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Mobile Devices in Higher Education: Faculty Perception in the United Arab Emirates

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Walden University
2019

Abstract

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MSc, Walden University, 2011

BSc, Goa University, 1994

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Research has been conducted on the effectiveness of mobile devices in education; however, few scholars have addressed how faculty members perceive the use of mobile devices in the classroom. Mobile devices in higher education have the potential to support innovative teaching modalities. The purpose of this qualitative case study was to explore faculty perceptions of using the mobile device as an instructional aid in a higher educational institution in the United Arab Emirates (UAE). The conceptual framework was Zhao and Frank's metaphorical use of ecology and the ecosystem. Three research questions focused on faculty members' perceptions of uses, challenges, and cultural effects of integrating mobile devices into teaching. A purposeful sampling method was used to find participants for the study. Criterion based logic, semistructured, face-to-face interviews were conducted to collect data from 8 full-time, expatriate faculty members (4 from the federal university and 4 from the private university of UAE) teaching in UAE for at least 2 years who were avid users of mobile technology for classroom instruction. Interviews were transcribed, and the data were coded to identify patterns and major themes. The results showed that faculty used mobile devices for instructional purposes, increasing engagement, improving collaboration and pedagogical practices, and promoting UAE culture. Faculty also reported challenges with mobile technology such as distraction and cheating. The results of the study can lead to a positive social change by guiding higher education faculty on how to improve the status quo and assist in planning pedagogy and facilitating mobile-enhanced learning environments.

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Dedication

I humbly dedicate this dissertation to my loving husband, Nelson Ribeiro, and my two sons, Nash, and Shenel for the unconditional support, love, and endurance throughout this doctoral journey.

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My sincere gratitude to Dr. Heng-Yu Ku, my committee chair, and my methodologist, Dr. Gary L Lacy, for believing in me, setting realistic high standards goals, and challenging me to achieve them. I thank you both for the countless hours you have put in listening to me, giving me instant feedback through phone calls, WhatsApp messages, and e-mails. This doctoral study would not have been possible without your highly efficient guidance, holistic approach, innovative research ideas, and support regularly. Thank you for helping me in this trajectory growth as a scholar-practitioner.

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Above all, my ultimate thanks to almighty GOD, whose guiding hands have always blessed me abundantly with wisdom and knowledge I offer to you GOD the successes of my doctoral program.

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Chapter 1: Introduction to the Study

The use of mobile learning devices has grown in major universities in the United Arab Emirates (UAE; Ishtaiwa, Khaled, & Dukmak, 2015). Faculties in higher education are the change agents in elevating the quality of teaching and learning in UAE and supporting paperless university campus (Rapanta, Nickerson, & Goby, 2014). Using the new technology tools, faculty facilitate blended learning environments. In this way, the role of the faculty changes from professor to the facilitator (Khaddage et al., 2015). Using mobile devices, the faculty in higher educational institutions design collaborative, game-based learning instruction (Cavanaugh, Hargis, Munns, & Kamali, 2013; Gitsaki, Robby, Priest, Hamdan, & Ben-Chabane, 2013) that has expanded their classroom beyond the four walls, and students have exchanged resources, uploaded work, and enhanced their learning skill through learning management systems, online forums, blogs, and other digital apps (Al-Emran, Elsherif, & Shaalan, 2016; Santos, 2013).

There is an unprecedented growth of mobile devices in higher education in UAE (Sung, Chang, & Liu, 2016). The roles of the faculty using mobile technology tools are vital in preparing the future workforce and bringing about 21st-century skills (Gitsaki, Davison, Johnson, & Yates, 2016). The effective integration of the mobile device into the curriculum has been a primary focus of all educators. It is vital to recognize the various aspects that promote or impede the faculty use of mobile devices in higher educational institutions (Al-Emran et al., 2016; Cheon, Lee, Crooks, & Song, 2012). This study was designed to understand the faculty perception of the use of mobile devices in higher educational institutions in UAE. Various researchers, across the globe, have examined the

use of mobile devices in education but few have investigated the use of mobile devices as a teaching-learning tool (Cheon et al., 2012; Sung et al., 2016), especially in UAE (Al-Emran et al., 2016). Further research is necessary to understand the faculty's perception of the use of mobile devices in higher education (Ishtaiwa et al., 2015).

With the present digital native generation in a highly competitive and globally connected world, most federal and private educational institutions in UAE have adopted new technological tools in their curricula and have taken a fresh approach to pedagogy. Fostering a culture of technological innovation is a challenge to all educators. In this study, I explored the perception of using mobile devices in higher education faculty in the UAE. In this study, I intended to offer insight into higher education faculty perspectives of how faculty beliefs can influence the use of mobile technology in daily instruction. I attempted to contribute to the positive social change by empowering faculty members to adopt new mobile technology pedagogy that can transform higher education classroom. This study provided the basis to explore best practices associated with mobile device use as a teaching and learning tool. In this study, higher education faculty in the UAE reflected, analyzed, and synthesized the best practices for using mobile devices, giving an authentic learning experience.

In Chapter 1 of this dissertation, I address the background, problem statement, and the purpose for carrying out the study. In Chapter 1, I also provide a brief outline of the literature relevant to the study. Last, I describe the research questions, conceptual framework, definitions of fundamental concepts, and nature of the study, assumptions, scope, and limitations.

Background

Hand-held mobile devices such as smart books, laptops, iPad, iPods, personal digital assistants, and mobile phones have become a teaching and learning tool in both higher education and outdoor learning. Educators can use mobile technologies to facilitate more innovative educational methods (Cheon et al., 2012). Educators have integrated mobile devices to enhance the teaching-learning environment (Grant et al., 2015; Mehdipour & Zerehkafi, 2013). Mobile devices, such as tablets and smartphones, have proven applications in higher education institutions (Gikas & Grant, 2013). Students are entering their classrooms with their own mobile devices, and educators are leveraging these tools to provide active learning and to link the curriculum with real-life issues (Johnson et al., 2016). The effective use of the mobile device as a pedagogical technology tool depends on the teachers' beliefs. Educators should examine the variables that alter the use of mobile technology in the higher education classrooms (Cumaoglu, 2015).

The UAE has established itself as an information-technology-sophisticated nation (Rapanta et al., 2014). The UAE has used modern designs and simulated the world's most advanced education systems to build their education system (Murshidi, 2017). The UAE's Vision 2021 National Agenda is to ensure that universities and schools are equipped with new technological tools and mobile devices for all teaching and learning methodology, helping faculty and students to acquire 21st-century skills (Ewen, 2015). Leaders of the federal higher educational institutions in UAE have developed and implemented digital curriculum (Cavanaugh & Hargis, 2014). For example, the UAE

Ministry of Higher Education deployed 14,000 iPads to 6,172 students and 328 faculty in three federal higher educational institutions with an aim to improve instructor teaching and student learning with mobile technology (Briz-Ponce, Juanes-Méndez, & García-Peñalvo, 2016; Gitsaki et al., 2013).

As new technological devices are introduced in teaching and learning in higher educational institutions in UAE, technology has the potential to revitalize curriculum and pedagogy (Murshidi, 2017). To effectively implement mobile devices for future K-12 classrooms, preservice teachers must experience innovative types of mobile learning within university courses, field study, and student teaching experiences (Passut, 2016). UAE has been recruiting expatriate higher education faculty on short-term contract basis, as there is a lack of qualified Emirati instructors (Austin, Chapman, Farah, Wilson, & Ridge, 2014). The broad demographic of faculty members who teach a variety of courses in UAE means that faculty have their own beliefs, cultural assumptions, ideologies, educational practices, expectations, and use of language (Moore, 2015). Federal institutions in UAE have launched various professional development and faculty development certificate programs to address the technological and pedagogical aspects of mobile teaching and learning (Gitsaki et al., 2016; Hargis, Cavanaugh, Kamali, & Soto, 2014; Psiropoulos et al., 2016). With the adoption of the latest technology tools, the role of the faculty changes from instructor to a facilitator (Alghazo, 2006).

Educators and students need to examine the pedagogical framework for mobile learning, such as technology, the flexibility of learners, adaptability of faculty, and learning mobility (Al-Emran et al., 2016). Sarrab, Elbasir, and Alnaeli (2016)

recommended a new model for focusing on principles and guidelines for mobile teaching and learning. The model captured theoretical and technical aspects, such as accessibility, quick response, adaptability, scalability, usability, maintainability, functionality, performance, security and user interface (Sarrab et al., 2016). Sarrab et al. found that students and faculty members were familiar with mobile devices and had a positive attitude in using mobile devices in classrooms. Sarrab et al. indicated that mobile learning could be applied in higher education institutions within the Arab Gulf Countries, as it is a promising pedagogical technology. Mayberry et al. (2012) examined technological tools involving iTouch as a teaching tool and proposed active learning strategies beyond the four walls of the classroom promoting 21st-century skills and recommendations for future use in an educational setting.

Although mobile devices enhance students' learning, the faculty may have concerns about the possibility of misuse during (Ekanayake & Samarakoon, 2016). Karsenti and Fievez (2013) reported that mobile devices have cognitive potential; however, they come with many challenges. Karsenti and Fievez reported that touchpads were a source of distraction for students, and they claimed that students' academic performance decreased when they used touchpads. Shrivastava and Shrivastava (2014) explored faculty perception of students using mobile devices during class hours and reported that mobile devices created stress among faculty as it was a source of distractions and students lack concentration during instruction. Shrivastava and Shrivastava recommended further study on the topic as there is literature on the students

using mobile device in the classroom, but there is limited research on the perceptions of faculty or university staff on using mobile devices.

Ali (2015) explored the pedagogical affordances of the IPad and the challenges that arrived with the launch of IPad. Ali found that the IPad enhanced collaborative learning environment among students. However, Ali found that the teachers at the two colleges faced several challenges with the introduction of the IPad to their academic and professional context, including (a) the IPad as a distractor and the easy access to the Internet could divert a learner's attention; (b) the IPad was unsuitable for long writing assignments; (c) the IPad created hindrance to spoken communication as most students used text to communicate; and (d) the students often forget to charge their devices, which disrupted the flow of the class. Ali further indicated that any successful integration of new technology depends on faculty's and learner abilities, attitudes, and inclusion of the new technology into the curriculum. Ali recommended in-service training and pedagogical support for all higher educational faculties to integrate new mobile devices in the teaching process.

In spite of the educational potential of mobile technologies for the classroom use, educators are challenged with selecting the best technology tool for teaching learning activities (Al-Abdullatif, 2012; Underwood & Dillon, 2011). Educators need professional development to reexamine their beliefs of using mobile technologies for designing instruction (Aubusson, Schuck, & Burden, 2009). Psiropoulos et al. (2016) reported variables such as anxiety, time constraints, and unclear expectations of mobile learning environment during the professional development program as hindering technology

integration. Psiropoulos et al. recommended collaborative planning and facilitating of authentic professional learning communities in integrating new technology tools in higher education.

Various studies have been conducted to understand teachers' perceptions of using mobile devices for the classroom use. Goad (2012) examined teachers' perceptions of using mobile phones as an instructional tool and affirmed that teachers are slow to adapt to the use of technology. Overall, there was a considerable positive relationship between technology use and teachers' ability to design instruction (Goad, 2012). Karch (2014) found that both the faculty and students supported the use of mobile devices in educational practices. Karch further reported that teachers felt the need for strategic professional development to articulate classroom management techniques that support mobile instructions. Karch recommended further investigation on teachers' perceptions of using mobile technology in all teaching-learning activities to contribute 21st-century learning.

In UAE, there is a rapid growth of mobile technology in higher educational institutions (Aoudi, 2015). Most of the higher education classrooms, both federal and funded, are equipped with the latest technology tools, moving education into the mobile learning era needed for 21st-century classroom teaching (Gitsaki et al., 2013). For the past few years, many universities in UAE have mobile technology initiatives and have the appropriate infrastructure to embrace mobile technology curriculum (Gitsaki et al., 2013). Although mobile technology is rapidly increasing, many educators are not adequately incorporating it into classrooms (Al-Okaily, 2015; Thomas, O'Bannon, & Bolton, 2013).

This can be attributed to faculty's negative perception of using mobile technology. Researchers have reported various factors that hinder the use of mobile technology in the classroom (Shraim & Crompton, 2015; Sung et al., 2016).

In UAE, the host culture is different from native English speaking countries (Al-Ali, 2014). Most of the faculty members are native speakers of English and are fully qualified regarding pedagogical training including technological skills (Austin et al., 2014). While integrating mobile technology in the classroom, faculty need to consider the cultural norms set by the authorities of higher educational institutions (Al-Okaily, 2015; Raven, 2011; Palmer, 2015; Rapanta et al., 2014). Faculty perceptions of mobile technology influence the adequate use of mobile devices in the classroom (Handal, MacNish, & Petocz, 2013).

Teaching curriculum using the mobile device is an emerging field of educational research (Al-Emran et al., 2016; Shraim & Crompton, 2015). There is abundant research on the effectiveness of mobile devices as a learning tool, but there is limited literature on the faculty's use of mobile devices as an instructional tool (Sung et al., 2016; Yeap, Ramayah, & Soto-Acosta, 2016). To effectively enrich instructional practices using mobile technologies, this study was designed to comprehend the faculty's perception of using mobile devices and their instructional benefits and perceived challenges to use them in teaching learning activities.

The study may be used to guide higher education faculty to enhance pedagogical support with mobile device adoption and plan instruction using mobile devices. The results of the study may also help the higher education faculty be more familiar with

using their own mobile devices for pedagogical scaffolding. The study may pave the road for future researchers to conduct similar studies and contribute to better understanding the benefits of using mobile technology for designing instructions in the technology-driven world.

Problem Statement

A growing number of educational institutions are embracing new mobile technology (Anshari, Almunawar, Shahrill, Wicaksono, & Huda, 2017). Mobile devices have the power to transform the educational system (Barnes & Herring, 2013; Cheung & Hew, 2009; Thomas & Orthober, 2011), and students can use mobile devices to facilitate learning by connecting, communicating, and collaborating with classmates in and outside the classroom (Dhanalakshmi, Suganya, & Kokilavani, 2014). Mobile devices offer various educational applications that teachers and students can integrate into educational activities (Khaddage & Lattemann, 2013). To integrate mobile devices in classrooms, educators need a plan to first explore their beliefs concerning mobile devices (Kizilkaya Cumaoglu, 2015). Moreover, the process of adopting new technology in second- and third-world nations has not been examined by researchers (Orlando, 2014).

Mobile devices offer various educational applications that teachers and students can integrate into educational activities (Khaddage & Lattemann, 2013). Academic institutions are attempting to redesign their academic curriculum to link the current technology gap in instruction (Andoh, 2012). Most of the higher educational institutions in the UAE are equipped with latest technology tools necessary for teaching and learning. In UAE, it is mandatory for faculty in federal universities to use technology tools in the

classroom, while faculty in private institutions have a choice of integrating technology tools into curricula. However, many faculty members do not integrate mobile phones in instruction and have negative perceptions about their use in the classroom (Ferrari, Cachia, & Punie, 2011; Leem & Sung 2018). Several challenges restrain faculty members from using mobile devices in classroom (Ishtaiwa et al., 2015). Teaching across multiple mobile platforms may increase a teacher's hesitation to use mobile devices (Dede & Bjerede, 2011).

Faculty use technologies to enhance students' collaboration, develop higher-order thinking skills, and address student needs (Ottenbreit-Leftwich, Glazewski, Newby, & Ertmer, 2010). Faculty use of mobile technology in the classroom usually relates to their beliefs that technology can facilitate teaching and impact learning (Zhao & Frank, 2003). Research has been conducted in areas of mobile technology; however, there is a shortage of research on higher educators' perspectives from the Gulf (Sabry, Al-Nakeeb, & Alrawi, 2011). The typical undergraduate student in the UAE uses mobile phones for informal learning activities. University students in the UAE use mobile phones to access course materials and collaborate and communicate in all informal learning activities (Santos & Ali, 2012). Students are ready for mobile learning (Ally, 2013; Ferriter, 2010; Lenhart, Ling, Campbell, & Purcell, 2010); therefore, faculty should adapt and design instruction to cater to the digital natives and efficiently use it for pedagogical practices (Khaddage, Lattemann, & Bray, 2011). Effectively use of mobile devices in the classroom depends on the educators' beliefs (Leem & Sung 2018).

There is limited literature on how effectively educators use the mobile devices in

classroom. There is a need to conduct more research to understand faculty's perceptions and social and cultural dynamics of using mobile technology (Cheon et al., 2012; Kizilkaya & Cumaoglu, 2015; Tamin, 2012). Scholars do not know the process of mobile technology adoption, nor the perceived challenges or benefits associated with adoption experienced by UAE teachers. The lack of accurate information about mobile technology adoption has built a gap in the literature, which may affect the efficient use of mobile technology in the classroom. Research needs to be conducted to understand the pedagogical shift that teachers experience when adopting mobile devices in a developing nation (Grimus & Ebner, 2014; Santos & Ali, 2012). The primary aim of this study was on the experiences and perceptions of the faculty in using mobile devices as an instructional tool but not on the effectiveness of the devices.

Purpose of the Study

The purpose of this qualitative case study was to explore faculty perceptions of using the mobile device as an instructional aid in a higher educational institution in the UAE. I also explored the challenges, strategies, and pedagogical opportunities that higher education faculty in UAE have encountered in integrating mobile devices into their courses.

The influence of religion and ethnicity played a role in how this technology is used and integrated because many students and faculty in the UAE are expatriates—coming from different nationalities. The UAE is known for its cultural diversity. Besides UAE nationals, there are various Arab groups, Filipinos, Indians, Iranians, and large numbers of Europeans and Americans (Gaad, Arif, & Scott 2006). They are called

expatriates. In UAE, because there is a lack of qualified Emirati faculty, higher educational institutions have been recruiting and hiring expatriate faculty members with short-term employment contracts (Austin et al., 2014). Culturally, the UAE represent a stronghold of Arabic heritage and religion that affect all aspects of life (Engin & McKeown, 2016; Sayed, 2015).

The education system in UAE, in comparison to Western countries, is relatively new (Jose & Chacko, 2017), and it is branched into the private and public sector. The public or the federal education sector, funded by the UAE government, is of strong Islamic and Arabic influence. The federal system enrolls primarily Emirati students in single gender classes with tuition provided by the government (Austin et al., 2014; Gaad, 2001). In UAE, cultural considerations are factored in while attempting to implement the latest reforms in educational practices (Raven, 2011). In federal higher educational institutions in UAE, the young female population that represents around 80% of the UAE's students are first-generation college students (Abdulla, 2015). Although Arabic is the national language, English is the medium of higher educational institutions. The majority of the students in federal universities are first language speakers of Arabic (Gallagher, 2011). In funded universities, students come from diverse backgrounds. Most of the higher education faculty are expatriates who need to adapt to the local culture and adhere to the rules and regulations set by the universities (Raven, 2011).

In UAE, there is a rapid growth of mobile technology in higher educational institutions (Aoudi, 2015). Most of the higher education classrooms, both federal and funded, are equipped with the latest technology tools, moving education into the mobile

learning era needed for 21st-century classroom teaching (Gitsaki et al., 2013). For the past few years, many universities in UAE have mobile technology initiatives and have the appropriate infrastructure to embrace mobile technology curriculum (Gitsaki et al., 2013). Although mobile technology is rapidly increasing, many educators are not adequately incorporating it into classrooms (Al-Okaily, 2015; Thomas et al., 2013). This may be attributed to faculty's negative perception of using mobile technology. Researchers have reported various factors that hinder the usage of mobile devices in the classroom (Shraim & Crompton, 2015; Sung et al., 2016). In UAE, the host culture is different from the native English-speaking countries (Al-Ali, 2014). Most of the faculty members are native speakers of English and are fully qualified regarding pedagogical training including technological skills (Austin et al., 2014). While integrating mobile technology in the classroom, faculty need to consider the cultural norms set by the authorities of higher educational institutions (Al-Okaily, 2015; Raven, 2011; Palmer, 2015; Rapanta et al., 2014). Faculty perceptions of mobile technology influence the adequate use of mobile devices in the classroom (Handal et al., 2013). To effectively enrich instructional practices using mobile technologies, faculty need to understand the importance of using technology and the instructional benefits and perceived challenges to use technology in teaching and learning activities (Shriam & Crompton, 2015).

In UAE, the use of mobile devices in higher education is gaining momentum in recent years (Kukulska-Hulme & Viberg, 2018; Minocha, Tudor, & Tilling, 2017; Sharma et al., 2014). Much of the existing literature is on the students' use of mobile devices (Aoudi, 2015; Al-Ali, 2014; Barnes et al., 2010; Handal et al., 2013; Kizilkaya

Cumaoglu, 2015; Rapanta et al., 2014; Shraim & Crompton, 2015). There is also literature on mobile devices as an instructional tool (Al-Hunaiyyan, Alhajri, & Al-Sharhan, 2018; Baek, Zhang, & Yun, 2017; Ekanayake & Wishart, 2015; Khaddage et al., 2015; Oz, 2014; Sung et al., 2016). One up-and-coming area of research is the faculty use of mobile devices in education (Bilos, Turkalj, & Kelic, 2017; Minocha et al., 2017; Shraim & Crompton, 2015). I developed this study to address the gap in the existing literature and to aid the higher education faculty to understand the pros and cons of using mobile technology in teaching and learning and strategically designing mobile-enhanced pedagogical strategies, supporting UAE vision 2021 of fostering a sustainable culture of lifelong learning.

