schools had not yielded successful results. Although research suggests that subject supervisors were nominated to supervise the development of teachers and modernise teaching methods (Aldhaen, 2012; Alhashem & Alkandari, 2015), findings suggest that teachers did not consider the subject supervisor to be potential experts who could facilitate and/or encourage teachers to improve their technological skills. The results of the statistical analysis of quantitative data shows that supervisors and therefore teachers lacked the e-learning competences necessary for e-learning, for example graphic design, content expertise, and developing interactive instructional techniques, produce videos, story boarding or photography. More specifically, the subject supervisors did not have the basic skills to teach technical and procedural skills, help teachers to troubleshoot technical problems, the confidence to train them in the use of technology, help improve teacher's work performance, and were not instrumental for teacher self – development. However, there was some consolation as the teachers reported that subject supervisors have some ability to create a culture necessary for e-learning readiness. This suggests that policymakers were aware of the culture of the schools although teachers did not suggest if it was really having an effect. Qualitative results also reflect similar findings. A wide range of research studies have identified lack of competence as a significant barrier for e-learning implementation (Chapnick, 2000; Allen & Seaman, 2007; Schneckenberg, 2010; Afshari-Mofrad et al., 2011). Literature also reveals that lack of technical support is a major barrier that can result in lack of engagement with technology (Frehywot et al. 2013; Thanaraj & Williams, 2014).

6.2.4. Sub-research question 3: What are the perceptions of subject supervisors towards elements that can contribute to the development of e-learning in schools?

Interview and questionnaire data were analysed to determine the perceptions of subject supervisors towards elements that can contribute to the development of e-learning in schools. The questionnaire items or factors that were used to answer this sub- research question were "attitude and

cultural readiness", "confidence", and "technological skills readiness". The theme that were used to address this sub-research question were 'policy initiatives', 'policy inadequacies', 'beliefs and practices', 'lack of professional development programmes', and 'resistance to change'.

The findings that emanated from the qualitative data analysis reveal that while the policy initiatives of the Ministry of Education were significant there were also inadequacies. This was evident in the responses of the subject supervisors, who unlike the teachers had slightly different perceptions of the policies of the Ministry of Education. They were of the view that that the huge investments and mass countrywide content digitization efforts in schools can lead to effective e-learning implementation.

While the subject supervisor lauded the policy initiatives, they were quick to add that the policy makers appear to have not understood the needs of teachers and not prioritised the requirements. There was a lack of investment in providing training and professional development opportunities for teachers in order to change their beliefs and practices. According to the subject supervisors the success of e-learning implementation depends on continued support which includes teacher training, good quality content and providing incentives such as financial stimulus to motivate teachers. They were aware of e-learning concepts and committed to providing support to the teachers. This suggests that training, increasing awareness or knowledge of e-learning and commitment were the essential elements that contribute to the development of e-learning in schools.

Factors affecting resistance to change such as teacher reluctance and culture and contextual issues were some of the important findings which emerged as elements that could contribute to the development of e-learning in schools. Subject supervisors were concerned that they were not trained and therefore may not be in a position to guide teachers. The lack of experience can have an impact on the confidence of these subject supervisors. The supervisors seemed to be playing the blame game by stating that schools are responsible for training teachers and that teachers were using traditional

approaches to teaching. The limitations of subject supervisors were revealed in both the quantitative results and the qualitative findings. Subject supervisors had misconceptions of face-to-face instructional approaches as they felt that such methods cannot be totally removed from a learning process.

Attitude readiness involves the element 'confidence' but the quantitative analysis show that subject supervisors did not have the confidence to use advanced technology for training teachers. Cultural readiness refers to teacher's and subject supervisor's acceptance of technology use to disseminate information, interact, and teaching but the questionnaire results show that Most subject supervisors believed that face-to-face method of learning is effective, and this suggests that policies of the Ministry had not encouraged self-awareness to change the instructor-led method in a traditional environment to a student-focused approach in a virtual environment. This means that an e-learning culture did not exist within the school system. If such a culture had been created by the subject supervisors, it would have enabled the teachers to step away from traditional teaching. The Ministry of Education had provided the technology and the equipment but the subject supervisors have not been able to shift the existing and well established learning culture of schools (Kidd, 2012; Al-Shboul 2013). This also requires teacher training and continuous support. These results confirm the findings of previous studies (Watkins et al., 2004; Kidd, 2012; Al-Shboul 2013, Okinda, 2014) that in order to achieve sustainable e-learning, school culture needs to be ready. Overall both the quantitative and qualitative results confirm that culture significantly affects e-learning readiness in the context of Kuwait.