The purpose of this qualitative, single case study was to explore the perceptions of a group of educational faculty members who have adopted pedagogical practices that incorporate the use of mobile technologies for teaching higher education in the UAE. I used a case study design to understand the higher education faculty perceptions of using mobile devices as an instructional tool. I used a single case study to explore eight higher education faculty members in UAE. Participants were drawn from two universities, which are located in the city of Dubai, UAE. Four participants were from a private higher educational institution, while the other four members were from a federal institution. In this qualitative case study, I incorporated face-to-face interviews, archival data, and researcher's reflexivity to determine the mindset of faculty about using mobile technology for teaching and learning.

Research Questions

I explored the faculty's perception of the adoption of mobile devices in higher education institutions in the UAE. I created three research questions to focus on faculty perceptions of using mobile devices via integration, cultural restrictions, and challenges. The research questions are

1. How do faculty members in UAE integrate mobile devices into teaching?
2. How does the integration of mobile devices in the classroom affect cultural assimilation in higher education when used as a teaching-learning tool?
3. What are the perceptions of UAE faculty members in higher education about the challenges related to the integration of mobile devices as an instructional resource?

Conceptual Framework

One theory that encompasses mobile learning is the educational ecological theory posited by Zhao and Frank (2003). Zhao and Frank presented an ecological model to represent the use of technology tools in education, in which the ecosystem represents the classroom, the keystone species represents the faculty, and the new technological tools such as mobile devices represent the invasion of exotic species. According to Zhao and Frank, the classroom ecosystem is like that of the biological ecosystem where each species in the ecosystem has a role to play in the hierarchy. Zhao and Frank used the metaphor of zebra mussels that successfully and rapidly colonized the Great Lakes in the border of the United States and Canada. The educational institution is an analogous to

Great Lakes ecosystem where "the zebra mussel settles and interact with the local species and physical and physiological conditions" (Zhao & Frank, 2003, p. 816). The successful invasion of the zebra mussels in the Great Lakes depends on many factors. Similarly, the successful integration of invading species, such as mobile devices in higher education, will not survive unless the keystone species as faculty members are compatible in integrating it in all teaching-learning environments.

I used four metaphorical equivalents to describe the issue of new technology use in school and the ecological system: (a) higher educational institutions as ecosystems, (b) mobile device usage as living species, (c) higher educational faculty as members of a keystone species, and (d) outer educational innovations as invasions of exotic species (Zhao & Frank, 2003). The successful invasions of Zebra mussel have caused ecological changes in the Great Lake. To understand the rapid invasion of the entire ecosystem, scholars need to understand the environmental conditions favorable to the growth of zebra muscles. Similarly, in the UAE, there is the rapid growth of mobile technology in the higher educational institution. To understand the rapid adoption of mobile technology in higher education, it is vital to know how faculty members integrate mobile devices into teaching and learning. The ecological metaphor provided a robust analytical framework to examine the research question of how faculty members in UAE integrate mobile devices into teaching.

The survival of an exotic species in a brand-new ecosystem relies on whether they can be in symbolic synchronization with the entire ecosystem. In this study, as an outer educational innovation, the acceptance of a new technology depended on the capability of

learning and its connection with other elements in the entire ecosystem of educational institutions. Like other abundant educational reform attempts, the commencement of technology in higher education has been less than effectual in the short term as a result of the pressure that innovation brings to faculty, students, administrators, and other factors in the educational ecosystem (Zhao & Frank, 2003). Many individuals have witnessed the academic capability of mobile devices. To comprehend how the zebra mussel rapidly invaded and adapted in the Great Lakes ecosystem, ecologists must understand the interrelationship of the ecological conditions of the invading species and other geographical characteristics. Accordingly, it is essential to appreciate the dynamics that faculty face in higher educational institutions to build equivalent amendments formed on the innovations that the mobile devices have contributed (Long, Liang, & Yu 2013). Ecological metaphor provides a robust analytical framework to examine the research question of how the faculty in higher education perceive challenges in the integration of mobile devices as an instructional tool.

Most higher education classrooms in UAE are equipped with the latest technology tools (Murshidi, 2017). To successfully integrate mobile devices into teaching, Zhao and Frank (2003) used the metaphor of the intrusion of the zebra muscles in the Great Lakes to represent the adoption of mobile technology in education. Zhao and Frank reported that the successful invasion of the zebra mussel was a result of many traits working together. Ecosystems contain both biotic and abiotic factors. The biotic component has many species. Most important are the keystone species, which control other species. The factors, according to Zhao and Frank, are ecosystems representing educational

institutions keystone species as faculty members, invasive species as new technologies, and abiotic factors such as the local environment and culture. According to Zhao and Frank, faculty will be the keystone species to understand the cultural influence of using "invading exotic species" (p. 811) or new mobile technology. Just like the bioecosystem, a higher education classroom is a teaching ecosystem, where the faculty member as a keystone species facilitates learning environment, using the mobile device. The students are the species, which come from various cultural backgrounds. For this study, the use of the ecological framework enabled me to address the research question on whether there are any cultural influence of using mobile devices in higher education institutions in the UAE.

Some researchers have pointed out that there are many obstacles preventing faculty from using mobile technology in the classroom (Ally, 2013; Shrivastava & Shrivastava, 2014; Sung et al., 2016). Zhao and Frank (2003) argued that the influx of zebra mussels in the Great Lakes indicates the set of variables that facilitate or hinder the use of mobile devices in higher education. According to Zhao and Frank, the faculty's pedagogy, technology skills, and beliefs influence the integration of technology tools in any educational culture. For this study, using an ecological framework, I sought to explore the perceptions of UAE faculty members related to the integration of mobile devices in higher education.

Zhao and Frank (2003) further pointed out that successful integration of new technology (invasive species) depends on the competency of the teachers (keystone species) and other biotic and abiotic components. Understanding the various factors is a

key to promoting the successful integration of mobile devices in education (Al-Hunaiyyan et al., 2018; Almekhlafi & Almeqdadi, 2010; El-Hussein & Cronje, 2010; Ismail, Bokhare, Azizan, & Azman, 2013; Ishtaiwa et al., 2015; Kizilkaya Cumaoglu, 2015b; Shraim & Crompton, 2015; Ziden & Rahman, 2013). Zhao and Frank's theory supported the research questions for the study.

Nature of the Study

In this case study, I explored the perceptions of higher education faculty members in UAE, who use mobile devices in their instructional activities. I employed a qualitative, single case study to answer the three research questions. In qualitative designs, scholars engage various nonstatistical research methods in analyzing and investigating social occurrences (Creswell, 2013). A case study is outlined as an in-depth study of a phenomenon (Gerring, 2004). A typical case study design administers a thorough and concise analysis of each instance and theme (Creswell, 2003; Stake, 2013). In a case study design, the researcher examines simple to complex interventions, relationships, and programs of individuals or organizations (Yin, 2003).

I used a single case study to explore the perceptions of eight higher education faculty members who used mobile devices in teaching. The participant faculty were drawn from the federal university of Dubai and the private university. Of the total of eight participants, four participants were from the federal university of Dubai and four participants were from the private university. Both organizations were located in the city of Dubai, UAE.

I interviewed eight faculty members from two educational institutions. Four faculty members were drawn from the private university of Dubai, and four were drawn from the federal university. I conducted interviews with each faculty member. To narrow the focus of the study, three central questions were followed by subquestions (see Creswell, 2003). Interviews were open-ended; I asked the faculty a series of questions and then provided them with the time to answer these questions without pressure. Interview questions were semistructured, meaning a central stem question was asked, and follow-up leaf questions followed based on the initial response. The leaf questions were not predetermined but were derived from the respondents' answers to the stem four or leaf questions. Interviews were recorded using a portable tape recorder.

In addition to interviews, I used my reflexivity and archival data as a way to verify and deepen my understanding of the interview data. I took notes about nonverbal communication to understand what each participant was trying to convey. Archival documents provide important supplementary research data (Bowen, 2009). The content of archival records was analyzed into categories related to the research questions. By examining the data collected from different methods, the researcher can authenticate findings and minimize the impact of potential bias that can exist in a single study (Bowen 2009).

The primary process of data collection was through face-to-face interviews, researcher's reflexivity, and archival data. I chose a case study approach as it permitted me to study "current real-life cases that are in progress" (Creswell, 2013, p. 98) and explore faculty's perception of using mobile devices. Additionally, the case study

approach permitted me to gather data through the process of triangulation, consequently intensifying the reliability and validity of the findings (Creswell 2009: Patton, 2002; Yin 2013).

Data were analyzed using NVivo software and then interpreted via semantic evaluation and thematic extraction. The steps involved in my data analysis were (a) transcribing the audio files, (b) coding and analyzing the interview transcripts, (c) organizing and presenting data using Nvivo12, and (d) analyzing archival data and researcher's reflexivity. I analyzed the findings in relation to the research questions and interpret the result in connection to the conceptual framework and the literature review for this study.

Definitions

Cultural assimilation: Cultural assimilation is the process by which a person or a group's language and culture come to resemble those of another group. Full assimilation occurs when new members of a society become undifferentiated from members of the reference group (Baruh, 2014).

Cultural diversity and education: Banks (2015) stated that cultural diversity and education "describes actions that educators can take to institutionalize multicultural ideas, concepts, and practices in educational institutions" (p. xviii).

Emirati: The citizens of UAE are known as Emirati (Margolis, Al-Marzouqi, Revel, & Reed, 2003). They consist of the local population who are mostly native Arabic speakers (Priest & Schoepp, 2015).

Federal university: The federal university is a public university in the UAE and is owned and operated by the government of UAE (Austin et al., 2014; Wilkins, 2010). Federal institutions are gender segregated (Al-Ali, 2014), serving the local Emirati population (Priest & Schoepp, 2015) and provide free education to all UAE nationals (Soto, 2016). Campuses of federal universities have infrastructures with the latest technology tools, making learning possible anywhere on and outside the campus (Tubaishat, Bhatti, & El-Qawasmeh, 2006).

Private or funded university: Private institutions are profit-making institutions owned by private and state shareholders (Austin et al., 2014; Wilkins, 2010). A funded university is a private, coeducational system and is open to the entire UAE population (Al-Ali, 2014). Private providers claim full fees for their educational services (Godwin, 2006). Private institutions are equipped with the latest technological tools required for teaching and learning (Al-Okaily, 2015; Cavanaugh et al., 2013).

Expatriate: An expatriate is someone who lives in the foreign country for career purpose and intend to go back to their home country in future (Zilber, 2009).

Mobile device: A mobile device is a handheld computing device small enough to hold and operate in a person's hand (Kuhn & Skinner 2016). A mobile device typically has an operating system capable of running mobile apps (Charland & Leroux 2011). Tablet computers can be transported easily (Cuadrat Seix, 2012). Mobile devices consist of computer laptops, IPads, IPods, personal digital assistants, and mobile phones (Khan, Al-Shihi, Al-khanjari, & Sarrab, 2015).

Assumptions

I made various assumptions in the study. As I mainly relied on the faculty interviews for data collection, I assumed that the participating faculty gave honest and truthful reflections on their use of mobile devices in the classroom. The UAE vision 2021 National Agenda aims for all schools, universities, and students to be equipped with smart systems and mobile devices as a basis of all teaching methods (UAE 2021 Vision, 2011).

My study was on the faculty use of mobile devices in higher education in UAE; I assumed that all of the participants were avid users of mobile devices in classrooms. It is mandatory for all faculties in federal higher educational institutions in UAE to use technology tools in their teaching-learning process. In private universities, faculty have a choice in implementing the technology tools. I assumed that all the classes, federal and funded higher educational institutions, were equipped with technology infrastructure, high-speed Internet, and with all the latest technology tools needed for classroom use. These assumptions were essential because the credibility of the results of the findings relied on the faculty's honest responses that determine an understanding of the faculty's perception of using mobile devices in their instruction.

Scope and Delimitations

The scope of the research encompassed data that were collected from UAE university faculty who integrate mobile devices in their classroom. Only qualitative data were collected; therefore, the interview questions were written to elicit thick and rich faculty perceptions about mobile device integration. Only UAE higher education faculty

participated in the study. Further, only university faculty from two higher educational institutions were included, four from federal university and the other four from private university of Dubai.

This study can be of significance for higher educational institutions across UAE. It will add to the research and provide insight to higher education faculty who use mobile devices for instruction. The study may promote social change and guide the higher education authorities in UAE to understand the faculty perception of using latest technology tools and encourage more professional development to implement mobile devices in teaching-learning process and promote the UAE vision 2021 of creating digital and knowledge-based society.

This study was confined to higher education faculty within UAE. Additionally, the faculty's participation was based on the conditions of them (a) having an experience of teaching higher education for at least 2 or more years, (b) currently teaching in UAE higher education institution, and (c) presently integrating mobile devices in teaching learning activities. I did not delimit mobile devices used by faculty in this study to a range of mobile devices.

The limitations of interviews, as reported by Creswell (2003), are (a) information is separated through participants, (b) there may be researcher bias present in the study, and (c) people are not equally communicative or introspective. I must consider the individual perceptions of faculty members and how that is juxtaposed within the learning environment. In contrast, when developing the study plan, the decisions made (exclusionary and inclusionary) depend on the limitations of the scope of study (Simon &

Goes, 2013). These delimitations pertain to choices made by the researcher such as the methodology, framework, or proximal paradigm. Moreover, the purposive sampling method was nonprobability; the participants were not randomly selected. Thematic analysis was used to codify faculty perceptions. In this method, I inductively reduced information into a comprehensive format to facilitate understanding and limit extraneous factors. Although this method is an effective approach in enhancing trustworthiness and understanding perceptions of a homogeneous group, some detail may be lost in the translation.

I was the sole researcher with insufficient resources and limited time. However, I overcame these limitations through the triangulation of the data, using archival data, interviews, and the researcher's reflexivity, thus increasing the trustworthiness of the study (see Merriam, 2009).

Limitations

Every study has its limitations. In a qualitative study, the researcher needs to strive to minimize the range of scope of limitation to gain reliability and transferability. Limitations are incidences that appear in every study and are beyond the control of the researcher (Simon & Goes 2013). They restrain the capacity of how far a study can go and often influence the findings and outcomes that can be drawn. However, it is challenging to replicate the result as qualitative research is observed in the natural setting (Wiersma, 2000). In the case studies, causal inferences could not rule out alternative explanations (Simon & Goes, 2013).

A case study approach was implemented for this research. I chose a case study to allow for an investigation of the experiences of UAE faculty who integrated mobile devices into their instruction. There can be various limitations to the study. Although there are many higher educational institutions, for this study, I selected participants from two universities in UAE. The limited sample size of eight participants may not be enough to generalize the results. There is limited literature on higher education faculty using mobile devices for instructional purpose. For my study, I had limited research to compare and contrast the scope of my findings. Given the temporal limitations for the research and accessibility of resources for a self-supported research, access to meaningful data may have been affected. As such, generalizing of the end results to a wide-ranging population was limited by the breadth of information obtained from the small number of informants.

Care was taken to encourage participants to reveal their true feelings about the topic. The rich, thick descriptive interviews, archival records and researcher's reflexivity (Merriam, 2009) enhanced the transferability of this qualitative research. However, given the political and cultural restrictions that exist in the UAE, some participants may have been hesitant to be forthcoming or speak freely, which may have inhibited the free exchange of thought. Assuring confidentiality helped reduce this limitation. Further, I coded the data and maintained anonymity in the process. This protected the participants' identity. I report other strategies in Chapter 3, such as triangulation and member checking, that I used to enhance the trustworthiness of this qualitative research.

Significance of the Study

In this study, I explored UAE college faculty members' views and experiences relevant to the adoption of mobile devices as a teaching and learning tool. The study design was a qualitative, single case study that was conducted at two higher education institutions in the UAE. Two institutions were used to ensure a sufficient sample size. The faculty and students in both the educational institutions were similar in that they came from diverse ethnic and cultural background. I explored teacher views related to the adoption of mobile devices in higher education

Mobile devices can be used as a pedagogical tool to engage pupils in their learning activities. However, educational institutions have been gradual to embrace mobile devices for many reasons including fear or ignorance about how to use it efficiently in the classroom (Goad, 2012) and adaptability to a curriculum. Hand (2012) demonstrated that there is ineffective professional development and a lack of standardized faculty technology qualifications. Until now, little research has been conducted regarding faculty perception towards mobile teaching via the use of smartphones (Domitrek & Raby, 2008; Karch, 2014). The higher education faculty can apply the results of this study to reflect on the best practices of mobile teaching. I have explored the contemporary trends, favorable circumstances, and proficiency required, as well as the influence that mobile devices have on the faculty in higher education institutions in the UAE. The study may guide the higher educational institutions on redesigning and enhancing curricula with more mobile device supported instruction. I

also addressed the identified gaps of using mobile devices in higher educational institutions and contributed to the limited existing literature.

The study may promote social change and guide the higher education authorities in UAE to understand faculty perceptions and investigate latest mobile technology integration in relation to goals, curriculum and program outcomes. The study will also contribute to support of 21st-century skills. This research could be applied to any higher educational institution that wishes to encompass the usage of mobile devices in teaching (Yin, 2014). By integrating mobile devices in education, faculty members will enhance students' digital citizenship skills.

Summary

There is an increasing number of educational institutions that are adopting new mobile technology (Picard et al., 2014). Mobile devices offer various educational applications that teachers and students can integrate into educational activities (Khaddage & Lattemann, 2013). Scholars, however, have not examined how some developing nations have adopted new technology in the classroom (Orlando, 2014).

The typical undergraduate student in the UAE uses mobile phones for informal learning activities (Santos & Ali, 2012). Various scholars (Ally, 2013; Ferriter, 2010; Lenhart et al., 2010) have confirmed that students are prepared for mobile learning. However, further research needs to be carried out to comprehend how mobile learning interweaves with teacher beliefs, perceptions, and social and cultural beliefs (Cheon et al., 2012; Tamin, 2012). A qualitative, single case study was used to examine the perceptions of eight higher education faculty members who used mobile devices in

teaching. Participants were drawn from the private university of Dubai and the federal university. Four participants were from the private university of Dubai, and four members were from the federal university. Both higher educational institutions are located in the city of Dubai, UAE. The compilation of the data was through faculty's interviews, researcher's reflections and archival records related to the faculty's pedagogical strategies for the mobile-enhanced learning environment. Thematic analysis using NVivo software was used to deduce conclusions from participant responses.

This study will provide the authorities of higher education institutions and the faculty members with information to select appropriate technology tools to create meaning learning experiences and also to address the challenges faced by faculty members while using mobile devices. The study can be valuable for further research on the expatriate faculty.

In Chapter 2, I provide an overview of the current literature on the relevance of faculty's strengths and weaknesses of using mobile devices in higher education in UAE. I compare, analyze, and synthesize various peer-reviewed studies of how culture influences mobile teaching and learning. I also outline the literature I drew on to develop the conceptual framework and to justify the case study approach.

Chapter 2: Literature Review

Introduction

The purpose of this qualitative, case study was to explore faculty perceptions of using the mobile device as an instructional aid in a higher educational institution in the UAE. Mobile devices are used in all aspect of life. Cellphones, iPads, tablets, netbooks, and laptops are all integral to the bring-your-own-device (BOYD) device approach to education. Educators can use BYOD to support mobile education by offering digital tools for blended teaching. Teachers and students can use BOYD to collaborate and communicate, share resources, and transform the classroom into a technological hub.

In the BYOD model of education, the faculty member becomes a facilitator (Zaka, 2013), allowing students autonomy by using various digital tools to accomplish a range of tasks, such as research, digital stories, videos, podcasts, animations, global positioning system (GPS) commands, and online assessments (Al-Okaily, 2015; de Waard, 2014). The wired classroom cannot be achieved without the effort of the faculty to adopt mobile devices as a teaching-learning tool. There are many factors that influence faculty use of mobile devices in teaching. In the following review of the literature, I examined the existing body of scholarship on faculty adoption of BYOD approaches and the motivators and detractors that influence faulty decision-making on this matter.

The review of literature is divided into nine topical sections, including (a) the conceptual framework, (b) higher educational system in UAE, (c) faculty education and culture in UAE, (d) mobile devices as instructional tools, (e) challenges in using mobile devices, (f) students' learning experiences with mobile devices, (g) professional

development of UAE faculty, (h) recent studies conducted in UAE on faculty use of mobile devices, (i) cultural influence on technology integration in UAE, (j) summary identifying the gaps in the existing body of literature, and (i) summary of the literature review.

Literature Search Strategy

I consulted multiple databases and Google Scholar to explore the scholarly literature. I used Google Scholar to find citations from different sources and to limit the search by open access resources, recent, and most cited articles. In addition to Google Scholar, Elton B. Stephens Company (EBSCO), Jstor, Science Direct, ProQuest, and Elsevier were consulted. The Walden University Library provided access to many peer-reviewed articles and recent dissertations that focused on mobile devices. A review of references within these dissertations also provided opportunities to locate relevant resources. Searches were conducted using keywords and Boolean phrases including *UAE*, *culture*, *mobile learning*, *mobile teaching*, *higher education and mobile device*, *faculty and mobile devices*, *UAE faculty*, and *UAE and education*. The documentation of the literature review was managed through the use of Zotero Standalone, an online tool to organize, collect, cite, and create bibliographies.

Conceptual Framework

Zhao and Frank's (2003) ecological theory provided the framework for this study. I used the ecological framework as an overlay to comprehend the variables that affect the faculties' perceptions of successful mobile integration in higher education. Ecological theory in education is used as a lens through which to view change in higher education,

and it is a useful framework to use in the exploration of the adoption of mobile devices in teaching and learning. In applying ecological theory to technology adoption, Zhao and Frank framed the process of change through four metaphorical equivalents, including (a) educational institutions as ecosystems, (b) mobile device usage as living species, (c) higher education faculty as members of a keystone species, and (d) extraneous educational innovations as invasions of exotic species. Whether or not exotic species such as mobile devices can survive in a new ecosystem relies on the condition that they can be in symbolic coordination with the whole ecosystem, which in this case is traditional higher educational institution.

Ecological theory has been used as a framework in relation to mobile devices in several studies, including the work of Davis (2008) and Ikpeze and Broikou (2012). Ecological theory provides a base on which to examine the components of the learning environment within the selected setting as a unique environment that responds to internal and external forces. Within the context of this study, the success of mobile devices as a new technology relies on its connection to other elements in the entire ecosystem of the higher educational environment in the UAE. Accordingly, it is essential to know the dynamics that faculty face in the academic setup and to see how they make alterations based on the innovations the mobile devices have brought (Long et al., 2013). Given the significance of context in the application of ecological theory, the following section provides a detailed overview of the higher education system in the UAE.

Higher Education System in the UAE

The UAE is an Islamic state that covers 82,880 Km. Located on the Persian Gulf of the Middle East, it is consists of seven emirates (Abu Dhabi, Dubai, Sharjah, Ajman, Umm al-Quwain, Ras al-Khaimah, and Fujairah). Higher educational institutions in UAE were first established in 1977 (Hijazi, Zoubeidi, Abdalla, Al-Waqfi, & Harb, 2008) and originally only admitted male Emirati students; female Emiratis students were given access to higher education in year 2010 (Abdulla & Ridge, 2011; Madsen & Cook, 2010).

Until 1977, there was only one university providing higher education. In 2017, UAE had more than 80 universities, colleges, and higher institutes admitting over 110,000 diverse students (Austin et al., 2014; Schoepp, 2010). The UAE has become an international hub for higher education with leading global universities mainly from the United States, the United Kingdom, and Europe (Knight, 2014; Wilkins, 2011). The UAE is considered the most wired region in the Arab States (Sharabassy, 2014; Tamim, 2012), and globally it has the highest number of international branch campuses (Al-Khalifa, 2016; Knight, 2013; Wilkins, 2010). This creates a diverse culture within UAE higher education.

The educational system is consistent throughout the Emirates, and the structure follows the U.S. model of education with a four-tiered system that progresses from kindergarten to primary, secondary, and then postsecondary (Jose & Chacko, 2017). The higher education system in the UAE is under the influence of both Arabic and Western cultures (Davidson & Mackenzie, 2012), as well as religion (Richardson, 2004). Higher educational institutions are divided into four categories, including (a) federal institutions

for the local population, funded by the government; (b) international universities with international accreditation; (c) local universities accredited by the Commission for Academic Accreditation; and (d) vocational and technical institutes (Jose & Chacko, 2017).

The federal higher education system in the UAE is comprised of three federal universities, including United Arab Emirates University (UAEU) with one campus, Higher Colleges of Technology (HCT) with 18 campuses, and Zayed University (ZU) with two campuses. For all federal universities, the Ministry of Higher Education and Scientific Research (MHESR) is accountable for planning, implementing policy, analyzing data, quality management, and awarding scholarship for UAE nationals (Wilkins, 2010). Federal institutions admit mainly Emirati students, and tuition fees are paid by the UAE government (Austin et al., 2014; Madsen & Cook, 2010; Mahani & Molki, 2011). Federal- or state-funded universities follow a learner-centered approach, adopting an active learner's model, and they are committed to serving the educational needs of Emirati nationals (Crabtree, 2010).

Private higher educational institutions consist of international and local universities. International branch universities are for-profit organizations, and they rely entirely on students' tuition fees (Rensimer, 2016). All international universities are degree awarding institutions that have international or home country institutional accreditation (Jose & Chacko, 2017). Some institutions in this category include Abu Dhabi University, Khalifa University, the American University of Dubai (AUD), the

American University of Sharjah (AUS), and the American University of Ras Al Khaimah (Al-Khalifa, 2016; Austin et al., 2014).

All private universities are fee charging universities and are either owned by a local Emirati or a local organization or are international branch campuses owned by foreign institutions of higher education. The private sector has set up 49 international branch campuses, and it offers complete undergraduate and postgraduate degrees in different subjects (Wilkins, 2010). Most of the students are expatriates, who reside in UAE or neighboring countries. O'Sullivan (2015) stated that private universities are accredited by the Commission for Academic Accreditation (CAA). The CAA conducts the program of licensure for higher educational institutions and accreditation to obtain quality at an international level (CAA, 2012). Some of these local universities may also have international institutional and program accreditation (Jose & Chacko, 2017).

In 1988, the UAE government founded 17 campuses HCT to provide vocational or technical training for all Emiratis (Al-Khalifa, 2016; Raven, 2011). They are gender segregated (Aleya & Shammas, 2013) with separate campuses for male and female students to keep cultural norms. HCT offers a range of higher diplomas and bachelor levels in business, health science, engineering, graphics and art, and technology (Raven, 2011).

Arabic is the first language of the Emirati students (Rogier, 2012), and all Emarati students have bilingual Arabic-English secondary education (Gallagher, 2011). The federal universities not only provide free education to UAE nationals, but also facilitate the Emiratization or nationalization of the labor market (Al-Ali, 2014; Kirk, 2010). The

private education sector consists of mainly expatriate students, and they have coed education. Both public and private educational institutions consist of expatriates' faculty (Tamin, 2012), and they use English, not Arabic, as a medium of instruction (Daleure, Albon, Hinkston, McKeown, & Zaabi, 2015).

One of the highest strategic frameworks is UAE Vision 2021. The UAE Vision 2021 national agenda includes the improvement of the excellent education system, with the complete transformation of the current education system and teaching methods. The national agenda's goal is for all schools and universities to be equipped with smart systems and devices as a supply for all teaching methods, projects, and research (UAE Prime Minister's Office, n. d.). In all federal institutions, it is mandatory for the faculty members to use technology in the teaching-learning process (Gitsaki et al., 2013). Classrooms are designed to support wireless technology to provide opportunities for faculty to transform teaching and learning processes (Gitsaki et al., 2013). In 2012, the UAE iPad Initiative was launched at federal institutions, with over 14,000 iPads distributed to the faculty and Emarati postsecondary students (author, year). Since 2012, after the mobile imitative, federal universities designed and developed broad program, professional development for faculty, and diploma courses in higher education teaching with mobile technologies to enhance innovative teaching with mobile devices (Gitsaki et al., 2016). All faculty members had a common portal to locate teaching and learning apps and to post new teaching materials, thus encouraging the faculty to discard the traditional teaching methods and introduce 21st-century skills among learners (Gitsaki et al., 2013).

Faculties at federal institutions, such as higher college of technology, provide a range of intercultural activities to attain progress and maturity through students' academic and professional careers. Annual international conferences in women's campuses at higher college of technology provide experience and the breaking of cultural barriers. Also, annual college events such as a bazaar (a 3-day students' business fair only for Emirati students), career fairs (for all students Emirati and international students), guest speakers, and field trips offer opportunities to students in attaining 21st century skills and becoming global citizens (Aleya & Shammas, 2013). Most private universities have various cultural programs, such as ethnic day, field trips, and national day to promote world culture. All of the cultural activities help faculty members to understand culture, have a good rapport with the students, and enhance teaching learning process.

Faculty play a role in implementing 21st-century skills for all students (Ishtaiwa et al., 2015). Most of the faculties teaching federal and private universities in UAE are expatriates, who have their own culture (Austin et al., 2014). Teaching local and international students under cultural norms by using technology is a challenge for faculty members in UAE (Ali Atwi, 2016). Faculties not only have to use technological skills, but also understand the host country's laws, regulations, and cultural differences (Hirschfeld & Baker, 2010). Faculties at HCT are an influential factor in shaping students' beliefs and values. Using technological tools and intercultural intelligence, faculty hold virtual international exchanges where students communicate and collaborate with other students around the world, gaining meaningful learning experiences (Aleya & Shammas, 2013). All federal universities, such as Zayed University, developed program

to support the increase use of mobile devices classroom activities (Gitsaki et al., 2016), and all classrooms are equipped with the latest technological tools that faculty need to use in the classroom. However, faculties at private institutions are not required to use mobile technology in the classroom, although the classrooms are designed with modern technology.

Faculty, Education, and Culture in UAE

Emiratis represent a small minority in their own country. UAE consists of 80% expatriate citizens from different nationalities (Pedlow & Welzenbach, 2016). Many universities in UAE have few Emirati faculty members. Public and private higher education in the UAE relies on foreign faculty with short-term employment contracts (Austin et al., 2014; Knight, 2013; Schoepp, 2011); this creates demographic circumstances that do not exist anywhere else in the world (Schoepp, 2011). Most of the faculties employed are native English speakers, and they are primarily from the United States, Canada, United Kingdom, New Zealand, and Australia (Al-Ali, 2014; Baker & Hourani, 2014; Daleure et al., 2015; McKeown & Zaabi, 2015).

Diverse faculty members bring cultural assumptions, methods, expectations, educational practices, and use of language to the classroom (Moore, 2015). Most faculties in UAE are native English speaker, and not necessarily trained in teaching second language learners (Rogier, 2012). Faculty in UAE enjoy a high standard of living and has an opportunity to interact with diverse and exciting colleagues (Austin et al., 2014; Rensimer, 2016). The task of employing expatriate faculty is a crucial issue in the UAE (Kim, 2016). Most of the faculties employed are on contractual employment, and they

lack citizenship rights (Austin et al., 2014; Tabari, 2014); hence it is difficult to maintain faculty retention in UAE (Schoepp, 2010; Tabari, 2014).

Most of the college going local Emirati students are first-generation attendees as their mothers got married in their early teens and did not get an opportunity to attend higher education (Madsen & Cook, 2010). Few graduates have yet to obtain teaching credentials or have the requisite teaching experience to compete in the competitive teaching market. The other reasons for hiring expatriate faculty are (a) there is lack of qualified academic staff in UAE (Isakovic & Whitman, 2013), (b) Emiratis population is insufficient to meet the employment needs (Austin et al., 2014), and (c) Emiratis choose not to work in the education sector as they perceive teaching as a low-status job (Raven, 2011).

Faculty play a role in shaping not just student beliefs and opinions, but also moral values (Lau, Haug, & Wright, 2012). Faculty must consider UAE culture. In order to have a successful career in UAE, faculty must understand and recognize culture and legal differences (Mahani & Molki, 2011). Federal universities consist of single-gender classrooms, while private universities consist of mixed-gender classes. In mixed-gender classes, due to cultural norms, there is a lack of cross-gender communication; therefore, faculty need to use intercultural intelligence to push the boundaries, whilst remaining attentive to classroom dynamics (Aleya & Shammas, 2013). Technological tools in the classroom can be used to desensitize context and to develop intercultural intelligence to practice real-life situations (Aleya & Shammas, 2013).

Mobile Devices as Instructional Tools

To comprehend the role of mobile devises in education, it is crucial to understand how technology has influenced education. Prensky (2001) coined the term “digital natives” or the next generation to describe individuals, who used digital tools such as computers, video games, digital music players, video cams, and cell phones right from the young age. Modern classrooms rely on digital learning, so educators who may not be considered digital natives need to teach students 21st-century skills. Prensky insisted that faculty needs to understand the digital native's language and style and learn to communicate with the language and form their students’ express. This requires continual skill building to keep pace with the evolution of technology.

Mehdipour and Zerehkafi (2013) asserted that the most successful education tool is the Internet and all educators across the globe are using it as an instructional resource at all levels. Most educational institutions have integrated mobile devices into teaching and learning (Grant et al., 2015). Mobile learning has changed the roles of students and faculty (Engin & Donanci, 2015). Mobile devices used in classrooms include iPads, portable media players, laptops, smartphones, digital cameras, and tablets; these devices facilitate flexibility in teaching and learning, allowing instruction to take place anytime, anywhere (Garrison, 2011). When teaching with technology, the faculty member facilitates learning rather than directly teaching in the traditional didactic sense (Husbye & Elsener, 2013; Stillar, 2012). The pedagogical transition required to successfully integrate technologies, such as mobile devices, require a new vision for teacher preparation and professional development (Ekanayake & Wishart, 2015).

Mobile technologies have the capacity to facilitate the delivery of content from faculty to students with flexibility and comfort (Al-Emran, 2014). Mehdipour and Zerehkafi (2013) reported that digital books, tablets, iPod touch, and iPads are popular because of the availability and low cost of the various apps, while Kukulska-Hulme et al. (2011) reported many benefits of using mobile devices including spontaneous communication, flexibility, speed, fun, and intellectual stimulation. One of the primary advantages of mobile technology is its ability to provide seamless access to information (Ekanayake & Wishart, 2015) and its high potential for facilitating innovative teaching strategies (Sung et al., 2016). Husbye and Elsener (2013) reported that after teacher educators are exposed to mobile device integration and encouraged to revision their teaching role as that of facilitator, they begin to use mobile device tools as an instructional tool. One of the solutions to various challenges faced by the educational sector is mobile teaching and learning (Khaddage et al., 2015).

Mehdipour and Zerehkafi (2013) further pointed out that faculty can use mobile devices for formative assessments using clickers, reading online electronic books and websites, use apps for video recording documenting field trips, and collecting and analyzing data. Faculty can use online polling and accessing books in electronic form (Barnes et al., 2010), cooperative learning (Roschelle et al., 2010), game-based learning (Klopfer, Sheldon, Perry, & Chen, 2012), flipped classrooms (Looi, Sun, Seow, & Chia, 2014), podcasts (Schuck, Aubusson, Kearney, & Burden, 2013), digital narratives, and video editing (Schuck et al., 2013) capturing real-time information and enhance students collaboration into class activities (Baran, 2014).

Researchers have investigated how mobile devices can be used to reinforce and improve teaching and learning (Santos, 2013). Looi et al. (2014) found that mobile technologies can serve an array of purposes in the classroom beyond information resources; mobile devices were also found to be useful for evaluation, reflection, comparison, and collaboration. Baran (2014) found mobile learning extends faculty's learning experiences and enhances their mobile technology integration skill. El-Hussein and Cronje (2010) identified mobile devices as the strategic tool for the delivery and reinforcement of content higher education instruction. Green, Hechter, Tysinger, and Chassereau (2014) described various advantages of using mobile devices, such as portability, touch screen, and numerous apps. However, Green et al. pointed out the challenge for educators to select content-related apps and use them as a teaching-learning tool. Foulger et al. (2013) found that mobile devices facilitated opportunities for faculty to collaborate with one another. This opportunity for collegial interaction was also noted as an opportunity for preservice and in-service teachers by Ekanayake and Wishart (2015).

Despite the advantages of using mobile devices in teaching, other researchers have had mixed findings regarding the use of mobile devices in teaching (Grant et al., 2015; Sung et al., 2016). Ally (2013) reported several challenges in the use of mobile devices in education, including (a) attitude of using mobile technology in education, (b) lack of qualified teachers, (c) insufficient access to technology, (d) education infrastructure, and (e) absence of teacher training programs. Sung et al. (2016) noted that it difficult for teachers to change their existing beliefs and habits with mobile-integrated

education programs. Sung et al. professed the need to strengthen professional teacher-development programs for mobile-enhanced instruction. Grant et al. (2015) noted that faculty face obstacles of network capacity and reliability, and Kukulska-Hulme and Pettit (2009) identified technical issues that create barriers, such as poor microphones, battery problems, lack of Wi-Fi, and small screens.

In addition to technical limitations noted in the literature, other scholars identified some pedagogical shortcomings as well. Khaddage et al. (2015) identified many challenges when using mobile devices in teaching and learning, such as (a) pedagogical challenges, (b) technological challenges, (c) research challenges, and (d) policy challenges. Khaddage et al. asserted that faculty members have various unanswered questions of design principles and instructional strategies that can be deployed to enhance mobile devices into teaching and learning.

The question of whether devices enhance student engagement or create distraction in the classroom is also unresolved in the literature. Many educators view mobile devices as distractions and have banned their use in classrooms (Barnes et al., 2010). Shrivastava and Shrivastava (2014) examined college teachers' perceptions of classroom distraction due to mobile phones and found that teachers experienced distress when students used phones for texting and chatting. Shrivastava and Shrivastava reported that students using mobile phones in the classroom not only disturbed the teacher, but also undermined student performance.

Challenges in Using Mobile Devices

Higher education teachers are challenged with aligning postsecondary programs with 21st century skills. Accordingly, the role of faculty members has been transformed. Educators are expected to employ active learning methodologies using technology-based tools (Becker et al., 2017). The mediating role of the faculty in transforming current educational paradigms and adapting to the digital fluency bring new challenges (Navaridas, Santiago, & Tourón, 2013). The greatest challenge educators face in using mobile devices is the disruption (Lenhart, 2012), where students fail to pay attention to classroom instruction. This perception of personal communication devices (PCD) as disruptors has contributed to the ban of mobile phones in most educational institutions (Thomas et al., 2013). Thomas et al. (2013) indicated that leading concerns included classroom disruptions and cheating. Disruptors consisted of cell phone ringing and the use of mobile features such as online chat, Twitter, Facebook, and other social media (Thomas et al., 2014). Shrivastava and Shrivastava (2014) found that teachers experience stress when they see students using phones for texting and chatting. Shrivastava and Shrivastava reported that students using mobile phones in the classroom not only disturbed the teacher, but also inhibited classroom learning.

With the advancement of technology in education, maintaining academic integrity has posed a challenge to educators (Paullet, Chawdhry, Douglas, & Pinchot, 2015). Educators must address classroom cheating during testing and other performance evaluations. As most mobile devices use high speed Internet to communicate, students can use this feature to share answers via text messages or submit another student's work.

Paullet et al. (2015) found that 83% of teacher respondents stated that they had caught students turning in work that was not their own, and 40% of the teacher participants caught students submitting work from another student who had previously taken the class.

Another challenge educators face when adopting mobile devices in the classroom is student misuse of the Internet during class hours by sending or receiving inappropriate pictures. Thomas et al. (2014) found that mobile phones were used for cheating, accessing inappropriate content on the Internet, and classroom distraction, which produced a negative impact on students' writing. Teachers indicated that their greatest challenge to integrate mobile technology was fear due to insufficient training to use mobile devices effectively in classroom. The various challenges associated with using mobile devices in the classroom have brought educators to a crossroads.

The various challenges identified through research were lack of experiences of using mobile devices (Handal et al., 2013), inability to select an app to match the instruction (Shraim & Crompton, 2015). To overcome various challenges and to effectively use mobile devices in the classroom, Efforts need to be made to plan studies that would reveal the variables rendering faculty's beliefs concerning the use of mobile devices in the classroom (Kizilkaya Cumaoglu, 2015). Identifying the challenges of using mobile devices in the classroom will help the faculty to find opportunities to reflect upon and reform the technology-mediated learning environment.

Student Learning Experiences With Mobile Devices

Because the integration of technology is intended to improve student experiences and student learning, it is important to consider the student experience regarding mobile devices. Rapanta et al. (2014) indicated that mobile devices were considered highly motivating by students, as the use of the devices made relevant material highly accessible. Santos (2013) also indicated that quizzes using mobile devices enhanced class discussions. Various strategies using mobile devices in the teaching and learning process enhance group scaffolding (Lan, Sung, & Chang, 2007) in the classroom. Cheon et al. (2012) indicated that mobile devices are well-suited to higher education, as devices provide a mechanism by which college students can receive formative evaluation and feedback from their faculty via mobile devices, using quick response codes.

Mobile learning provides various benefits from both educational and technological points of view for both faculty and students (Bilos et al., 2017). Mobile learning platforms accelerates teacher/learner interactions and promotes collaborative learning environment (Premadasa & Meegama, 2013), thus stimulating flexibility, mobility, convenience, and seamless integration of messaging services and data access in and outside classroom (Snell & Snell-Siddle, 2013). With the advancement in application software, students can download instructional materials, such as documents, workbooks, presentations, PDF, text, and multimedia (Premadasa & Meegama, 2013). Mobile learning has stimulated cognitive abilities of special need students. With the advancement of mobile applications, faculty can design lessons, thus molding the learning process to customize the sensory, motor, and cognitive impairments of the special need students (El-

Seoud, Taj-Eddin, & Nosseir, 2014; FernáNdez-LóPez, RodríGuez-FóRtiz, RodríGuez-Almendros, & MartíNez-Segura, 2013). Students have a positive attitude when using mobile devices for communication, gaming, and socializing (Snell & Snell-Siddle, 2013), but have little experience using these technologies for learning activities (Corrin, Lockyer, & Bennett, 2010; Yeap et al., 2016). Researchers have emphasized the need to expand the horizon of using mobile devices into teaching/learning activities (de Waard, 2014).

Mobile devices in education support the transmission and delivery of rich multimedia content (Traxler, 2009). Various researchers pointed out that the difference between mobile devices and university-supported technologies is that mobile devices are student-driven (Barnes et al., 2010; Sung et al., 2016; Gikas & Grant, 2013; Shraim & Crompton, 2015). This gives an opportunity for faculty members to integrate mobile devices in education (Rahamat, Shah, Din, & Aziz, 2017); for the faculty members to incorporate mobile devices in teaching and learning process, it is mandatory to understand the students' strengths and challenges of using it (Gikas & Grant, 2013). Traxler (2009) reported that implementing mobile devices in higher education must address social cultural and organizational factors that will suppress or enhance students learning with mobile devices. I aim to understand the faculty's perception of implementing mobile devices in higher education classrooms.