6.3. Conclusion

The quantitative results show that attitude and culture, confidence, equipment or infrastructure and technological skills were key factors for e-learning implementation. The subject supervisors did not have the confidence or confidence to support teachers. Although there was adequate equipment or

infrastructure there were areas that were not ready, such as attitude and culture and teachers' technological skills.

On the other hand, the qualitative findings show that there was a lack of operational e-learning policies, a lack of professional training programmes, and a lack of policy maker's commitment to motivate schools and teachers to be ready for e-learning implementation which is essential for its sustainability. The results of the interviews suggest that although the policy makers had a strategic intent to support teaching enhancement through e-learning, there were many instances where the gap between policy and practice was considerable. Teachers, who were responsible for implementing e-learning and subject supervisors who were nominated to support teachers, had little or no previous experience in integrating technology. Nearly all respondents named professional development and training in e-learning instruction as a dominant area of need. This study clearly shows that there is the need to motivate teachers, and involve teachers in the change process.

The findings also demonstrate that a major challenge was the existence of top-down decision system. Therefore the diffusion of e-learning has become difficult as the policy makers were focusing on maintaining the educational system instead of developing it. One significant finding was revealed which is the importance of training and sound policies which can affect successful e-learning implementation.

Quality of the study

In order to creating a high credibility the analysed data was triangulated. The triangulation process involved examining multiple points of view and comparing the results with previous findings. Since this is a mixed methods research the use of quantitative and qualitative data could ensure a high transferability of the findings. Confirmability was achieved by using quantitative data analysis o

ensure complete objectivity. With regard to the methods used, throughout the entire research process a pragmatic stance was adopted which allowed the researcher to gain an understanding of the objective and subjective perspectives of the respondents.

Implications

Based on the results of this study, there appears to be several details that will be important for teachers and other stakeholders in schools, to consider when successfully implementing e-learning.

Firstly the research has developed a comprehensive survey instrument that can be used to assess e-learning readiness in schools.

Secondly, the research has a sound psychometric assessment of the instrument it used to collect quantitative data. The study also provides three dimensions that include 19 items to assess e-readiness which are customised to schools in Kuwait.

Finally, it identifies key factors that influence school readiness for e-learning in a research context with less knowledge of e-learning preparedness. Thus, these can be used for helping policy makers and other stakeholders who are keen to implement e-learning to make decisions, particularly those in similar circumstances to the research context

.

Limitations

Several limitations were identified in this study.

Firstly, the mixed-methods research was a complicated approach that requires considerable time and effort. However, the process and outcomes described in this study highlights how using mixed methods can enhance the development and validation of research instruments. Although the researcher attempted to conduct the research in an acceptable manner, it is still prone to flaws.

Secondly, English was not the first language in the research context. Therefore, the researcher had to provide translations during the process of data collection and data analysis. The interviews and surveys were conducted in the Indonesian language; thus it took significant effort and time. Moreover, some cultural contexts in the use of both languages might not be able to be interpreted accurately. Although the researcher attempted to be as accurate as possible, biases or misinterpretations were possible.

Finally, the questionnaire developed requires additional work to confirm the applicability and utility of the instrument in samples in other education contexts and cultural contexts.

Recommendations

The findings of this study enabled the researcher to make suggestions and recommendations for policy makers, decision makers and academic institutions regarding the efficient utilisation of e-learning in Kuwait, as listed below:

Promoting the awareness of e-learning concepts and techniques to the key school education stakeholders, such as policy makers, academics and employers as well as highlighting successful e-learning experiences and importance of e-readiness;

Benchmarking with successful implementation of e-Learning readiness in similar developing countries with similar contextual background;

Developing and implementing rigorous control, rules and regulations for e-learning institutions and policy makers that must be known to stakeholder groups;

Supervisors have to ensure that for individual learners, course content to be developed should adopt the flexible and blended approach, modelled on constructivist theories. Mechanisms should also be put in place to inform teachers to motivate learners to pursue online courses.

On Information and Communication Technologies, a deliberate effort should be made to enhance accessibility to reliable and fast internet connectivity and other ICT's for learning and research. Technical support to learners and teachers should be facilitated. Content for vocational teacher training education programmes/ courses should be developed from the existing curriculum. Curriculum for flexible skill courses should be developed and be approved by the academic committee before they are launched. Off-the-shelf content can also be availed for specialized areas where local expertise for content development is not available. Open educational resources should be used for development of –e-content. On organizational culture, a team should be set up to initialize and operationalize use of school learning management systems and prepare an implementation plan. A training plan should be developed to build capacity of staff in e-learning management, instructional design, tutoring, content development and quality assurance. Change management strategies should also be put in place to orient staff and learners on the positives to embracing e-learning. The Ministry of Education's e-learning strategy should be developed and linked to the overall strategy and goals. To improve on organizational and industry factors, efforts should be made to publicize and market e-

courses. Work plans and training plans should be developed and aligned to strategic plans. Funds should also be allocated for efficient and effective operationalization of e-learning.