Professional Development of UAE Faculty

Professional development in the UAE is unique in both its potential and its challenges. There is an influence of models of U.S. higher education paired with the

influences of the international branch campuses within the Emirates (Wilkins, 2010). In addition, the majority of faculty are not Emirati, and most are native English speakers and are working in the country on short-term contracts (Austin et al., 2014). Given this diversity and general alignment with Western norms and cultures among the faculty, instructors bring with them their own expectations, instructional approaches, and classroom styles (Daleure et al., 2015).

These complexities are further advanced with the consideration of the divide between the student digital natives and the faculty digital immigrants. Professors must comprehend the attitudes and realities of the modern student (Stillar, 2012) and design innovative, challenging learning experiences while simultaneously mastering the technical and logistical challenges of new technologies (Khaddage et al., 2015). Khaddage et al. (2015) emphasized the importance of considering the design of instruction, the pedagogical strategy, and the management of instruction, while also teaching the mechanics of the technology. Ally (2013) also recommended that educators be trained to implement emerging mobile technology to optimize student learning.

In a study on the expatriate faculty in UAE, Austin et al. (2014) found that most faculty report little support related to professional development, and most instructors are left to rely upon one another for help with teaching and technology. Gardiner-Hyland (2014) posited that the UAE needs to establish a faculty education program to foster educational methodology practices. In another study on the expatriate faculty, Psiropoulos et al. (2016) identified a vast amount of literature on the professional development of educational technology, but little research on the effectiveness of

professional development for using mobile devices in higher education. Looi et al. (2014) found that teachers' different pedagogical orientations affected the way technology was implemented to scaffold students' learning. Looi et al. reported the need to prepare teachers with effective classroom technology integration skills. It is not just important to understand faculty perception in using mobile devices, but also the need to analyze students' readiness in the acceptance of mobile learning devices.

Although students use mobile devices to engage with their studies, every one higher education campuses, student readiness for using it as a learning tool are yet to be explored fully (Handal et al., 2013). Cheon et al. (2012) investigated various factors that affect college students' use of mobile devices in classroom and pointed out that higher education institutions should employ strategic planning, develop guidelines, and understand students' readiness before using mobile devices for teaching learning activities. Cheon et al. recommended that because faculty members influence students' use of learning to facilitate students learning with mobile devices, there is a need to understand faculty's perception of implementing mobile devices in instruction.

To improve students learning experiences and equip them with 21st-century skills, the UAE Government, policymakers, and educationist have revitalized the significance of providing the faculty professional development to enhance teaching skills using new technology tools (Ali Atwi, 2016). In UAE higher educational institutions, it is paramount that faculties are up to date on technological innovations and they incorporate the best approaches in teaching (Knight, 2014). The participants of my study are higher education faculty members who have incorporate technologies using mobile devices in

instruction. As faculty members in UAE receive professional development in higher educational institutions (Gitsaki et al., 2016), I will be able to attain rich data of how the faculty members integrate mobile devices in teaching-learning environment and perceive challenges in a culturally diverse environment.

Recent Studies Conducted in UAE on Faculty Use of Mobile Devices

Various studies have been conducted on student use of mobile devices as learning tools, as well as the effectiveness of mobile devices in 21st-century classrooms (Cheung & Hew, 2009; Khan et al., 2015; Lenhart et al., 2010; Mehdipour & Zerehkafi, 2013; Priest & Schoepp, 2015; Rapanta et al., 2014). However, there are limited studies related to faculty perceptions of using mobile devices as an instructional tool. Most of the higher educational institutions in UAE are equipped with the latest technological tools for classroom use. Federal universities in UAE launched mobile learning imitatives in 2012 to implement the latest mobile learning technologies in classrooms and to increase interactive learning opportunities (Gitsaki et al., 2016; Rogers-Estable, 2018). There is a gap in research on faculty perceptions of using mobile technology (Rogers-Estable, 2018).

To address the research gap, Rogers-Estable (2018), conducted a study on faculty perceptions of satisfaction and usability on mobile devices in the classroom. Rogers-Estable found that e-textbooks were easy to access, were effective for presenting content in and outside the classroom, and were easy to carry as all of the textbooks were on a mobile device. However, Rogers-Estable reported challenges, including (a) usability: e-

text was challenging to access answers and highlight notes as most content were PDF files; (b) usability:e-text books were hard to read and had no interactive graphics and videos to support students' learning; (c) the faculty spent time on technical errors and glitches instead of spending time in preparing course content; and (d) e-text were not aligned with tests. Rogers-Estable pointed out that faculty support for the technology is needed for any successful integration of technology in the classroom.

As a part of the UAE Mobile Learning Initiative at federal universities, faculty and the students used emerging technologies to promote 21st-century learning. To determine the mobile device needs of faculty in the classroom, Gitsaki et al. (2016) surveyed the faculty members using mobile devices in two federal higher education classrooms of UAE. Gitsaki et al. reported barriers in using mobile technology including the following: (a) negative perceptions of using mobile devices as most faculty felt that they were disruptive, a waste of time, and required extra time; (b) curricular challenges as most of the courses were not designed to use mobile technology; and (c) lack of skills in using mobile devices.

Grigoryan (2018) explored the attitudes of female students and faculty members' attitudes of using one tool of mobile technology (i.e., I pad) in language learning classroom in one of the federal institutions in UAE. Grigoryan showed that students felt positive studying in a paperless, interactive learning environment that incorporated and enhanced communication between student and teacher. Grigoryan recommended further study to investigate if gender plays a role when using mobile devices in higher education.

Grigoryan recommended more research to be conducted on the various aspects of using mobile devices in education.

Aburezeq and Ishtaiwa (2013) investigated preservice Arabic language teachers' perception of the applications and challenges using mobile learning tool. Aburezeq and Ishtaiwa revealed that mobile devices enrich students' instructional activity mainly in (a) student collaboration, (b) students learnig activities, and (c) student-instructor communication. Aburezeq and Ishtaiwa further reported that mobile technology in classroom enhance an open and flexible space for communicating, expressing ideas, and exchanging information among students and faculty members.

Mobile devices in higher education is at its infancy in higher education (Gikas & Grant, 2013; Minocha et al., 2017) and is a crucial task which requires both the researchers and faculty to understand in what ways mobile technology can be used to support classroom instruction (Henderson et al., 2018; Kukulska-Hulme & Viberg, 2018). Al-Hunaiyyan et al. (2018) investigated faculty and students' perception in public and funded educational sectors in one Arab Gulf Country and reported cultural issues as barriers in mobile learning technologies. I sought faculty's perceptions of using mobile devices in higher education sectors in the UAE. Faculties teaching higher educational institutions are mostly expatriates and have a totally different culture (Austin et al., 2014). In addition, having a sample of the study from federal and private university, gave a better and diverse view on the use of mobile devices in instruction. The study also investigates the cultural issue that might affect the mobile devise usage as instructional tool.

Cultural Influence on Technology Integration in UAE

When teaching digital natives, the role of the educator changes to facilitator. Educators are implementing the latest reforms and educational practices and philosophies in the UAE to enhance stutent-centered approaches using digital technology. UAE faculty members have their own cultural beliefs, expectations, and educational practices, (Daleure et al., 2015; Richardson, 2004). Federal universities in UAE have all Emirati students, while private universities have diverse international student population (Al Okaily, 2016). There is a difference in culture between faculty and students, and acknowledgment of that difference is important for all teaching-learning process (Diallo, 2014). In UAE, federal higher education universities are gender segregated, and culture and social values do not allow students to meet freely, have a discussion, or exchange ideas, resulting in reduced communication skills and decreased levels of confidence (Raven, 2011; Tubaishat et al., 2006). The prevailing student culture in federal universities is Arabic, Islamic, and conservative (Al Okaily, 2016; Palmer, 2013). The expatriate faculty is teaching monocultural students in federal universities and multicultural students in private universities (Al Okaily, 2016). Faculty in UAE need consider the cultural component in their teaching-learning activities; otherwise, faculty may experience "frustration, misapprehensions, and intercultural conflict" (Le Roux, 2002, p. 37).

Various studies have been conducted on how faculty's attitude of mobile technologies facilitate social and cultural change (Wiest & Eltantawy, 2015). Cultural norms can enhance or hinder teaching-learning activities. Al-Hunaiyyan, Salah, and Al-

Huwail (2008) pointed that "Arabic countries have some rich cultures and religious beliefs, which may be violated seriously in the light of the current trends in virtual learning" (p. 4). Official documents of higher educational institutions are rooted in the Arab Islamic culture. Al Okaily (2016) reported that

> The university policy is rooted in Arabic and Islamic traditions, the rules, regulations, and policies stipulate that all behaviors, activities, dress codes and so on should conform to this culture. The university policy determines instructors' choice of pedagogy, resources, learning activities, assignment types, class activities and way of interaction. (p. 3)

To investigate the prevailing cultural norms affecting technology integration in a private university of UAE, Al Okaily (2016) reported that conservative cultures could inhibit technology integration in teaching-learning activities. Al Okaily revealed that culture-technology clashes could happen when the instructor is not the same gender of the students. Care needs to be taken in selecting technological resources as the instructional resources need to be culturally, religiously, and ethnically appropriate.

Palmer (2013) focused on the attitudes towards understanding the culture and the conflicts that exist between English speaking instructors and their Arab students in two private universities in UAE. Palmer found that all instructors agreed that it is essential to know the host culture when teaching overseas. Palmer pointed that instructors further agreed that knowledge of the host culture equips them with the ability to select technological resources and to design and implement classroom activities. To understand the impact of technology on higher education, Tubaishat et al. (2006) researched two

Arab countries, UAE and Jordan, and found that when the instructor understand the host culture, there was improved confidence and motivation of students, enhanced communication and technical skills, improved communication with students beyond the four walls of the classroom, and improved students' ability to be an independent learner.

Culture and religious ideologies in UAE can influence educational policy and practice (Richardson, 2004). Al-Ali (2017) researched a private Arab University in UAE to explore using mobile devices in higher education and how gender related to its use in an educational setting. Al Ali surveyed 200 male and female university students and reported that 97.5% of students used laptops; 41.5% used tablet or Ipad; and 59.5% used mobile phones for studying, teaching, and other purposes. Al-Ali found that there was not any statistically significant difference between male and female students regarding the degree of laptop or mobile phone use for academic success; however, there was a statistically significant difference in terms of tablet or Ipad use.

Wiest and Eltantawy (2015) compared online and mobile technology use in the UAE and the United States and found evidence of cultural influences in the attitudes toward and uses of mobile technologies in the Arab world. Wiest and Eltantawy further reported that the Arab participants preferred to use mobile devices mostly for information seeking, whereas the U.S. participants to use mobile devices mostly for private or personal connections.

Gaps in the Literature

Wireless technology and mobile applications in higher education have expanded. There is a growing body of research focused on examining the instructional benefits of

this expansion (Al-Emran et al., 2016; Ally & Prieto-Blázquez, 2014). Despite the proliferation of mobile devices in education, the value of mobile devices for teaching, training, and instructional support are not well explored (Ekanayake & Wishart, 2015). Ekanayake and Wishart (2015) noted that scholars who have examined mobile learning have lacked investigation on various challenges and drawbacks of mobile learning in teacher education in particular. Baran (2014) found that vast amount of the existing research has addressed mainly on mobile learning for students, not faculty.

Researchers have begun to investigate the faculty experiences and faulty needs related to mobile learning (Bakhsh, Mahmood, & Sangi, 2017; Gitsaki et al., 2016; Parsons & Adhikar, 2016). Oz (2014) emphasized the need for further research on areas, such as lack of training, reasonable pedagogical justification, and technical and cultural considerations. Developing a more thorough understanding of these areas can aid administrators and educators to address the strengths and weaknesses, facilitating the development of digital infrastructure across all higher educational institutions of UAE (Murshidi, 2017). Cheon et al. (2012) suggested that researchers should examine college faculty and compare their perceptions to students' perceptions to create a new pathway to learning with mobile devices.

Although students and faculty are avid users of mobile technologies in and outside the classroom, mobile learning has not been studied within the Arab Gulf countries (Al-Emran, 2014; Al-Emran et al., 2016). Sung et al. (2016) found limited investigations of teachers regarding the use of mobile devices in teaching and recommended in-depth qualitative research on teaching practices and educational goals

using digital tools. Cochrane (2013) proposed future mobile learning research that needs to fill in the literature of how pedagogy can be reinvented using mobile devices. Aoudi (2015) claimed that there is a need for more qualitative research on higher education teachers' issues and their concerns in adopting mobile devices for classroom use.

This study served as a response to these calls for additional research in the realm of mobile learning and to improve mobile teaching the UAE in particular. It will aid the faculty to address social, cultural, and organizational factors while implementing mobile technology in higher educational institutions of UAE (Murshidi, 2017). The foundational research proposed in this study will bestow initial insights and provide a basis for future inquiry as well.

Summary of Literature Review

Mobile devices are ready to be the most efficacious means of delivering content in higher education. It is important to investigate the benefits of using mobile devices as an instruction tool for teaching and learning (El-Hussein & Cronje, 2010). Faculty education programs require conditions to foster educational practices that will help future generations to attain 21st century skills (Gardiner-Hyland, 2014). Faculty need to understand issues, challenges, and ethical aspects of integrating mobile devices while using technology for teaching within a conservative society, such as the UAE (Tamin, 2012). Most innovative teaching take place in a cultural environment in the UAE, were students and staff comprehend one another across an ethnic, cultural and socioreligious divide (Crabtree, 2010). Teachers' readiness to successfully integrate technology tools to

boost the learning process in the UAE is still under question, as pedagogical, ethical, and cultural concerns issues need to be addressed (Tamim, 2012).

Mobile learning is part of a trend toward technology-enhanced education (Al-Emran et al., 2016), and researchers worldwide are exploring this technology to understand its impact on students and educators (Engin & Donanci, 2015). Al-Emran et al. (2016) found that mobile learning holds promise for improving pedagogy in higher education institutions in Arab Gulf countries.

The multicultural makeup of both faculty and students in higher educational institutions in UAE offer rich opportunities as well as challenges (Gikas & Grant, 2013; Knight, 2014). Mobile devices can be powerful vehicles if faculties are appropriately supported to use these devices to augment teaching practices (Mehdipour & Zerehkafi 2013). Appropriate integration of mobile technologies provides an opportunity to help the digital immigrants to challenge digital natives (Prensky, 2001) and teach students in ways engaging and meaningful to them.

Various research has been conducted on the effectiveness of the mobile devices and its use as a learning tool, but there is limited research on higher education faculty pedagogies, beliefs, and perceptions in using mobile as an instructional tool. UAE is equipped with most of the advanced technological tools needed for digital native students to attain 21st century skills. Students in UAE are comprised of both Emarati as well as Expatriate, bringing in with them their own mindset and culture. Although Arabic is the national language spoken by all local Emirati population, English is the medium of instruction for all students in higher educational institutions. Most of the faculties in

higher educational institutions in UAE are expatriates, who have their own culture and beliefs. Adjusting to the cultural norms that are set by the ministry of higher educational institutions, especially federal institutions, is a big challenge for faculty in higher educational institutions in UAE. There is limited research being done on faculty perception of the use of mobile devices in higher educational institutions in UAE. This study will add to the limited existing literature, especially in UAE, and will help the educators to design instructional activities using latest mobile technology, which will promote 21st-century skills and make students self-directed learners.

In Chapter 3, I reported the research questions, and research methodology identified the data collection instrument, justified the population and sampling procedures, included the data analysis plan and the ethical concerns related to data collection.

Chapter 3: Research Method

Introduction

The purpose of this qualitative, case study was to explore faculty perceptions of using the mobile device as an instructional aid in a higher educational institution in the UAE. I explored the challenges, strategies, and pedagogical opportunities that higher education faculty in UAE have encountered in integrating mobile devices into their courses.

The goal of this qualitative research was (a) to understand UAE faculty members' perceptions of integrating mobile devices in higher education, (b) to understand how the faculty members' use of mobile devices as a teaching and learning tool affects the cultural assimilation in higher education, and (c) to determine various challenges that UAE faculty members perceive when integrating mobile devices as instructional resource. This chapter is comprised of the detailed explanation of the research design and rational; the role of the researcher; methodology; data analysis procedures; and issues concerning validity, reliability, and trustworthiness.

Research Design and Rationale

This qualitative, single case study took place in a unique social and cultural environment to explore the perceptions of a group of educational faculty members who have adopted pedagogical practices that incorporate the use of mobile technologies for teaching higher education in the UAE. My primary focus was on the experiences and perceptions of the participants, but not on the effectiveness of the devices.

I aimed to explore the faculty's perception of the adoption of mobile devices in higher education institutions in the UAE. I included three qualitative research questions on faculty perception of using mobile devices via integration, cultural restrictions, and challenges.

RQ1. How do faculty members in UAE integrate mobile devices into teaching?

RQ2. How does integration of mobile devices in the classroom affect cultural assimilation in higher education when used as a teaching-learning tool?

RQ3. What are the perceptions of UAE faculty members in higher education about the challenges related to the integration of mobile devices as an instructional resource?

According to Patton (1995), qualitative researchers investigate phenomenon to understand the unique interactions in a natural setting. I used the qualitative method to establish a detailed description and fulfill the need to understand faculty's perceptions of using mobile devices as an instructional tool in higher educational institutions of UAE. In qualitative research "the researcher is the primary instrument for data collection and data analysis" (Merriam, 2002, p. 5). As a researcher, I was adaptive and responsive to understand the verbal and nonverbal communication of the participants, and I clarified and checked with the participants for the accuracy of interpretation of the data. A qualitative approach was suitable for the study as my research was based on the faculty's perception of using mobile devices in higher educational institutions in UAE.

In this study, I chose to use a single case study design. Case study designs are used by scholars to support, inform, and challenge actions and policies. In this standpoint,

Yin (2009) explained that to understand the case study, the researcher needs to understand the phenomenon of interest and establish a holistic and contextual based on multiple sources rather than relying on single data sources. According to Stakes (1995), the case study design and epistemological commitment match with Bandura's constructivism approach. Stakes supported the use of a set of interpretative orientations in a case study that includes a picture of "naturalistic, holistic, ethnographic, phenomenological, and biographic research method" (p. xi). Stakes also detected two approaches to critically analyzing data: categorical aggregation and direct interpretation.

I used a case study design to provide faculty with a chance to reveal their experiences and perceptions in an open-ended design and amidst a real-life contemporary setting. I chose a case study design because its pros exceed its cons. The benefits affiliated with case studies are the capacity to be adaptable, capturing reality, and its importance in an environment. It can assist in amassing the gap between theory and actual research by permitting researchers to correlate their findings with the quantitative results, replevied from other study. In this qualitative case study, I incorporated interviews and reflexivity to determine the faculty perceptions about their use of mobile technology.

A single case study method was used to explore eight higher education expatriate faculty members who used mobile devices in teaching. Participants were drawn from the federal and private institution in UAE. Four participants were from a private higher educational institution, while the other four members were from a federal institution. Both higher educational institutions are located in the city of Dubai, UAE. A typical case

study design administers a complete description of each instance and themes (Creswell, 2003; Stake, 2013). A qualitative case study will provide rich and descriptive data for analysis and clarification of the study constructs (Merriam, 2009). The data collection methods used were interviews, researchers' reflexivity, and archival data. To ensure quality and trustworthiness, member checks and audit trails were employed.

Scholars use case studies to examine the data at the micro level, providing data on the real-life situations and better insights into the detailed behavior of the subjects (Zainal, 2017). The case study framework is used to explore the effect on the culture as an outcome of strategies (Yin, 2013). This approach includes a comprehensive study of addressing and answering questions related to the topic. Case studies are conventional designs for research because the researcher can analyze singularity in a context where the junction amidst phenomenon and boundary is not distinctly evident (Yin, 2013). For these reasons, a case study was most appropriate for this study, as I wished to explore the perceptions and experiences of the higher education faculties' beliefs in challenging normative and structural assumptions.

Other Methods Considered

Although all qualitative studies can be used to comprehend phenomena in their natural environment, I chose a case study over other designs, such as phenomenology, ethnography, or narrative study. An ethnographic approach was unsuitable for this study. Ethnographers use participant observation as the primary data collection technique (Merriam & Tisdell, 2015; Patton, 2002; Suryani, 2013). Sometimes, ethnographers assume that observation in a social context is typical and is happening at all times

(Suryani, 2013). My study was based on higher education faculty's use of mobile devices in the classroom. If I used ethnography, what I observe in one class at a particular time may not be repeated in another classroom at another time. The narrative study is suited for capturing the life experiences of a single individual, and the researcher needs to accumulate extensive information about the participant (Creswell, 2013). The phenomenological study is used to understand the lived experience of an individual about a phenomenon (Creswell, 2013). Unlike the case study, a phenomenology is a philosophical approach, and the researcher needs to have a broader understanding of the philosophical assumption (Creswell, 2013). The phenomenological approach is methodological (Merriam & Tisdell, 2015), and the researcher collects data through participant observation and in-depth interviews (Patton, 2002).

In the case study, a small geographical area or a limited number of individuals are selected as subjects (Zainal, 2007). In a case study, the researcher can interpret and make naturalistic generalization of what is observed in a particular setting. Interviews are the primary source of data in qualitative research (Merriam & Tisdell, 2015). Through an in-depth interview, the researcher develops an understanding of the research problem, as it will allow the researcher to explore beyond the observable factors.

Role of a Researcher

As a researcher, I needed to conduct research and interpret the data. To conduct research, I received permission from the Walden Institutional Review Board (IRB)to conduct research. After getting approval, I obtained written permission from the faculty

members who used mobile devices in classrooms and the authorities of both federal and the private higher educational institutions in UAE.

My role as a researcher was to conduct face-to-face interviews of eight expatriate faculty members of higher educational institutions in UAE. Interviews took place in a, individual setting. As an interviewer, I asked the participating faculty members a series of preestablished questions, giving them enough time to answer the questions (Qu & Dumay, 2011). Same standardized, structured questions were asked to all of the participants. The data gathered are of the richest quality when the participant is comfortable in answering the research questions. To make the participant comfortable, as an interviewer, I applied various skills, such as intensive listening, audio recording, and note taking (Qu & Dumay, 2011). I had a good eye contact, built rapport, and eliminated personal bias throughout the interview.

Reflexivity on the researcher's part is important in qualitative research as qualitative studies usually do not start from a theory or model (Zainal, 2017). My role was as a participant observer, making observations of the interviewee as a data source. Flick (2014) argued that qualitative researchers use reflexivity as an explicit part of knowledge. Flick stated, "researchers' reflections on their actions and observations in the field, their impressions, irritations, feelings, and so on, become data in their own right, forming part of the interpretation, and are documented in research diaries or context protocols" (p. 17). I used reflexivity as a means of collecting data. Symon and Cassell (2012) stated, "Reflexivity means interpreting one's own interpretations, the field notes, dairy, observation and subsequent listening to tape recordings" (p. 82).

According to DeWalt and DeWalt (2011), a researcher's observation/reflection is a kind of self-observation of the first-hand information about the participants. The researcher can include his or her own perceptions in understanding the setting and participants (Patton, 1990). Smith (1978) stated that direct, on-site observation or participant observation as "being in" or "living in" the setting creates formal doctrines, develops facades, or perhaps "wall paper over" significant issues and events. It gives the "nonverbal expressions and gestures are important to understand what is going on" (DeWalt & DeWalt, 2011, p. 88). Moustakas (1994) believed that scholars use the reflective interpretative process to analyze interpretations of underlying conditions and descriptions of experience There is no substitute to witnessing the first-hand information that can uncover factors and gain insight to answer the research questions.

Although I am an educator, I am not affiliated in any form, with both the higher educational institutions, where I conducted my study, nor did I have any connection with the participants of the study. All participants were unknown to me. For this research, I remained impartial and avoided the possibility of personal bias in collecting the data. As a qualitative researcher, I was solely responsible for collecting data and analyzing and interpreting the findings of the study. I adhered to the Walden University guidelines for qualitative dissertations and to follow the mandates of IRB.

As I was solely accountable for data collection and data analysis, there was a potential for researcher bias. To limit this bias, I used strategies to enrich the trustworthiness of this study, including the researcher's reflexivity, member checks, and triangulation. The descriptions of these strategies are more in detail later in this chapter.

Research Methodology

In qualitative research the researcher accumulates, analyzes, and infers the finding of the data (Corbin & Strauss, 2008). Qualitative research is not designed to have an inflexible approach to analysis, but an approach that is free flowing, dynamic, and interpretive (Corbin & Strauss, 2008). A qualitative case study method provided the perfect way to facilitate an extensive analysis of the population under study (Creswell, 2013). In case study design, the researcher investigates real-life experiences in a close and bounded system and compares the results with various sources of literature to validate the result

I chose a case study design to develop an in-depth description and analysis of perceptions affecting the decision of UAE higher education faculty members. Because this study was a small population, the case study approach allowed recognition of specifics surrounding the participants' opinions and ideas.

Participant Selection Logic

The research population consisted of participants from expatriate faculty who worked in the UAE and used mobile technology in the classroom. The choice of participants for this study were determined on an approach attributed to as purposeful selection, defined by Maxwell (2005). As reported by Maxwell, the purposeful selection is a choice in the selection of participants, setting, and activities based on the known criteria. I used purposeful sampling to select higher educational institutions, one funded and the other private. The faculty selected were those who meet selection criteria. Eight faculty members were interviewed from two higher educational institutions. Four faculty

members were drawn from Federal Higher Educational Institution, and four faculty members were drawn from Private Educational Institution. According to Merriam (1998), "selecting a sample is dependent upon the research problem" (p. 67). Yin (2011) pointed out that in qualitative research, the sample size depends on the type of research and the quality and not the quantity. Yin further pointed out that six to 10 cases ought to provide valid results for the study. A total of eight faculty members were the participants of the study, which is an adequate sample size to obtain rich thick data (Patton 2001) and provide in-depth analysis of the data (Merriam 2009). As my participants for the study were expatriate faculty teaching in UAE, with diverse cultural background, "selecting a small sample group of greater diversity, the data collection and analysis yielded high quality detailed descriptions of each case, and important shared patterns that emerged out of heterogeneity" (Patton, 2002, p.235).

The selection process of participants commenced with me writing a formal letter of cooperation (Appendix A) to the president/ vice-chancellor of both the federal and the private higher educational institutions. I contacted the provost of academic affairs as he worked with faculty members and the administrators to promote and maintain high-quality curriculum. I worked with the provost for faculty affairs and research of both the universities to gain access to the e-mail addresses of all the faculty members using mobile devices as instructional aid. After receiving the e-mail addresses of the eligible participants, I sent an e-mail, with the follow-up letter (Appendix B) to all the listed faculty members. Upon receiving the reply to the e-mail from the faculty member, I sent

an official informed consent letter, inviting the faculty members to participate in the study.

I used a purposive sampling strategy to target a particular group. This approach allows the researcher to dismiss samples that do not fit a profile. I used the purposeful sampling strategy to obtain rich, thick data. The selection of the participants was based on the following: (a) participants were full-time faculty members, (b) participants were expatriate faculty teaching in UAE for at least 2 years, and (c) participants were avid users of mobile technology for classroom instruction. Faculty were currently employed by the UAE institution, were over 18-years-old, and were willing to participate. I selected the first five higher education faculty members from each higher education institution who signed and returned the consent form to me. I then sent an e-mail to the selected participants to schedule the date and time of the interview. The faculty consent form and follow-up letter (Appendix C) defined the parameters, expectations, and rights of the participants. If I received any referral by e-mail, I asked the other faculty members who responded to my e-mail. I also asked the participants if they could refer any faculty from the same institution for the study. Purposeful sampling furnishes the richest information for the research questions (Wu et al., 2016). Purposive sampling approaches are configured to intensify understanding of carefully chosen individuals or groups' experiences or to develop concepts and theories (Frankles & Devers, 2000). To achieve this goal, I selected participants who used mobile devices for instructional purposes. With this purposeful sampling, I was able to get answers to my research questions, obtaining

rich thick insights on faculty's experiences of using mobile devices in higher educational institutions in the UAE

Instrumentation

Qualitative researchers collect data by interviewing participants and by observing behavior (Creswell, 2009). For this study, my role as a qualitative researcher was important because "the researcher is the research instrument" (Janesick, 2015, p. 151). Based on the literature review, I designed three instruments that I used for data collection. These instruments were in-depth, semistructured interviews, archival data, and a reflective journal. In face-to-face interviews, an interviewer asks respondents questions designed to obtain answers applicable to research questions (Nachmias & Nachmias, 2008). One of the three approaches suggested by Patton (2002) to design the interview questions is the interview guide, which "lists the questions to be explored" and provides a topic or subject in which the interviewer is free to explore, probe, and ask questions" (p. 343). For this study, I followed the interview guide (Appendix E) that is designed in alignment with the research questions.

The interview guide provided a framework to sequence the interview questions, in the given time frame. Interview protocols also maintain consistency with each participant in the data collecting process. Janesick (2015) recommended guidelines for a successful interview that I followed in my study. I was prepared with a digital recorder, a backup recorder, and a notebook. Before the interview, I checked the digital voice recorder to see if it was functional. I had a backup plan, if any participant decided to leave the study. I stopped reviewing here.

Another instrument that I used for data collection is the researcher's reflexivity. A reflective journal allows the researcher "to dig deeper," to reflect "on the interview tapes and transcripts" and "set groundwork for analysis and interpretation" (Janesick, 2015, pp.159-162). With the participants' consent, I used digital voice audio recorder, to audio record the interview session. A tape recorder allows the interviewer to be more conscientious to the interviewee (Patton, 2002). After the interview, I provided a copy of the interview transcript to for member checking. A member check ensured credibility in any research study. Research questions were focused on the higher education faculty who uses mobile devices in their teaching-learning process.

Patton (2002) asserted that data collection in qualitative research escalates from in-depth interviews, specific observations and written documents. I extracted records from the archival data from the university library, newspaper articles, faculty's teaching portfolio, teaching journal, faculty's lesson plans or any other document that answers my research questions on faculty use of a mobile device in the classroom.

According to Creswell (2013), participants' best answers the research questions when the questions are "open-ended and focused on the central phenomenon" (p. 163). Creswell further pointed that the research questions will be best answered when participants are selected with purposeful sampling and when the researcher designs and use interview protocol and use adequate recording procedures while conducting one-to-one interviews. The data collecting instruments such as interviews, researcher's reflexivity and archival data, designed for the study were sufficient to answer all the research questions.

For Researcher Developed Instruments

As a researcher, I was the primary data collection instrument through all stages of my study. For this research study, I designed three instruments that I used for data collection. These instruments are in-depth interviews and a reflective journal. The instruments are reported in the following subsections.

Interview Protocol

Interviews are the primary source of data collecting instruments in case study designs (Yin, 2014). The participants share their perception of using mobile devices mobile devices under the UAE cultural setting. This is a contrast to the quantitative research study design where the survey method would give statistical analysis but would not provide the participants' feelings. Creswell (2009) advocated that "qualitative research occurs in a natural environment which allows the researcher to 'get a feel' for the educational setting" (p. 182). In-depth interviews provide an opportunity to obtain more detail about an issue or experience (Pope, 2002); in this study, I explored the faculty members' experiences while using mobile devices for classroom instruction. I also delved into the challenges and the cultural influences, that the faculty members encountered while using it as a teaching aid. Each face to face interview took approximately one hour and as such developed a prolonged engagement between the researcher and the participant. According to Merriam (1998) prolong engagement establishes credibility.

Creswell (2009) recommended interview protocol "for asking questions and recording answers during a qualitative interview" (p.183). The interview protocol

designed for the study is in Appendix A. A 16-item, semi structured interview was used to glean information about faculty use of mobile technology in the higher education classroom. The interview questions were organized by the research question; I developed three groups of questions. The first group of questions pertained to Research Question 1 and consists of seven questions. These seven questions relate to the university's vision of using mobile technology, working experiences, educational experiences in using mobile technology, and feelings about the benefits that mobile technology provided in the classroom setting.

The second group of questions pertained to Research Question 2 and consisted of three sub questions relating to a higher education classroom culture (Coleman, 2013). Individually, the four relevant components of cultures are vision, values, practice, and people. These four components were structured into questions, so faculty could covey their feelings about how culture affects their use of mobile technology devices. The third group of questions pertained to Research Question 3 and consisted of six questions. Interview Question 3 relates to the challenges that higher education faculty in UAE face in integrating mobile devices in their teaching endeavors. The interview questions were designed as per the recommendations that they should be open-ended and aligned with the research questions (Merriam, 2009: Maxwell, 2008; Patton, 2002; Saldana, 2015). The question was designed to extract teachers' perceptions about these challenges related to classroom use of mobile technology.

To ensure content validity, I followed the interview protocol (Appendix E) and will conduct member checking. Creswell (2009) recommended the use of member

checking to ensure content validity. After finishing the interview, within 2 days, I e-mailed the interview transcript to the participants and ask for member check. Members checking validated the participants' response and obtained the credibility of the results.

Reflexivity

Reflexivity of the researcher is an integral part to ensure transferability in qualitative research (Korstjens & Moser, 2018). Flick (2015) pointed out that researchers' reflection "becomes data in their own right, forming part of the interpretation" (p. 17) Moreover, researchers can use the reflective approach to develop insights into the ways research interviews can be used (Qu & Dumay, 2013). According to Jootun, McGhee, and Marland (2009), Reflecting on the process of one's research and trying to understand how one's values and views may influence findings to add credibility to the study and should be part of any method of qualitative inquiry. Berger (2015) stated that reflexivity as a researcher lens to recognize and interpret the setting and people being studied, the questions asked, data being collected and its interpretation.

Reflexivity is deemed essential if the researcher is the primary instrument of data collection and analysis (Merriam, 1998; Stake 199). I was able to observe patterns of behavior and relationships (Creswell, 2013), of the participants. I was able to capture their expressions and sense non-verbal clues. I created a matrix to map the interview questions to the research questions. With the matrix, I was able to identify any potential gap relating to the research questions, was cleared with the follow up interview. As a researcher, I documented my reflection throughout and after the interviews. I recorded the date and the time of the interview. I used reflective journaling to discard any emotions

and perceptions that I had on faculty's use of mobile devices. The practice of reflective journaling avoided researcher's bias (Guba & Lincoln, 1982). I had drawn concept maps of any themes or ideas that arises during the interview process, relating to conceptual framework and the research questions. Reflexivity is an invaluable tool, as it enhances data reliability and promotes the researcher's role in understanding a phenomenon (Jootun et al., 2009). According to Lincoln and Guba (1995), a reflexive journal establishes conformability. As a researcher, using a reflexive journal, I was able to authenticate conformability.

Archival Data

According to Lincoln and Guba (1995), data collection from nonhuman sources such as archival records are always available and factual. Yin (2013) revealed that archival data such as those stored in libraries, paper files, and electronic records are the common source of evidence in case studies. Archival records include "public records- actuarial records, electoral and judicial records, government documents, the mass media- as well as private records- autobiographies, diaries, and letters" (Frankfort-Nachmias & Nachmias 2008, p. 290). Archival documents can also include minutes of the meetings, books, and brochures or organizational or institutional report (Bowen, 2009).

Although archival documents obtain a rich source of data, I took care to choose data that is built on its relevance to the research questions and research problem. I collected archival data from the university library, newspaper report, end of the course reflective journal, or faculty's teaching portfolio documents that includes faculty's pedagogical strategies and self-reflection for mobile-enhanced teaching and learning and

hence will answer my research questions. I have designed archival data collection form (Appendix F) that I used to analyze the documents that reflected faculty's best practices of mobile enhanced teaching-learning environment. I designed this archival data collection instrument in connection to research on content analysis for qualitative research (Merriam 2009). To ensure content validity, I asked an expert panel of three colleagues who are employed as university professors in the city of Dubai to determine the alignment of the data-collecting instrument and the archival documents that I have selected with the research questions of the study. The three-panel experts were all be competent qualitative researchers and are well versed with qualitative research methodologies.

Procedure for Recruiting, Participation and Data Collection

As a qualitative researcher, I collected the data from two higher educational institutions in UAE. My community partners were the provosts from each of the universities, I contacted the provost for faculty affairs and research of both the universities, federal university (University A) and the private university (University B) to define the purpose of my study and to get approval by signing the letter of cooperation (Appendix A) and obtaining an ethical clearance. The provost for academic affairs is in charge of institutional effectiveness including curriculum design and the faulty. I contacted the Provost for academic affairs to gain access to all the faculty members using the mobile device in education. Upon receiving the consent for my research, I sent an invitation letter (Appendix B), through e-mail to all the faculty members, describing my study and requesting them for their participation. The faculty e-mails were taken from the

university catalogue. The invitation letter contained the purpose of the study, the data collecting procedure, an invitation to be a participant and my contact details. I selected the first 8 participants who replied to my e-mail and met the inclusion criteria for participant selection. If I do not get enough participants in one of the selected university, I approached the other similar university of UAE.

For the selected eight participants, I sent a follow-up letter (Appendix C) along with the informed consent letter. The informed consent letter precisely defines the parameters of the research study and also explains the rights and expectations of the participants. I asked the participating faculty to sign the consent form, scan and e-mail it to me. The original documents were collected on the day of the interview.

I conducted face-to-face interviews with all the participants. The date and time were fixed, as per the convenience of the participating faculty members. The interviews took place in the space allocated by the concern authorities of the university. The date and time were fixed through e-mails. The primary aim of the interview was to understand the higher education faculty members' perceptions, experiences, difficulties, and cultural influence of using mobile devices in teaching and learning process.

Eight faculty members were interviewed from two higher educational institutions in UAE. Four expatriate faculty members were drawn from Federal Higher Educational Institution (University A), and four expatriate faculty members were drawn from Private Higher Educational Institution (University B). Interviews were conducted with each faculty member. Interviews were open-ended, meaning faculty was asked a series of questions and then provided the time to answer without pressure. Interview questions

were semi structured. Interviews were recorded using an audio tape recorder. I took notes about nonverbal communication to understand what each participant is trying to convey adequately. I ended the interview with a polite note by thanking the participants for their valuable time and cooperation. I also sent an e-mail thanking the participant after the interview and reminded them of the participant confidentiality. After completing the interview process, if any clarification was needed, the participating faculty was contacted via email. It took approximately 2 months to collect the data.

Each interview conducted for this study was recorded. I used the digital audio recorder. The audio recording was then deciphered (via a professional transcriptionist). Qualitative interviews according to Creswell (2014), involve "unstructured and generally open-ended questions…intended to elicit views and opinions from the participants" (p. 190). This research study dealt with human participants and consequently complied with all IRB standards. Any participant who requested anonymity or to have specific areas of their answers to be erased from the record had that choice available to them. All the participants in the study were asked to sign a consent form to take part, which entirely discloses both the study's purpose and its goals.

To facilitate the participant's response to the research questions, the respondents were informed of the interview questions before the interview so that the participants give their account of their experience in their own words. If I was unable to reach the saturation state of the data, I had a follow-up interview and ask the participant for more details that I may have missed during the first interview. I also added in my reflective journal any new input from the follow-up interview. Any tangential experiences reported

during the interview was included in the study (unless the respondent requested otherwise). The accumulated data (interview recordings and transcriptions) was not be administered by anyone other than a professional transcriptionist and myself, to ensure the data is adequately safeguarded and confidentiality is maintained.

Data saturation occurs when the researcher "sees similar instances over and over again; the researcher becomes empirically confident that a category is saturated" (Glaser & Strauss, 1967, p. 65). To obtain data saturation, I gathered enough data to replicate my research study. With small sample size, data saturation is achieved provided interview questions ask *how* and *why* questions. One can accumulate rich thick data with purposeful sampling. Fusch and Ness (2015) claimed that data saturation is reached when there is enough information to replicate the study. "Interviews are one method by which one's study results reach data saturation" (Fusch & Ness 2015, p 1409). Fusch and Ness further stated that interview questions should be structured, to facilitate asking multiple participants the same questions. Another method to achieve data saturation, according to Fusch and Ness, is the researcher's personal lens. Data triangulation is a method to get data saturation (Fusch & Ness, 2015). I used semi-structured interviews, archival data, and researcher's reflexivity as data collection instrument and triangulated the data and achieved data saturation. If I was uncertain about the data saturation after the eight interviews, two more participants could be added from the list of participants that replied to the email, affirming to be the participant of the study.

After every interview, I used the reflexive journal to reflect on each meeting. I also used researcher created archival data collection form (Appendix E) to collect

archival data on faculty use of mobile devices in the classrooms. Although archival documents obtain a rich source of data, I took care to choose data relevant to the research questions and research problem. According to Bowen (2009) when archival documents are used for verification or support the research study, few documents, selected with a critical lens can provide an effective means of triangulating the data.

Data were collected in the month of February/March 2019. Average temperature during this time is around 80F. This fact may affect the participants' mood and disposition. For example, Denissen (2008) reported warmer temperatures to improve a person's mood, especially in those who battle a depressed mood state. Given this possibility, participants may be more willing to discuss their feelings freely or may be less likely to be retrospective about what information they provide. However, warm conditions may also make people uncomfortable and irritable. These facts may have impacted study validity and generalizability of findings.

Data Analysis Plan

Qualitative researchers collect data by examining documents, interviewing participants and observing behavior (Creswell, 2009). According to Patton (2002), "data interpretation and analysis involve making sense out of what people have said and looking for patterns" (p. 380). According to Merriam (1998), all type of documents will help the researcher "to uncover meaning, develop understanding, and discover insights relevant to the research problem" (p.118). I collected the data through face-to-face interviews, researcher's reflection, and archival records. I reviewed the data and checked if modifications are required. I organized and saved all the data, typed out journal notes,

scanned the documents, and stored the data on my laptop. I used a password to access the data. To transcribe and code the transcripts, documents, and the audio files, I used a software program, NVivo 12. NVivo software was used to code data from audio, video, images and text file. It created nodes and codes for all files. After transcribing of the audio files, I imported it into a word document. The transcripts were sent to the participants for member checking. The process of member checking gained feedback from the participants and avoided any misconception of the data (Maxwell, 2008).

According to Saldana (2015), Coding is a systematic arrangement of semantic phrases and relevant statements related to the question asked. Coding aims to proceed from the abstract to concrete; in other words, from codes to themes. A theme is a sentence or a phrase that defines what a unit of data is about and what it means (Saldana, 2009). Using NVivo, the data were analyzed using open coding, to "open up the data to all potentials and possibilities contained within them" (Corbin & Strauss, 2008, p. 160). I then analyzed codes into themes that have common properties. The intent is for themes to integrate essential sets of coding's using an iterative process involving change and adjustment. These themes were sufficiently refined, using concept maps to get the deeper meaning of the text. The themes and excerpts were organized into a qualitative narrative and illustrate it with few quotations from the raw data to help communicate its meaning to the readers. The themes that originated were the key findings of the study. There were revisions to the analysis occurring during write-up. Triangulating data sources involves comparing and crosschecking the consistency of information obtained at different times

by different means (Patton, 2002). I triangulated the data to attain conformability and to validate the results obtained from emergent themes and patterns.