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Appendices

Appendix A

Questionnaire

Subject Supervisors' Self-Assessment Items

Section A: Participant demographics

A1. **Age**

Below 30 □

Between 30 and 40 □

Between 40 and 50 □

Above 50 □

A2. **Gender**

Male □

Female □

A3. **Professional experience**

Less than 5 years □

Between 5 and 10 years □

Between 10 and 15 years □

Over 15 years □

Section B: Prior e-learning knowledge

B1. I have an Internet connection at my workplace:

□ Yes □ No

B2. I have an Internet connection at home:

□ Yes □ No

B3. I access the Internet mostly from:

□ Home □ Wi-Fi Hot Spots

□ Workplace □ Mobile phone/PDA

□ Cyber/Internet café □ None

□ College/university □ Other (please specify) _____

B4. Are you a member of any social networking sites?

□ No (skip to question B6)

□ Yes, How many: _____

B5. Which social networking site do you use most frequently? _____

B6. Which online conference tools are you familiar with?

□ Yahoo Messenger □ Google Chat □ Skype

□ MSN □ ICQ □ None

□ Other, please specify: _____

B7. Competencies for training in e-learning environments (tick the skill(s) that you have):

□ Content expert □ Develop instructional media such as computer-assisted instruction (CAI)

□ Graphic design □ Use instructional media such as computer-assisted instruction (CAI)

□ Video production □ Develop instructional media such as slide shows

□ Photography □ Use instructional media such as slide shows

□ Storyboarding □ None

□ Other, please specify: _____

B8. Please specify other computer programming skill(s) that you have:

_____

_____

B9. Please rank the following channels of communication for learning related to your work in ministry of education (for example: 1 (most preferred) to 6 (least preferred); note that two items cannot have the same rank order)

Rank Number	Communication channels
	Face-to-face
	SMS
	e-mail
	Chatting on the Internet
	Written memo
	Postal mail/courier

Section C: E-learning readiness dimensions

C I: Technological skills readiness

Item No	Questions	Almost everyday	More than once a week	Once week	Rarely	Never
CI.1	I have the basic skills to use a computer (e.g. using keyboard, shortcuts, using mouse, copying and pasting files,	□ **5**	□ **4**	□ **3**	□ **2**	□ **1**

	creating, editing and saving files, creating folders)					
CI.2	I can create presentations using Power point, create spreadsheets (e.g. Excel), and word processor for content delivery	□**5**	□**4**	□**3**	□**2**	□**1**
CI.3	I know how to download and install software	□**5**	□**4**	□**3**	□**2**	□**1**
CI.4	I have the basic skills to search for information by browsing the Internet and retrieve data	□**5**	□**4**	□**3**	□**2**	□**1**
CI.5	I know how to communicate using email, Skype, and send text/audio/video files using cloud computing	□**5**	□**4**	□**3**	□**2**	□**1**
CI.6	I can troubleshoot most problems associated with using a computer	□**5**	□**4**	□**3**	□**2**	□**1**
CI.7	I feel that prior experience is required for using online technologies.	□**5**	□**4**	□**3**	□**2**	□**1**

C II: Equipment / infrastructure readiness

Item No	Questions	Almost everyday	More than once a week	Once week	Rarely	Never
CII.1	I have access to a computer in the school	□**5**	□**4**	□**3**	□**2**	□**1**
CII.2	I have access to relevant hardware and printers/scanners/overhead projectors	□**5**	□**4**	□**3**	□**2**	□**1**
CII.3	I have access to adequate software (e.g. Microsoft Word, Adobe Acrobat)	□**5**	□**4**	□**3**	□**2**	□**1**
CII.4	I have access to reliable high speed Internet	□**5**	□**4**	□**3**	□**2**	□**1**
CII.5	I provide tech support	□**5**	□**4**	□**3**	□**2**	□**1**
		Strongly agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
CII.6	I think poor infrastructure may hinder the Ministry of Education from developing and implementing e-learning	□**5**	□**4**	□**3**	□**2**	□**1**
CII.7	I think the content/curriculum mandated by Ministry of Education may hinder successful implementation of e-learning	□**5**	□**4**	□**3**	□**2**	□**1**
CII.8	I think quick technical and administrative support is important to my success as a Subject Supervisor	□**5**	□**4**	□**3**	□**2**	□**1**