According to Wu et al. (2016), dependability stabilizes the data analysis protocol. Wu et al. further stated that a list of codes based on the conceptual framework is necessary for data analysis from multiple sources. According to Patton (2002), the purpose of the data analysis in a qualitative study is to sequentially filter the coded data and correlate it to the conceptual framework and the research questions of the study. Any discrepant data obtained were analyzed to devise any challenges in the key findings and to check if further exploration is needed. Results obtained from the study examined in relation to the research questions (Appendix D) and was interpreted by connecting it to the conceptual framework.

Issues of Trustworthiness

The four criteria to ensure trustworthiness in qualitative research are credibility, transferability, dependency, and conformability. Multiple data sources, members' check and rich thick description of the data promote trustworthiness in qualitative research. Another strategy associated to the integrity of the qualitative researcher is the researcher's position, the human instrument or reflexivity, which is the activity of reflecting crucially on the self as the researcher.

Dependability

In qualitative research, Lincoln and Guba (1995) defined dependability as being related to reliability in quantitative research. Lincoln and Guba further states that research findings are dependable if they are consistent and replicable. One strategy that I used to

establish consistency and dependability or reliability is an audit trial. An auditor authenticates all accounts in any business, similarly. Independent readers can validate the findings of the study by following a trial of the researcher (Lincoln & Guba, 1985). An audit trial in qualitative research includes in detail how the data are collected, how categories are derived, and how the decisions are made (Finlay, 2006; Korstjens & Moser, 2018; Merriam, 2009). As a researcher, I kept a research journal to validate the researcher's ability to show convincingly how the unanalyzed data is collected (Richards, 2005).

One of the most significant obstacles of a study project is testing dependability. Although there is no way to test the data collection instrument prior to the actual interviews, Creswell (2014) recommended several strategies that I employed to ensure the findings are accurate and my methods easily reproducible. These methods include

- Using a rich, thick description to convey the collected data. The case study research design is apt at presenting information in this way.
- Including negative or discrepant data that may run counter to what the study suggests or hypothesizes
- Use member check, and thus enhance its accuracy by adding an "interpretation beyond the researcher(s)" (Creswell, 2014, p. 202).

Researchers need to guarantee participants' confidentiality; any information about the participants should be used in such a way that it is almost impossible for the reader or any institutions to identify the participants and use it against the interest of the participants (Flick, 2014). To maintain confidentiality, Flick (2014) stated that the

researcher needs to encrypt the details to protect the identity and to store the original data (i.e., the recordings and transcripts) in a safe, secure container where no one can access the information. In addition to these aforementioned strategies, transparency of the research, data collection, and data analyses processes is required. Peer review of the research is necessary to ensure that the information gleaned from the participants is valid.

Another measure of ensuring dependency and consistency that Creswell (2014) suggested is to "clarify the bias the researcher brings to the study" (p. 202). The role of a researcher as an observer may impact how the study is conducted. To maintain transparency–and to cope with potential bias–I had disclosed my possible bias to a study's participant before the interview process.

Credibility and Transferability

In qualitative research, Lincoln and Guba (1982) recommended, "internal validity should be replaced by that of credibility, external validity by transferability" (p. 3-4). According to Merriam (2009), transferability depends on how generalizable the results of the study are and how the findings of one research apply to other situations. Patton (1990) believed that credibility relies on the richness of data gathered.

Credibility

One method for ensuring credibility is through member checking (Lincoln & Guba, 1985; Merriam, 2009). As a researcher, I asked for feedback on the emergent findings from the interviewees. The participants were given interview transcripts and the research report so that the interviewee can approve or disapprove the research findings (Finlay, 2006). Members' check eliminated the possibility of researcher bias in my study.

My study also adopted purposeful sampling, which helped me to stay focus on the relevant data needed to answer the research questions. Patton (2002) claimed that credibility, to a certain degree revolves around the integrity of the researcher, and one way to tackle this problem is that the researcher has to search for data that endorse equivalent interpretation. The rich, thick data obtained with the purposeful selection of the participants' helped to maintain creditability, as I was able to compare my results with the latest literature available on higher education faculty usage of mobile devices for instruction. To ensure credibility, I triangulated the data, which included interview, reflexive journal and archival documents. Patton pointed out that triangulation in a qualitative study can be achieved by "interviewing and observation and by mixing different type of purposeful samples" (p. 248).

When evaluating the credibility of the study, it can be possible that the qualitative approach may not incorporate the best, or most appropriate, method to retort the research question. Because the design of the study is a qualitative approach, researcher bias may affect the study outcomes. This would lead to possible questions relating to other approaches that could result in discrepant outcomes. Credibility may also be affected by the interview questions being asked. I made sure that I used the interview protocol and stick to the pre-planned questions.

Transferability

Lincoln and Guba (1985) proposed the notion of transferability, in which "the investigator needs to provide sufficient descriptive data to make transferability possible" (p. 298). The researcher needs to provide a portrait that describes the depth of the setting

in which the research is conducted (Finlay, 2006). Transferability is concerned to what degree the results of the research done can be related to other settings. Large data obtained from the study, cannot be generalized to individual samples. The researcher, in qualitative research design, selects an individual case or a tiny, purposeful sample to comprehend the variable in depth, and not to generalize what is true for larger sample.

It is assumed that the honesty of the participants will not be affected by the dominant culture in Dubai. For example, the government restricts freedom of speech and freedom of the press, and the local media is censored to avoid criticizing the government, government officials, or royal families. Freedom of association and freedom of religion are also curtailed. As such, a participant's ability to speak freely may be unconsciously restricted due to the nature of the country the study is being conducted in and for the fear of loosing jobs It is also assumed that geopolitical conditions will remain peaceful in the region. When peaceful conditions deteriorate, fear and concern for safety can often occupy a people's mind and shape their proximal beliefs.

Confirmability

In qualitative research, the conformability concept is employed to research findings that are based on participants' responses and by bias in research (Lincoln & Guba, 1985). Confirmability is established using the reflective journal (Flick, 2014). To avoid researcher's bias, I used the approach of reflexivity, defining and pondering my position as a researcher in the study. A researcher's observation is a powerful technique, but it includes challenges. The behavior of the participants and the impact brought out from the researcher's own beliefs can create a researcher's bias (Iacono et al., 2009)

while using a reflective journal. In the researcher's journal, I provided in detail self-experiences and create transparency in my research study.

Ethical Procedures

Creswell (2013) suggested that approval of the institutional review board is necessary for the data collection. The IRB ensures that the proposed study met all the requirements needed to safeguard the human participants and confirms that the study adheres to the ethical values. I conducted the study after gaining approval from the IRB at Walden University. I abided by the Walden University's ethical standards to guarantee the ethical safety of the participants. Being polite and respectful, developing a good rapport and treating them as experts in the field, made the participant faculty comfortable to talk freely and to answer in detail all the research questions.

I gained permission, by taking the signatures of the president/Vice Chancellor of both the federal (University A) and funded university (University B). The participants were contacted via e-mail. Participants received a letter of consent explaining in detail, the purpose of the study. In the letter, the benefits and the risk of the research will be stated. To protect participants' privacy, I used pseudo names for the participating universities and the participants. The level of anonymity is explained in the consent letter. Also, the consent letter stated that participation was voluntary and the participants could recede at any point of the study. Further, to prevent the reorganization of the participants of the study, I numerically coded the data before analyzing the data using the NVivo12 software.

The interviews were held in a conference room where the participants can speak freely without any disturbance. My data consists of reflective notes, interview transcripts and audio files. I used my laptop and a hard disc to store the data. The hard copies of the interview transcripts, audiotapes will be securely locked in my private safe. Computer files date were encrypted or password protected.

I applied the principles given by Creswell (2013) regarding data storage for my research study. The principles are: (a) I developed a backup copy of the data. (b) I inserted pseudo-names to protect the anonymity of the participants (c) I have safeguard the data obtained from my study. The hard copies of the interview transcripts, audiotapes are securely locked in my private safe. Computer files date are encrypted or password protected. Data analyzed will be stored safely for five years and then destroyed.

Summary

In this case study, I focused on three research questions. I investigated the lack of information about mobile technology adoption and use among higher education faculty in the UAE. The participants were eight expatriate higher education faculty members. Data were collected through interviews, researcher's reflexivity, and archival data. Face-to-face interviews was open-ended, meaning faculty were asked a series of questions and then provided the time to answer without pressure. The data collected were transcribed and coded using NVivo software. The study contributes additional information and knowledge on the faculty use of mobile devices to enhance teaching and learning. The interviews, researchers' reflection, and the archival data identifies the academic use of mobile devices to facilitate teaching and learning.

Much of the technology used in the classroom has been related to mobile devices like IPads, phones, and laptop computers. This qualitative, single case study took place in a unique social and cultural environment to discover an in-depth description and analysis of a eight higher educational faculty members who have adopted pedagogical practices that incorporate mobile devices for teaching higher education in the UAE. My main focus were on the experiences and perceptions of the faculty members using mobile devices in higher education in the UAE, and not on the effectiveness of the devices.

In Chapter 3, I have addressed the research design and rationale for the study, the role of the researcher, methodology and ethical procedures in conducting the qualitative case study research. In Chapter 4, I will unfold and interpret the data collected, and report the findings of the study.

Chapter 4: Results

Introduction

The purpose of this qualitative, case study was to explore faculty perceptions of using the mobile device as an instructional aid in a higher educational institution in the UAE. I addressed the following research questions:

RQ1. How do faculty members in UAE integrate mobile devices into teaching?

RQ2. How does the integration of mobile devices in the classroom affect cultural assimilation in higher education when used as a teaching-learning tool?

RQ3. What are the perceptions of UAE faculty members in higher education about the challenges related to the integration of mobile devices as an instructional resource?

In this chapter, I delineate how the study was conducted and incorporate the settings in which the interview took place, the demographics of the participants, and how the data were collected and analyzed. This chapter is also a report of the results of the study, and it concludes with a summary and brief description of Chapter 5.

Setting

The setting for this study was divided into two locations, one location was the federal university, and the other was the private university, both located in the UAE. After I received the IRB approval from Walden University, I had to obtain an ethical clearance letter from both the higher educational institutions. It took 2 months to get ethical clearance from both the universities and another 2 months to obtain IRB approval from Walden University.

I had applied to the federal university research committee to grant permission to conduct research and collect data on October 28, 2018. I completed the ethical clearance application form. The committee had a monthly meeting on November 12, 2018. The research ethics committee then asked me to submit (a) instrument- interview questions, (b) letter of cooperation, (c) consent form, (d)tThe National Institutes of Health (NIH) Office of Extramural Research web-based training certificate, (e) follow up letter, (f) the Collaborative Institutional Training Initiative (CITI) certificate, and (g) my curriculum vitae. The committee then had a monthly board meeting on December10, 2018 and permitted me to conduct research. I received the letter for ethical clearance on December 16, 2018.

I had applied to the institutional effectiveness office of the private university to grant permission to conduct research and collect data on October 28, 2018. I was then asked to submit (a) interview questions, (b) letter of cooperation, (c) NIH certificate, (d) CITI certificate, and (e) the copy of Walden IRB approval if possible. I provided the above three listed documents and then after getting approval from IRB Walden, I submitted a copy to the institutional effectiveness office of private university. I received permission from a private university to research on December 18, 2018.

It took 2 months to obtain an approval letter from both the universities. After getting approval, I applied for IRB approval from Walden University and received IRB approval on February 5, 2019. I then contacted the administrative representative at the federal university and requested to send an e-mail, attaching my letter of invitation (Appendix A) to all the faculty members of the federal university on my behalf. I had to

ask the administrative assistant to send a letter of invitation on my behalf, as federal university's faculty e-mail addresses are considered private information. Regarding the private university, I had sent an e-mail to all the faculty members, attaching my letter of invitation and the consent form (Appendices A and B). All the faculty's e-mail addresses are listed on the university's website.

The goal of this introductory e-mail was to explain the purpose of the study. If the faculty wanted to participate in the study, they sent an e-mail to me directly. I then sent an e-mail asking the faculty to sign the attached consent form. The consent form defined the parameters, expectations, and rights of the participants and also explained the purpose of the study, the benefits, and the risk of the research. I selected the first four higher education faculty members from each university who responded to my e-mail and who met the selection criterion.

Federal University

The federal university of UAE was a national and regional leader, with a modern infrastructure, striving for excellence in education since 1998. The university had two campuses, and each campus had more than 4,000 students. According to 2017- 2018 report, there are more than 640 faculty members from 71 different nationalities. For all undergraduate learning programs, admission is granted for national students, and the graduate program is open to all nationalities. Two of the six learning outcomes of the federal university were (a) to be able to communicate effectively in English and Arabic language and (b) to be able to effectively use and understand technology both securely and ethically in an evolving global society. One of the pedagogical frameworks was to

integrate educational technology into every federal university course. Each student was required to purchase a laptop computer and an iPad for use throughout the student's stay at the university.

Private University

The private university was founded in 1995, with the primary aim of bringing and impounding the U.S. educational system in the region. The university caters to the education of over 2,000 students from all over the world, covering 100 nationalities and more than 170 diverse faculty members, endorsing initiatives aimed at incorporating global diversity. This university has a student-faculty ratio if 15:1. The campus had academic buildings equipped with the latest technology required, which enhanced the progress and improvement of the educational programs offered.

Demographics

The study had a total of eight participants, four faculty members from the federal university and four faculty members from the private university. I selected the first eight higher education faculty members who responded to my e-mail and who met the selection criteria. All participant faculties were over 18-years-old and were full-time expatriate faculty members, teaching in UAE for at least 2 years, and were avid users of mobile technology for classroom instruction. Four participants taught undergraduate level, while the other four taught graduate and undergraduate level. Table 1 shows the participant demographics. Pseudonyms were given to the participants to maintain participant anonymity.

Table 1

Participants' Demographics

Participants With Pseudonyms	Nationality	University	Use of Mobile devices	Gender	Years of experience
Nadia	Bahrain	Private University	IPad, iPhone, laptop, Apple TV	Female	18 Years
Lisa	Saudi Arabia	Private University	Digital cameras, iPhone	Female	2 years
Jean	USA	Private University	Laptop, mobile phone, IPad	Female	16 years
Nabel	Canada	Private University	Laptop, IPhone	Male	11 years
Hamad	Jordan	Federal University	Laptop, iPad, iPhone and apple watch	Male	14 years
Azim	Pakistan	Federal University	4 laptops, 2 android phones, 1 iPad, and iPhone	Male	7 years
Sam	India	Federal University	Laptop, IPad and iPhone, Robots	Male	Over 18 years
Matt	India	Federal University	Laptop and iPhone	Male	Over 15 years

Table 2 shows the teaching level of the participating faculty and the subject taught at that level.

Table 2

Shows Subjects and Level Taught at the University

Participants	Subjects Taught	Teaching Level
Nadia	Preparing classroom teachers for inclusive education and assistive technology for special needs.	Graduate Level
Lisa	Graphic design, arts studio, typography, packaging, and advertising.	Undergraduate Level
Jean	Language development and foreign language learning and educational programming.	Graduate Level
Nabel	Math and science methods and technological integration course.	Graduate Level
Hamad	Emerging Technologies in the Enterprise, E-commerce and Management Information Systems.	Undergraduate Level
Azim	Programming Languages, Information Security, Mobile Computing, Human Computer Interface and Research Methods.	Undergraduate Level
Sam	Software Engineering, Internet Computing, Web Applications, Data Structures, Object Oriented Programming, Problem Solving and Analysis Algorithms.	Undergraduate Level
Matt	Undergraduate: Network Security, Information Systems Security, Graduate: Security Management, Advanced Penetration Testing, Information Governance and Cloud Computing.	Graduate and Undergraduate Level

Data Collection

The data collection process began on February 6, 2019, after Walden University's IRB approved me to collect data. I sent e-mails to all of the faculty members of the private university, attaching my letter of invitation and the consent form. To send e-mails, I used all of the faculty's e-mail addresses that were listed on the university's website. Regarding federal university, I contacted the administrative representative to send an e-mail, attaching my letter of invitation to all of the faculty members of the federal university on my behalf. I had to ask the administrative assistant to send a letter of invitation on my behalf, as the federal university's faculty e-mail addresses were considered private information. As there was no response from any faculty members from the federal university, I had to send repeated reminders to the administrative assistant to forward my e-mail to all the faculty members.

Interviews

The faculty face-to-face interviews (Appendix D) for the federal university faculty members were held at the university campus, inside the office of each of the participating faculty members. The interview for private university faculty members was held at a private university campus. Three participant interviews were held in their respective offices, and the fourth participant was interviewed inside the technology laboratory, where the classes are held. All of the eight interviews were scheduled during the free time and as per the conveniences of the participating faculty. The security clearance was needed to enter the universities, both private as well as federal.

The first interview took place on February 21, 2019, with Lisa. It took place inside her office, and the interview lasted for about 1 hour. With the same participant, I had a second short interview of 15 minutes, as she wanted to share more information, and I had a second interview on February 28, 2019. The interview with the second participant, Jean, took place on February 25, 2019, at 11:30 a.m. and it lasted for about an hour. The interview took place in the technology laboratory, where Jean facilitated instruction in the laboratory once a week. The third and the fourth interview took place on the same day, on February 28, 2019. The interview with the third participant, Nabel, was at 10:00 a.m. and the fourth participant interview, with Nadia, was at 11:30 a.m. The third interview was with Nabel and lasted for about 40 minutes while the fourth interview was with Nadia and lasted for about 30 minutes. All four interviews took place inside of the private university.

The other four interviews took place in the offices of the participating faculty at the federal university campus. The fifth interview was with Hamad, held on March 14, 2019, at 1:30 p.m. It lasted for about an hour. The sixth interview was with Sam, and the seventh interview was with Azim; both took place on March 18, 2019, with Sam at 10:00 a.m. for about 40 minutes and with Azim was at 2:30 p.m. for 1 hour and 15 minutes. The eighth interview was with Matt on March 24, 2019, at 10:00 a.m. for about 30 minutes.

I recorded each interview using the App Voice Recorder on my Samsung galaxy and an S5 audio recorder. I used both recorders to ensure a smooth recording process without any problems of device breakdown. I recorded the audio recording only after

obtaining written and verbal consent from each participant. I then transcribed the audio recordings on my personal, password-protected computer using NVivo12.

Researcher's Reflexivity

Besides face-to-face interviews, I collected data through the researcher's reflection and archival data. As a data collection instrument, I began to write my reflective journal notes on February 21, 2019, as soon as I finished my first interview with Lisa. As a researcher, I maintained a state of neutrality and documented my reflection throughout and after the interviews. I documented the number of mobile devices that the participating faculty showed me after the interview that they used for classroom instruction. I also documented the various pictures that they showed me of the classroom instruction while teaching with mobile devices. I completed my reflective notes on March 24, 2019, with the completion of the eighth interview with Matt. I successfully recorded some behavioral actions, contingencies, gestures, and emotions while the participating faculty was answering the interview questions. This authenticated the research's reliability and trustworthiness of the data collected.

I documented every detail that could answer my research questions. I saved the reflexive document in my doctoral research data file on my personal computer. Data production involves all activities of collecting processing and analyzing the data in relation to the research question. I was able to verify the level of trustworthiness exhibited by each participant as convincing and authentic. I kept reflective journal notes during the interview process. I observed the office setting of each research participants, the way participant faculty displayed students' work, and the different type of mobile

devices used for teaching and learning. I also observed the faculty participant emotions, in which all participants spoke during the interview increased the level of trustworthiness. During the interview process, all participants provided evidence of using mobile technology in the classroom. Jean showed me her classroom laboratory with mobile devices. Matt demonstrated how he used his mobile phone for a demonstration of his security course. Nabel showed his mobile application called sea-saw for engaging students. Hamad displayed his special designed laptop cum iPad, which he used for all teaching-learning activities. Azim, Ahmed, and Lisa had shown me their laptop students' comments in faculty overall performance evaluation based on individual teaching, research, scholarship, and service activities. Nadia and Lisa showed me their class Instagram page. Before the interview, I read the participating faculty profile on the university website. A level indicates a scale. A level of trustworthiness was listed as below average, average, and above average. As I used a purposeful sampling strategy, a scale of below average was ruled out. During the interview process, if the participants had only answered my interview questions without displaying evidence, then the data would have been considered as average. All of the participants were rated as above average as they showed evidence of using mobile devices in the classroom, along with the verbal interview. Based on the participants' face-to-face interviews, researcher's reflexivity, and archival data, I was able to triangulate the data and increase the level of trustworthiness as above average for all the participants.

The use of unstructured observation in the form of reflective field notes generated the data. It also describes the range of emotions for all the participants. After recording

the interview in my researcher's reflexive notes, I wrote about the Nadia. Below is the summary of my reflexive notes.

> When I entered Nadia's office, she greeted me with a soft, pleasant voice. All her books and students' projects were neatly organized in a row. She had worn a lovely long black skirt with a jacket that gave a smart look. As she was answering the interview questions, she had creative ideas for her inclusion class.

After recording the interview with Lisa, I wrote in my reflective journal. It stated,

> As Lisa was answering my research questions, few students came to drop in the project. She told them politely not to disturb her for some time. Lisa is full of energy and works with dedication. In her interview questions, Lisa described how she took her students for full-day study trips. She said it was unpaid for the trip.

The day I interviewed Jean, in my reflective notes, I wrote,

> During the interview, Jean was enthusiastic about various class activities using mobile devices. She is vibrant and enthusiastic about her class activities. She said 'video clips' and 'laughing sessions' make the students think outside the box. Her spontaneous long answers indicated that she was prepared for the interview.

After recording the interview with Nabel, I wrote in my reflective journal. It stated,

> During the interview process, I noticed that although Nabel's room was full of instructional materials, it was well organized. He was wearing a blue check shirt and a tie that gave a smart look. Besides regular teaching, He told that he is involved in community service.

After recording the interview, in my researcher's reflexive notes, I wrote about the Hamad. It stated,

> During the interview, Hamad described dynamic mobile learning activities that draw student's attention and make them give speedy answers. Besides mobile devised, he showed me binders organized in colored folders for different subjects.

After recording the interview with Azim, I wrote in my reflective journal. It stated,

> Azim opened his laptop and showed me students feedback forms, arranged in alphabetical order. Most of the students had described him as 'enthusiastic, resourceful, and Brilliant' were common in most of the students' form. He showed me different mobile applications' that he helped students to create in the classroom. As he answered my research questions, I learned so much about mobile threats and network security.

After recording the interview with Sam, I wrote in my reflective journal. It stated,

> Sam had scheduled his interview on March 19, 2019. When Sam came to know that I will be visiting the university on March 18, 2019, to take another interview, he postpones my interview on the same day so that I don't make a second trip. During the interview process, he described how he plans the sitting arrangement to take online exams for different classes.

After recording the interview, in my researcher's reflexive notes, I wrote about Matt. It stated,

> During the interview process, Matt was full of energy describing various applications that he learned from professional development. Matt showed me

different resources on his Android mobile, which he used in engaging students for his security course.

With the researcher's reflection, I was able to capture a kaleidoscope of emotions and sense nonverbal clues. The reflective journal provided detailed self-experiences and enhanced data reliability. The participating faculty provided evidence as they were answering research questions, which further led to producing rich, thick data providing answers to the research questions.

Table 3

Reflective Field Notes

Participants With Pseudonyms	Range of emotions	Level of trustworthiness	Overall Reflection of Data Production
Nadia	Smart, Well Organized, Dynamic, Pleasant	Above average	Very meaningful
Lisa	Polite, dedicated, energetic	Above average	Very meaningful
Jean	Vibrant, Enthusiastic, Well prepared	Above average	Convincing data
Nabel	Smart, Well organized, multi talented	Above average	Trustworthy, Authentic
Hamad	Dynamic, Smart, resourceful, well organized	Above average	Very meaningful
Azim	Well organized, enthusiastic, resourceful, Brilliant	Above average	Convincing, Authentic
Sam	Understanding, Well organized	Above average	Very meaningful
Matt	Very trustworthy, resourceful, smart, energetic	Above average	Convincing data

Note The graphic representation of the researcher's reflexivity.

Archival Data

Archival data includes two faculty's end of the class reflection, one faculty's teaching portfolio comments and pictures of classroom instruction where the participating faculty helped students in developing mobile applications. Archival data includes Instagram reflection and comments, where two participating faculty members, Lisa and Nadia used mobile phones to upload their classwork for a wider audience. I had requested the entire participating faculty to provide end of the class reflection but only two faculty members provided the class reflection while using mobile devices in the classroom.

Nadia sent me a link of her Instagram class page, where she posted students' classwork. She also sent me e-mail on the use of mobile devices for classroom activities. Lisa sent me a link to her class Instagram page, where she uses a mobile phone to posts her class activities. She also sent me the end of the semester reflection. Azim shared with me screenshots of his teaching portfolio comments. He shared with me the pictures of the various apps his students created using mobile devices. He also shared with me his end of the module reflection using mobile devices. Matt shared with me his report of the professional development of using mobile devices in the classroom, which he attended in another country. This report is a copy that Matt submitted to the university, as the university had sent him for professional development. I have also collected data in the form of pictures and an annual report from both the university website. The archival data included faculty's pedagogical strategies and self-reflection for mobile-enhanced teaching and learning and hence will answer my research questions. I saved the archival data in my Doctoral Research Data file on my personal computer.

Member Checking

I started to conduct the member checking with the participants on March 30, 2019. All participants received the interview transcript via e-mail for transcript review. Azim, Hamad, Nabel, and Matt confirmed the interview transcript via e-mail within a week. Lisa confirmed after 2 weeks. I did not receive any e-mail from Nadia, Jean, and Sam. I contacted them using landline and all three gave verbal confirmation that the information on the transcript was accurate. One participant added more to the interview transcript. I completed my member checking on April 20, 2019. By completing the member checking, I enhanced the validity of my data.

In Chapter 3, I had mentioned that I would use an audio recorder to record a face-to-face interview. During the interview process, I use two recorders, one recorder utilizing the application on my mobile phone and the other S5 recorder. I mentioned in Chapter 3 that all the interviews would take approximately an hour, but two interviews went for more than an hour. In Chapter 3, I mentioned that I would use NVivo 12 to code the entire date, I coded all eight the interview transcripts using NVivo 12, and I hand coded the archival data and the researcher's reflection. In Chapter 3, I had mentioned that I would ask expert advice of three colleagues to determine the alignment of data collecting instrument and the archival documents. I have not taken any expert advice as my dissertation committee members, who are well versed with qualitative research methods provided me with scholarly guidance and continuous feedback to improve the quality of my research findings. For archival data, I also used social media to collect archival data, which I did not mention in Chapter 3. I anticipated that data would be

collected in November - December 2019 but my data collections begin only in February 2019. I did not know except that getting approval for participant recruitment would be a lengthy process. I did not experience any other unusual circumstances during the data collection process.

Data Analysis

I have deployed my data analysis as previously drafted in Chapter 3. The instruments for the data collection for this study included eight face-to-face interviews of higher education faculty members, archival data, and researcher's reflexivity. I used these three data sources to answer each research question and to triangulate my data. While reviewing the themes, I identified patterns that were similar to the patterns obtained from the interview transcripts. Merriam (2009) recommended of using a visual model to disclose the data's meaning and link together the categories recognized from coding. Table 4 below shows the themes generated from archival data.

Table 4

Codes/Themes Generated for Archival Data

Research Question	Themes
RQ1: How do faculty members in UAE integrate mobile devices into teaching?	The university's vision regarding technology. Promoting the university. The use of technology. Increasing engagement Encouraging collaboration. Improving pedagogical practices. Effective communication
RQ 2: How does the integration of mobile devices in the classroom affect cultural assimilation in higher education when used as a teaching-learning tool?	Culture and technology Promoting Culture using mobile devices. Cultural Collaboration
RQ 3: What are the perceptions of UAE faculty members in higher education about the challenges related to the integration of mobile devices as an instructional resource?	Distraction Over relying on technology Professional Development

Note. *RQ*= Research Questions

Table 5 shows themes generated from the researcher's reflexivity.

Table 5

Codes/Themes Generated for Researcher's Reflection

Research Question	Themes
RQ1: How do faculty members in UAE integrate mobile devices into teaching?	The university's vision regarding technology. Promoting the university. Improving pedagogical practices. Effective communication. Students enthusiasm and appreciation for faculty
RQ 2: How does the integration of mobile devices in the classroom affect cultural assimilation in higher education when used as a teaching-learning tool?	Promoting Arabic Culture using mobile devices. Cultural collaboration and communication using mobile devices
RQ 3: What are the perceptions of UAE faculty members in higher education about the challenges related to the integration of mobile devices as an instructional resource?	Over relying on technology Professional development

Note. *RQ*= Research Questions

I recorded a face-to-face interview using an audio recorder and immediately transcribe all the audio files. After transcribing the audio files, I read the interview transcript several times to identify and correct transcription errors and get a clear understanding of the research questions. Then using paper and pencil, I started hand-coding the interview transcripts line-by-line, to understand the themes and patterns. As I read the transcript multiple times, I was able to compare, and contrast statements made by each participant concerning each research question. With this exercise, I was able to derive a story for each research question. According to Saldana (2014), this activity of

writing out loud allows bringing forth a logical explanation. I used the line-by-line coding technique for archival data and the researcher's reflexivity document. I evaluated the coded data with the constant comparative strategy about the research questions, as suggested by Merriam (2009) for constructing categories.

I used Microsoft Word, Excel, and NVivo 12 in the data analytical process. NVivo 12 is computer software, which offers timesaving opportunity by systematically coding, sorting, and identifying patterns and themes. I uploaded all the eight interview transcripts into NVivo 12 software. I created a file for each participant faculty that defined the demographics (Table 1). Then I coded the interview transcripts using NVivo 12 and ran a couple of analyses. During the analysis phase, I highlighted the phrases and statements that have similar meanings about the research questions. Using NVivo 12, the sentences were assigned to a node. Then I organized the thematic fragments about the research question. NVivo 12 software helped in organizing, categorizing, and comparing the various themes that emerged from the data. I stored the interview transcripts in my backup file on my password-protected computer to prevent loss or damage.

The data analysis for each faculty participant was done using the process charted in the interview protocol (Appendix E). I set up a column consisting of code name adjacent to each interviewee. In data analysis, I used the information from the interview transcripts from the audio recording files, researcher's reflexivity document, and the archival data. According to Yin (2016) using multiple data sources, the researcher gains the advantage of data triangulation.

The combination of the data fabricated the recognition of themes, codes, and patterns. The keywords that appeared for the data included: *university's vision, school rules, individual faculty' rules, class level, meaningful use of technology, increasing engagement, strengthening bonds, encouraging collaboration, improving pedagogical practices in general-saving time, more effective communication, increasing student motivation, promoting the university, distraction, technical difficulties, lack of support from the university, not knowing how to integrate mobile technology into teaching, limited knowledge of teaching with technology, turning challenges into advantages, the lack of professional development or guidelines for mobile technology teaching, support for students on how to use mobile technology, limited awareness of cultural issues with using mobile technology, and considering links between culture,* and *mobile technology.* I analyzed my data about the research findings and compared my data to the new literature and continuously checked for similarity of the key themes to validate the results of this study.

Discrepant Cases

In a case study design, discrepant data contradicts the theoretical proposition (Yin, 2014). Discrepant data also involves careful examination in selecting examples (Lincoln & Guba, 1985), that challenges the emergent patterns (Patton, 1990) and is an essential factor in attaining credibility. This study did not reveal any discrepant data as I followed the interview protocol during the face-to-face interview, and the participants expressed the same information. As recorded in Chapter 3, this study adopted a purposeful sampling strategy. All the participants were higher education faculty members

teaching in the UAE, having 2 or more years of experience and are using mobile devices in higher in their teaching-learning process. No discrepant cases were found in the analysis of the data.

Evidence of Trustworthiness

Credibility

As a researcher, to ensure credibility, I ensured that I followed the interview protocol as detailed in Appendix E, for all eight interviews. The rich, thick data obtained with the purposeful selection of the participants' also uplifted creditability for my study. According to Merriam (2009), member checking ensures credibility in research. As soon as the audio recording of the interview was transcribed, I e-mailed the interview transcripts to approve the data generated through face-to-face interviews. All the participants affirmed the interview transcripts and testified that the transcripts captured the reality of the perceptions of using mobile devices for classroom use. Member checking also eliminated the possibility of research bias in my study. Finally, as stated in Chapter 3, without adjusting credibility procedures, I triangulated the interviews with reflexive journal notes and archival data.

Transferability

As a researcher, I employed the method of triangulation and member checking, confirming that the result obtained is valid. The results produced with this small purposeful sampling. According to Patton (2002), the reader decides to apply the findings of this study to another context. The participants of the study were honestly and freely expressing their views about the research questions. Finally, as stated in Chapter 3,

without adjusting transferability procedures, I analyzed the rich, thick data using NVivo 12, identifying themes and presenting the findings with the participants' direct quotes enhance transferability of the study.

Dependability

According to Lincoln and Guba (1985), dependability refers to the replicability of the research findings. I elevated my replicability by posing the same interview questions to all eight-faculty participants. To enhance dependability, as stated in Chapter 3, without adjusting dependability procedures, I kept an audit trail to monitor my research study.

Conformability

Flick (2014) stated that conformability is attained by keeping a reflective journal. Throughout the data collection process, I wrote reflective journal notes on the participants' behavior throughout the interview process, and I recorded the type of mobile devices they showcased during the interview process. I recorded every detail in relation to my research questions. The reflective journal provided detailed self-experiences and created transparency and avoided the researcher's bias. As stated in Chapter 3, without adjusting conformability procedures, conformability was achieved through triangulation of data and audit trials for my research study.

Results

In this study, I sought to answer three research questions to gain an understanding of the. faculty perceptions of using the mobile device as an instructional aid in a higher educational institution in the United Arab Emirates. Each faculty participant was interviewed following the guidelines documented in the interview protocol (Appendix E).

Each interview was recorded using a voice recorder. The audio recording was transcribed using Microsoft word. Using NVivo12, the data was coded and categorized into themes. The themes are categorized in relation to the research questions.

Emergent Themes

Research Question 1

How do faculty members in UAE integrate mobile devices into teaching?

To streamline the data, Table 6 outlines the thematic framework in relation to the research question 1, developed as a result of the eight interview transcripts four with the private, and four with the federal university faculty.

Table 6

Codes Generated in Relation to Research Question 1

Code name	Interviewees	References
The university's vision regarding mobile technology	6	9
Regulations and restrictions	8	21
School rules	6	14
Individual faculty' rules	4	7
The use of mobile technology	8	129
Class level	8	53
School level	7	27
Examples of activities and the use of mobile technology in the classroom	8	27
The importance of meaningful use of mobile technology	5	15
The lack of conflicts and/or problems	6	7
Benefits and Challenges	8	166
Benefits	8	81
Increasing engagement	6	17
Strengthening bonds	5	13
Encouraging collaboration	5	12
Improving pedagogical practices in general	5	15
Saving time	5	9
More effective communication	4	6
Increasing student motivation	2	6
Promoting the university	2	3

Theme1: The university's vision regarding mobile technology (Subthemes: regulations and restrictions, school rules, individual faculty rules). The faculty from both universities are aware of the university's vision regarding mobile technology (coded nine times across six interviews; see Table 6). Both universities emphasize the use of mobile technology and aim to become leaders in this field. Private university "likes to position itself at the forefront of using innovation and technology" (Jean) and the faculty are being "motivated to use as much technology as we can" (Nadia). Similarly, in federal university, "the university's vision is of using more technology in the classroom" (Matt). When discussing the regulations and restrictions (coded 21 times across eight interviews) at the school level (coded 14 times across six interviews), the faculty from both universities discussed being "encouraged" (Jean) to use mobile technology in the classroom.

With regard to individual faculty rules (coded seven times across four interviews) regarding the students' use of mobile devices, the faculty mainly discussed the issue of students using their mobile phones in the classroom. While the views differed slightly, with some faculty noting that it is ok for students to use their phones for "proper reasons, learning purpose" (Sam), and others stating that "they are not allowed to use their mobile phones" (Matt), overall "very few lecturers are trying to adopt mobile phones in teaching and learning" (Hamad).

Theme 2: The use of mobile technology (Subthemes: Class level, school level, examples of activities and the use of mobile technology in the classroom, the importance of meaningful use of mobile technology, the lack of conflicts and/or problems). With regard to the overall *use of mobile technology* (coded 129 times across eight interviews), due to the aforementioned *university's vision regarding technology*, the technology is widely used on the *school level* (coded 27 times across seven interviews): Nadia and Matt shared their personal experience of using mobile technology on the school level. Nadia said that the university is pushing them to use technology and Matt also had similar views. Both universities use blackboard for all-purpose. Nadia stated,

> We have to use Blackboard. We have to submit our grades to the blackboard. Everything is done through the email. There are no hard copy documents. We are nearly a paperless university. Whatever information you want to get it is all online. There are no hard copy printed guidelines anymore. Everything is on the website. The website is being updated. I can't say it is amazingly functional, but it is on the way. It will be more interactive. Yea, so the university is very happy for us, to use technology and they push for that.

Matt also said that the university's vision is of "using more technology in the classroom" as "technology is used heavily in the university in every aspect." According to Matt, there are two devices all faculty have to use in the classroom, one is the laptop, and the other is the iPad as there are no fixed computers in the classroom. He reported,

> You go to the classroom; you take the laptop, plug it in and then you get access to all devices. Right? So that is the vision, so they (university) do have, but a mobile

> device is one aspect of the vision of using technology. We here at the university use a lot of technology. Technology is used heavily in our university in every aspect. Every classroom is well equipped with an infrastructure that any mobile device can connect, whether it is the laptop or mobile or an iPad. So, the infra institutional characteristics, if I take my prospective, technology infrastructure, yes it is that influencing and help us to use these mobile devices. We know that if I take my laptop, I know that every classroom has access and mobile access. If I take an iPad, they give an adapter to connect. Normally, I use my laptop.

The universities have WI-FI, and the faculty members are equipped with laptops and iPads. The faculty members use various communicators to communicate with their students and exams are taken online, "whether is written an exam, or a multiple-choice quiz, all of it is online" (Sam, Federal University). In both universities, Blackboard is used for "everything, whether it is assessment, whether it is teaching, whether it is an evaluation" (Sam, Federal University).

On a class level (coded 53 times across eight interviews), the use of technology varies depending on individual faculty' approach. Overall, the faculty use social media to both communicate with the students and showcase the students' work, PowerPoint is used for presentations, and some faculty uses WhatsApp to communicate with their students. Some use Poll Everywhere and Survey Monkey to collect student feedback, and Google Docs and Kahoot to encourage student collaboration. Students are encouraged to participate in online forums, class websites, and social media profiles. They mostly use laptops, Mac Books, and iPads, although the use of mobile phones is also allowed to

access some of the online content. The faculties reported using laptops, iPads, professional cameras, mobile phones, and Apple TV. Below are some quotes of the faculty members on the class level. Nadia has an Instagram account and a Facebook page for her class. She posts all her teaching-learning activities on social media. She stated,

> I run an Instagram for my classroom and for the school. As social media is important and I have my own Instagram and Facebook where I talk a lot about my work, not personal, and it has been amazing. People have started getting to know about our program through social media outlets. So it has worked well for us.

Lisa also has an Instagram account and what's app group for class activities. When she has to send instant messages, she will use What's app, and if Lisa wants to post her student's classwork to a larger audience, she will use her Instagram account. She shared,

> What I do is the light painting, which you saw on my Instagram, so that is what I wanted to explore. So I told them that we would go out and have a shooting session, we are going to film that, with mobile phones and professional cameras and use it in a way to market, for me I can use it as my profile as well and also to promote the university.

Naved uses various types of apps in the classroom, and it all depends on the type of learning process. "the app is kind off collaborative in nature then they can do group work" and "apps such as Poll Everywhere and Kahoot" are used for daily formative assessment and students' collaboration. Naved reported that all students have some kind of mobile device that can be used in the classroom. He explained,

> Especially the technology integration class is very heavily reliant on technology. So in that class specifically, all the students have iPad that our school loans them for the semester and for those that don't use or don't have an iPad or don't want to use an iPad they use a laptop. So everyone has some kind of a mobile device so it's kind of like very much encouraged in that specific class.

Azim reported that in his mobile computing course, all the assignments are on mobile devices whereas Sam said that in his programming course, all "exams are still on their laptops" and "one out of three assignments are on mobile devices." Jean "utilize survey monkey and have students go and give their responses," and she also uses "google forms" and "Sea-Saw" for "of different pedagogical practices I teach a classroom."

With regard to specific *examples of activities and the use of technology in the classroom* (coded 27 times across eight interviews; see Table 6), a number of ways to integrate mobile devices into teaching and learning were reported.

> I also have started using see-saw, which I think is very important and have them use either if working on an assignment or sometimes I'll have them do mind mapping exercises on a large piece of paper. Instead of having the paper being put up and not being able to see everything I'll ask them to upload it on sea-saw so that we can look at it on a huge screen and I think that that really makes a difference people are more engaged. (Jean, Private University)

Hamad conducts two specific activities using mobile devices; one is at the start of the class, to get students interested in the topic. He will ask them "one big question, which does not require a direct response, or with no specific background" and he urges

them to use their mobile devices “either to Google it or go to you tube or even if they have a call with some friends actually, to get the answer” So this is a kind of activity “which they need to use their mobile devices to research, some questions” and “get proactive in classroom”. Second Activity that Hamad mention is using “Khahoot” for quick quizzes. He said, “students actually perceive some enjoyment, with this activity.”

Nadia shared her class activity with mobile devices. She said that she uses “a lot of media” and divides the class into groups for a class activity. Nadia said that the fact that” they can produce something, and then they put it on the TV makes collaboration more possible “and it keeps the conversation going. She noted,

> Now that I am using the lab, we have Apple TV. So, students get to mirror their work as well. I put them in-group. They do a class activity. Then they will record or take pictures of their work in groups and mirror it on the Apple TV. So, we can talk and discuss about it. Students get to see each group work, give instant feedback. So, it is quite interactive in the classroom. Because each group will do something., then once it is mirrored, then we can compare and contrast, you can say add this and take this away, it is all visual and I love visual work. So definitely mobile technology has helped me a lot there, in being able to visualize things.

Nabel said that he uses mobile devices where it is productive and can have meaningful activities. He does preassessment of the topic and then formative assessments using various apps. He says students find it “easy and efficient ways to engage in the form of an assessment.” He uses the sea saw, an app for a class activity. He noted, “So as an activity

to show them this tool, I told them, ok take a selfie and write six descriptive words about yourself."