C III: Attitude readiness

(g) Confidence		**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
CIII.1	I have the confidence to use advanced technology for training teachers	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.2	I hesitate to use technology for fear of making mistakes	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.3	I learnt most of the things on my own about using e-learning technologies	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.4	I would feel better about using technology if I knew more about them	□**5**	□**4**	□**3**	□**2**	□**1**

CIII.5	I feel threatened when I see teachers using technology in their learning /working	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.6	Knowing how to use e-learning technologies can increase my job possibilities	□**5**	□**4**	□**3**	□**2**	□**1**
(h) **Delight**		**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
CIII.7	I like using computers for research	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.8	I like to communicate with others using e-mail to support my learning	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.9	I spend a lot of time on the internet	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.10	I enjoy working on tasks on a computer	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.11	I like to try new technologies for teaching, training and/or learning	□**5**	□**4**	□**3**	□**2**	□**1**
(i) **Importance**		**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
CIII.12	It is important to learn how to use a computer for learning and training, and how to use the internet as a learning resource	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.13	Learning about how to use e-learning technologies is a waste of time.	□**5**	□**4**	□**3**	□**2**	□**1**
(j) **Motivation**		**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
CIII.14	I think that would be able to remain motivated even through the instructor is not online at all times.	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.15	I think that I would be able to complete my work even when there are online distractions (e.g. friends sending emails or websites to surf)	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.16	I think that I would be able to complete my work even when there are distractions in my home (e.g. television, children, and such)	□**5**	□**4**	□**3**	□**2**	□**1**
(k) **Self-Development**		**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
CIII.17	I think I can spend some time (15, 30 or 60 minutes) for improving myself during some part of the day (morning, afternoon, evening or night)	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.18	I believe that self – development of teachers may strengthen the position of the ministry of education	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.19	I am interested to upgrade my academic / professional qualification and/or work performance through e-learning	□**5**	□**4**	□**3**	□**2**	□**1**
(l) **Anxiety**		**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
CIII.20	I think positively toward the technological interventions in daily /routine tasks	□**5**	□**4**	□**3**	□**2**	□**1**

CIII.21	I feel comfortable with the thought of using technology to deliver instruction	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.22	The thought of using e-learning technologies makes me very nervous	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.23	I get a sinking feeling when I think of trying to use technology for training trainees and/or learning.	□**5**	□**4**	□**3**	□**2**	□**1**

C IV: Cultural readiness

Item No	Questions	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
CIV.1	I accepted technological innovation (e.g. start using digital documents instead of hard copies) in routine /daily tasks	□**5**	□**4**	□**3**	□**2**	□**1**
CIV.2	I have accepted any changes that required the use of technology in daily /routine tasks	□**5**	□**4**	□**3**	□**2**	□**1**
CIV.3	The most effective method of learning is face-to-face	□**5**	□**4**	□**3**	□**2**	□**1**
CIV.4	The teacher /trainer /instructor is still the best information provider	□**5**	□**4**	□**3**	□**2**	□**1**
CIV.5	E-learning is an efficient means of disseminating information	□**5**	□**4**	□**3**	□**2**	□**1**
CIV.6	E-learning enables learners and instructor to communicate and interact better with one another	□**5**	□**4**	□**3**	□**2**	□**1**

Appendix B

Questionnaire

Teacher's Assessment of Subject Supervisors

Section A: Participant demographics

A1. **Age**

Below 30 □

Between 30 and 40 □

Between 40 and 50 □

Above 50 □

A2. **Gender**

Male □

Female □

A3. **Teaching experience**

Less than 5 years □

Between 5 and 10 years □

Between 10 and 15 years □

Over 15 years □

Section B: Prior e-learning knowledge

B1. I have an Internet connection at my workplace:

□ Yes □ No

B2. I have an Internet connection at home:

□ Yes □ No

B3. I access the Internet mostly from:

□ Home □ Wi-Fi Hot Spots

□ Workplace □ Mobile phone/PDA

□ Cyber/Internet café □ None

□ College/university □ Other (please specify) _____

B4. Are you a member of any social networking sites?

□ No (skip to question B6)

□ Yes, How many: _____

B5. Which social networking site do you use most frequently? _____

B6. Which online conference tools are you familiar with?

□ Yahoo Messenger □ Google Chat □ Skype

□ MSN □ ICQ □ None

□ Other, please specify: _____

B7. Competencies for training in e-learning environments (tick the skill(s) that you have):

□ Content expert □ Develop instructional media such as computer-assisted instruction (CAI)

□ Graphic design □ Use instructional media such as computer-assisted instruction (CAI)

□ Video production □ Develop instructional media such as slide shows

□ Photography □ Use instructional media such as slide shows

□ Storyboarding □ None

□ Other, please specify: _____

B 8. Please specify other computer programming skill(s) that you have:

_____

Section C: E-learning readiness dimensions

C I: Technological skills readiness of Subject supervisors

Item No	Questions	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
CI.1	Subject supervisors have the basic skills to teach technical and procedural skills	□5	□4	□3	□2	□1
CI.3	Subject supervisors monitor the way we install/use software to support earning	□5	□4	□3	□2	□1
CI.4	Subject supervisors communicate with teachers via email	□5	□4	□3	□2	□1
CI.4	Subject supervisors help teachers to troubleshoot most problems associated with using a computer	□5	□4	□3	□2	□1
CI. 5	Subject supervisors provide quick technical and administrative support	□5	□4	□3	□2	□1
CI.6	Subject supervisors in Kuwait are able to apply information computer technology in a strategic and discriminating manner, taking a balance of alternatives and advantages into consideration	□5	□4	□3	□2	□1

C II: Subject supervisors' attitude to e-readiness

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
CII.1	Subject supervisors have the confidence to train teachers in the use of technology	□5	□4	□3	□2	□1
CII.2	Subject supervisors hesitate to use technology	□5	□4	□3	□2	□1

CII.3	Subject supervisors in Kuwait are capable on getting other people interested in e-learning	□**5**	□**4**	□**3**	□**2**	□**1**
CII.4	Subject supervisors have positive attitude towards e-learning	□**5**	□**4**	□**3**	□**2**	□**1**
CII.5	Subject supervisors are dedicated to facilitating e-learning use and implementation	□**5**	□**4**	□**3**	□**2**	□**1**
CII.6	Subject supervisors motivate teachers	□**5**	□**4**	□**3**	□**2**	□**1**
CII.7	Subject supervisors helped to improve competencies of tutors	□**5**	□**4**	□**3**	□**2**	□**1**
CII.8	Subject supervisors helped improve teachers' work performance	□**5**	□**4**	□**3**	□**2**	□**1**
CII.9	Subject supervisors helped to improve competencies of tutors	□**5**	□**4**	□**3**	□**2**	□**1**
CII. 10	Subject supervisors are instrumental for teacher self – development	□**5**	□**4**	□**3**	□**2**	□**1**

C III: Cultural readiness

Item No	Questions	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
CIII.1	Subject supervisors helped support the change process	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.2	Subject supervisors have a clear vision and objectives for the intended change	□**5**	□**4**	□**3**	□**2**	□**1**
CIII.3	Subject supervisors have the motivation and attitudes to engage with the change and make it work	□**5**	□**4**	□**3**	□**2**	□**1**

Appendix C

Interview Schedule

No	Questions
1.	Please tell me what you think about the e-learning strategies being implemented by the Ministry of education?
	a) What kind of training have you undergone in the past 3 years? Has it changed? How?
	b) Have you applied e-learning in schools before? Are you planning to do any in the future? (what is the range of courses that will be covered through the e-learning?)
	c) Do you see a clear strategic advantage for using e-learning solutions in schools? (e.g. Do you think the use of learning technologies can raise the standards of a teacher's performance?)
2	In the past teachers have been provided with incentives to participate in training / Seminars / etc. Are there any current plans to provide teachers with incentives to Participate in schools of ministry of education to apply e-learning? What kind of incentives? What would qualify people to receive the incentives?
3	What are the potential challenges that the schools may face in the setting-up and/or applying flexible e-learning?
	a) What do you think will be the top 3 barriers of applying e-learning for the first time in a school?
	b) What barriers do you think may slow down teacher's adoption of e-learning?
	c) What challenges do subject supervisors face when getting schools to implement e-learning? (are the schools ready?)
4	What level of investment do you think the Ministry of Education has made including IT infrastructure and teachers in order to support e-learning?
	a) Do you think e-learning is worth the application? Why?
	b) Do you believe you will see a success on your application into e-learning? What return? (e.g. Effort, time, productivity, etc)
5	In your opinion, do you think the Ministry of education is ready to apply e learning?
	a) Do you think the existing network technology supports teaching process and student-teacher interaction other in a flexible e-learning environment? Please elaborate

	b) Do you think they teachers/subject supervisors of Ministry of Education are eager and/or well-motivated to get together to apply e-learning?
	c) How well do you think the training policy supports flexible e-learning? (can you provide an example?)