Matt described two activities that he incorporates mobile devices. One activity is for his modeling, and second is for decision-making. He shared,

> There is a website that you can use to take a survey, poll everywhere. Here they can use their laptop or their mobile phones. But none of them use their mobile phones, as their laptops are open. They will use their laptops. Nobody brings a tablet to my class, but they have a mobile. The use of mobile in my class is very limited. We are heavily using laptops in class. For the second activity, I teach security course. So, I teach the security of the mobile device, security of the laptops. It is very easy to demonstrate the security of laptops, for example, when there are an attack and all these things. When I feel the need to demonstrate the security of the mobile, I take my mobile, and I show them. I use android for demonstration. They don't have the android. Most of my students have iPhones so they can only see it. So that is the area where I demonstrate.

Azim uses a mobile application called "Poll it." Students need to poll which situation or business model is better. He gives them a specific topic. "I have two situations, one is a good business model, and the other is a different business model, giving them a scenario and asking them which one you think is the best one." (Azim). This app gives a vote and feedback, which prevents from being noisy and disruptive." So, I use the application to get their feedback. It can be just a vote or their comment that I can use it for decision-making" Azim, Federal University). Sam reported his activities in the

classroom using mobile devices. Sam said his activities in the classroom using mobile devices. He tried to work with pads, but "mostly I used laptops for my programming classes since it is a mandatory device; part of our teaching is also to teach how to use them." (Sam). He creates a pool of questions where "where they have to write a program. They would be testing it, and so in terms of teaching programming, they would have hands-on exercises that they would be using" (Sam). One of the many class activities that Azim spoke about is developing and running the application on the student's phone. He stated,

> I involve them in developing applications, so they develop applications, and they have the feeling of something that they have developed by themselves, and it is running on their phone. And they use it and that what motivates them to learn more for the course. To have them implemented in the mobile device and that increases their interactions and increases their interest in the course as well.

In the faculty's opinion, the students enjoy their use of technology, and *the lack of conflicts and/or problems* (coded seven times across six interviews) was reported by six faculty members. "In general, there hasn't been any resistance from the students at all and not from anyone else that I've interacted with in school" (Nabel, Private University).

Theme 3: Benefits (Subthemes: Increasing engagement, strengthening bonds, encouraging collaboration, improving pedagogical practices in general, saving time, more effective communication, increasing student motivation, promoting the university). The faculty recognizes several benefits (coded 81 times across eight interviews) that integrating mobile devices into teaching and learning has for both

teachers and students. These benefits are increasing engagement (coded 17 times across six interviews), improving pedagogical practices in general (15 times across five interviews), strengthening bonds (13 times across five interviews), encouraging collaboration (12 times across five interviews), saving time (nine times across five interviews), more effective communication (coded six times across four interviews), increasing student motivation (six times across two interviews) and promoting the university (three times across two interviews).

The faculty participants described the benefits of increasing engagement in the classroom with the use of mobile devices. Lisa said that she likes to show off students work to a larger audience, "so they get motivated." Azim said that students have a feeling of something that they developed and is running on their phone and "that what motivates them to learn more for the course." Jean feels that it makes a difference, and students are "more engaged."

Some faculty felt that the uses of mobile devices in the classroom are improving pedagogical practices. As Jean stated, "I also show a lot of clips in my class to give students an idea of different pedagogical practices." Azim explained, "In the process of learning, this device gives us some extra features and extra benefits in class time." Nabeel also reported saying, "you do gain things, you do gain efficiency, and you do gain productivity in some way."

Five participants showed strengthening bonds with the use of mobile devices for classroom instruction. Lisa said that they had laughing sessions and "it limits that restriction of being formal, and it gets them out of the box." Jean felt that there are

couples of advantages, for example, “allows the student to have more access to information or be able to exchange work a lot easier.” Nadia perceived you communicate and collaborate. She wanted some group pictures of the past years she taught. She stated, “I asked them on WhatsApp group, by the end of the day we had 6 to 7 pictures, from different years. So, yes technology has been helping us a lot in all teaching-learning process.” Azim had more to add to show strengthening bonds using mobile devices in and outside the classroom. He stated,

> Yes, but in my class, we all have developed a chat application that I administer, yes we developed our own chat application that I administer, and all of them participate, and this participation is for collaboration. They have any problem, they have any concern, they post on this, and we discuss. It is like a discussion portal, but an application, that they develop, I administer, and they work on it. Students also develop the application relevant to the university environment and relevant to other different environments.

One faculty, Lisa said that using mobile devices for instruction; there is peer collaboration. Students from other departments and colleges could see her students’ work and comment on it and students were motivated to do much better each time, as they were aware that their work was shared to a wider audience. Lisa reported, “They are tagging each other and comment on each other’s work., saying ‘Oh I am proud of your work’ and ‘come and visit our Uni’ comments like that.”

The theme-strengthening bond was not only with faculty and students but family as well. With the use of mobile devices, parents were able to track students works and

had a platform to comment on their children's work. Lisa expressed happiness over parents' involvement and stated, "one of the student parents started following me; it had her daughter's work that was posted. She praised her work." Azim felt that teaching with mobile devices has a significant influence on students' life. He expressed,

> Once I was sitting in my office, and one of my male student came in and said "Sir, my mom wants to talk to you. And I asked him, "Why your mom wants to talk to me?" Then his mom came in and said that she was very thankful for the course that I taught her son in the previous semester. She said that 'My Kid is mentioning you a lot at home, and I thought that I should talk to you and say thanks to you". His mom was not housewife. She is a working mother. She said that 'I am working in a good organization, because my kid was continuously mentioning you, I thought to personally say thanks to you for all you have done.

The theme of encouraging collaboration appeared 12 times across five interviews. Lisa and Nadia both said there is peer collaboration, and it keeps the conversation going. Lisa shared, "I have seen them discussing their work with not just their classmates but different students. Jean indicated "they're making notes or drawing mind maps or whatever then they can take a picture put it on what's the app and the whole class has it. Nabel feels that "if the app is kind off collaborative, then they do group work. Sam felt that his students are connected to the world outside. He expressed, "they would go online and ask somebody, someone from another part of the world; people would share ideas, so it gets them connected."

Five faculty members said the using mobile devices for classroom instruction

saves time. Hamad said it is convenient and useful, and “most of the time, I get very speedy answers from their smart phones.” Matt felt, “work that used to take ten days to complete; ten years back takes only a few minutes.” Nabeel said, “it's just more efficient it’s quicker, it gets the messages across more quickly.” Nadia said it adds extra element and “I am allowed to fit more time that I have with my students in class time.” Jean felt that in her classroom management classroom, using mobile devices helps her to sort out things quickly, and “it very much of a timesaver.”

Four participants said that there is more effective communication when they use mobile devices for instruction purpose. Sam reported that students know everything that is happening. Nadia uses blackboard for e-mails and communications, but she says, “What’s App communication is faster. The students find it easier to communicate with each other as a group.” Nabel uses hat’s app for communication as “it's just more efficient; it’s quicker it gets the messages across more quickly.” Hamad stated, “I get very speedy answers.”

The theme increasing student motivation appeared six times from two faculty members. Lisa and Hamad sad the students’ get motivated to do better in all class activities. Azim expressed, “One of my students developed an application for the nail saloon. One student developed an application for pets; one of them developed an application for the parking issue for Zayed University. These applications are of their interest.”

The theme promoting the university appeared three times across two interviews. Nadia said the people started to know about the programs through” through social media

outlets." Lisa also said, "we use it in a way to market and to promote the university."

The themes that are generated from my reflexivity and archival data for RQ1 as denoted in Table 5 and Table 6 respectively are (a) the university's vision regarding technology, (b) promoting the university, (c) use of technology, (d) improving pedagogical practices, (e) effective communication, (f) students enthusiasm and appreciation for faulty.

From my reflexivity notes, I have witnessed the latest technology infrastructure of both the federal and the private university. As I entered the federal university, the mobile application gives the guidelines and direction. When I entered the private university, I have seen large screens with videos that promote the university. From the archival data, both the university website provides the university's vision regarding technology. The annual report of the federal university shows that there was a major curriculum reform in the university that promoted mobile application development. The report provided evidence of how faculty members facilitated mobile application development in the classroom. The report also provided evidence of faculty helped students to develop a variety of smart mobile applications in the classroom. Below is what I had written in my reflexive journal after interviewing Hamad in his university office.

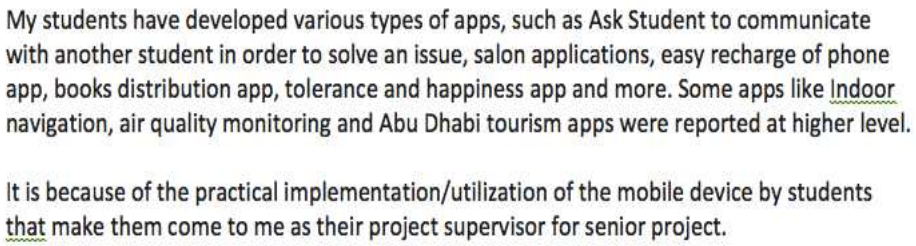
> Hamad showed me his special designed laptop cum iPad given by the university to use it for all teaching learning activities. He says he cannot think of going in the classroom without his laptop. His office doesn't contain any file or paper, as he believes in an environmentally friendly paperless classroom. He showed me Dr. Eusabio's research paper on mobile devices where he wrote, "If we cannot

> prevent it let us use it". I was touched by that sentence as my whole research is about using mobile devices in classroom. His eyes sparkled when he was discussing about his teaching learning activities using mobile devices. It looked like he enjoys teaching with mobile devices. He showed me his apple watch he is wearing on his left hand. He also showed me the university's app on his mobile phone.

Azim after the face-to-face interview in his university office showed me various mobile applications that were developed in the classroom by the students. Below is what I had written in my reflexive journal after interviewing Azim in his university office.

> Azim had shown me all the mobile devices he has. He has around four laptops, three android cell phones, one special laptop designed for the university professors, one apple phone and one iPad. He showed me various apps that his students have created, not just for university use but also for personal use, like beauty parlor app and University parking app. He showed me his evaluation file where students had rated him as an outstanding professor for technological innovation.

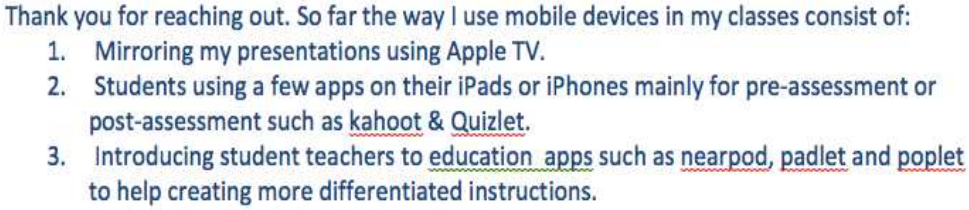
From the archival data's file, I have Azim's end of the class reflection that he shared with me. In his report he describes the various type of applications that his students developed. Below is the screenshot of Azim's report:


My students have developed various types of apps, such as Ask Student to communicate with another student in order to solve an issue, salon applications, easy recharge of phone app, books distribution app, tolerance and happiness app and more. Some apps like Indoor navigation, air quality monitoring and Abu Dhabi tourism apps were reported at higher level.

It is because of the practical implementation/utilization of the mobile device by students that make them come to me as their project supervisor for senior project.

Figure 1. Screenshot of Azim's report.

Lisa showed me her Instagram wall from her iPhone and how she posts all the class activities after completing the face-to-face interview. She had sent me a link of her Instagram page so that I can follow her and see all her class activities. Nadia has e-mailed me various types of mobile devices she uses in her classroom. "Students are using a few apps on their iPads or iPhones mainly for pre-assessment or post-assessment such as kahoot & Quizlet" (Nadia, Archival data). Below is the screenshot of Nadia's email.


Thank you for reaching out. So far the way I use mobile devices in my classes consist of:

1. Mirroring my presentations using Apple TV.
2. Students using a few apps on their iPads or iPhones mainly for pre-assessment or post-assessment such as kahoot & Quizlet.
3. Introducing student teachers to education apps such as nearpod, padlet and poplet to help creating more differentiated instructions.

Figure 2. Screenshot of Nadia's e-mail.

After completing the interview, Nadia had shown me her Instagram account on her mobile phone, where she posts her class activities as well as promotes the university. She also had sent me a link so that I can follow her Instagram account and access all her class activities.

Research Question 2

How does the integration of mobile devices in the classroom affect cultural assimilation in higher education when used as a teaching-learning tool?

Table 8 outlines the thematic framework in relation to the Research Question 3, developed as a result of the eight interview transcripts four with the private, and four with the federal university faculty.

Table 7

Codes Generated in Relation to Research Question 2

Code name	Interviewees	References
Culture and mobile technology	8	27
Cultural issues with using mobile technology	7	16
Considering links between culture and mobile technology	5	11

Theme 1: Culture and mobile technology (Subtheme: Considering links between culture and mobile technology, cultural issues with using mobile technology). The culture in the United Arab Emirates is different from western culture. Results from the data collected from the face-to-face interviews showed a link between culture and mobile technology integration in the classroom. Nabel felt there is a correlation between culture and mobile devices. He stated,

> I mean for sure there is some co-relation between culture and mobile devices but I just it's hard for me to say because I was coming from a western culture before and where you know everyone has a cell phone and has these mobile devices, for the school in context, it was kind of discouraged there.

Results showed that the United Arab Emirates is becoming more and more Internet cultured. Nadia stated, “If I look at the culture of UAE, it is racing towards technology.” Sam also has a similar view on culture and mobile technology. “The culture has changed, even the language. UAE is becoming more and more Internet cultured”. He further stated, “Some of the students cannot find the correct Arabic word so that they would replace it with an English word. They will open their mobile phone use Google translate to find some words.” This shows that mobile devices enhance and promote culture. Azim said that it connects the students, faculty, and the community. He stated, “One main aspect of UAE culture is boundless or connectivity.” He further said, “In this device, well initial version of the mobile phones and even with the smart phones. This device provides them with this connectivity.” Hamad described the culture at the federal university. He stated, “the culture here is all students and faculty have to bring laptops in the University,” Nadia described the culture at the private university. She stated, “I see the culture here in UAE is pushing too hard for the use of technology in the classroom, while we (faculty) need to be careful about the use of technology and always think about the objective of using it.”

Some faculty members said that at the start of the year they are given guidance and instructions of the cultural norms, and they follow it throughout. As Azim stated, “Well, personally I have not felt any issue. The reason is that at the start of the academic year there was an orientation, everything was explicitly explained.” Jean expressed the same view. She stated,

We talk to our students right at the beginning of class. I mean it's in our, it's in

> every single one of our syllabi that "We are a community of learning. We learn at an open and safe space, and that if there is an issue, well respectful of each other but we also want to come from a place where everyone can say what they want to say or need to say and that maybe offense may not be taken that people are open and honest" and so in doing, we worked very hard to create that safe space in our classrooms.

Lisa said that she is familiar with the culture and so knows what content to teach or not to teach using mobile devices. She stated,

> You know in America, it would probably be different to what we here in the United Arab Emirates would stand for. We have to respect our religion as well and where we come from. There is also religious diversity, but also we have to monitor like the projects we give out it shouldn't be anything that has alcohol in it. Or something that promotes Islam or Christianity or something. We don't tend to go there in those areas. So for instance if one of the students wanted to say, to have a project about, like, to raise awareness against 'drink driving' they would say "guys don't drink and drive because there's can be an accident" so he is raising an awareness, but he is not focusing on like a brand that you should go for. He is just saying to be careful. So there was one sample that I posted their work. You saw that on my mobile. That's an example, but we don't tend to publish anything that has nudity concepts or things that tackle religion or political views, and we tend to avoid that.

Jean expressed the same views, "cultural norms don't really affect my choice of mobile

learning activity." She said that they teach students with an open and safe space, well respectful of each other and states, "Prevailing cultural norms as far as pictures and like conservative values, we don't really get here." Faculty here understands the culture well, and they know how to go about with the lessons with hurting others' sentiments or culture or religion. As Jean further stated,

> Sometimes they'll affect …I mean they don't really affect the assignments that I do. I am sensitive to the fact that they're certain books or topics that are more sensitive and so on sort of a very general level, I am aware of that and but that really, in the end, does not affect the mobile learning activities. It's more of thematic which themes do I chose to bring into the class and which ones I emphasize and which ones I don't.

Azim said, "I am almost of the same culture. I did not face any issue," and Matt also did not have any issue although he comes from a different cultural background, he stated, "We don't have any issues."

Two faculties reported issues while using mobile devices in the classroom. But they are not sure if that is a cultural issue. Nadia felt age as a part of the culture, and it does affect the use of mobile technology in the classroom. She expressed, "I don't know if you consider age as a part of the culture. The background of the teachers and the way they were taught would affect the comfortability with mobile technology. We are technology immigrants."

Nabel said that he is not sure if there are cultural issues while using mobile technology in the classroom, and he stated,

> It's hard for me to say if culturally there are any barriers just because of what I've noticed so far is it's kind of accepted pretty well. it could be that its not in other places so again it's hard for me to say …..It happened one time where we were using sea saw app on our mobile phones. I was showing them how to use seesaw as a tool. I showed them different things. I showed them how students can take pictures and upload the pictures. So as an activity to show them this tool, I told them, ok take a selfie and write 6 descriptive words about yourself. All students did it, except one. One of the students did not want to take picture of her, so she took the picture of the celling and she never wanted to take a selfie, and I respected that.

Hamad felt there are cultural issues while using mobile technology in the classroom. Most faculties have a mindset that mobile phones are a source of distraction and should not be used in the classroom, and he felt that 'getting distracted with mobile phones' is a cultural issue. He said he was teaching in other countries, and Hamad never experienced the issues in other countries. He reported,

> Very few lecturers (faculty) are trying to adopt mobile phones in teaching and learning. I can see this, while I was chatting and discussing this with other colleagues (faculty), not all faculties' permits the students to use it in the classroom, for various reasons. Most of our expression are 'just hide it", "don't let me see it ". Before I used to do this to be honest. Then I started thinking, since it is there, and cannot prevent it, lets use it. So I think this is a cultural issue, that whenever we see the student using their cellular phone, we think that it means for

> their personal use. As I said before, when I saw the student with their cellular phone, I taught she was using for her personal use but she was taking notes.

Hamad reported several cultural issues while using mobile phones in teaching learning activities. He felt that taking the calls inside the classroom while the class is going on and that too hiding their mouth is a cultural issue, as he never experienced it in any other country. He stated,

> Another thing actually, which I notice as a cultural issue, here in UAE, and I wasn't experiencing this in New Zealand and in Jordan that students here sometimes tend to take the calls inside the classroom, Just by hiding their faces, or hiding their mouth, as if I am not seeing them, they are in front of me, I can see them clearly, they are taking the calls and talking slowly. This is very strange; I am experiencing this in UAE.

Hamad said that students use mobile devices for assessments and "cheating may be an issue, relating to culture, using the mobile device." He said that it is difficult to hold a paper and cheat but can easily use mobile phones and go through the slides and resources and cheat, and it is difficult to catch them because of the culture. He stated,

> This is becoming a real issue when it comes to girls because as a man, I can't ask the girls to unveil her dress or something and show where she is hiding her mobile. If I come across one, I would tell the female proctor to see her and talk to her. Other it is a gender issue problem, which is very sensitive.

Hamad further reported taking pictures of the class activities for the educational purpose could be a cultural issue when it comes to girls' class, and this problem does not

arise while teaching boys classes. He stated,

> Most of the time I can't take pictures when it comes to female students. Otherwise I need to seek approval of all of them. In many cases they would not give approval. They don't want to be on the photo although for me it is very useful for me to report the class activities, especially for training course, training sessions or see them how they are in classroom. This issue is for females, but for male classrooms, they don't care.

My reflexivity notes affirm the environment of the university as *Internet culture* and students are digital natives as described by Nadia. The day I interviewed Matt, in my reflective notes, I wrote,

> I had to walk through the female campus to go to Matt's office. As I entered the female quadrangle, I saw all female students with their Arabic dress, wearing *Abaya* (long elegant cloak) and *Shayla* (a long scarf wrapped around the head and pinned under chin). Almost all students had mobile phones in heir hands. Some students were moving with mac book.

From the archival data collected from the university website, it says, "university has a dress code in respect for the culture of the U.A.E." It also confirms that university has open doors to mobile applications to "provide enhanced mobility and flexibility to students and academic staff and will enable them to gain instant access to their courses and content on their handheld devices" (university website). The annual report showed how the university promotes Arabic culture using mobile devices. One such application

is the vocabulary app, used by university students. Below is the clip taken from the University annual report 2017-2018.

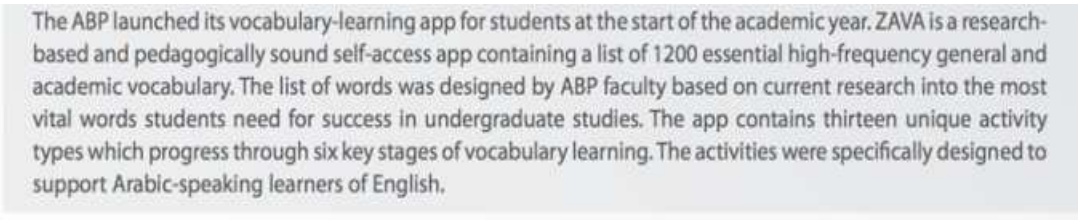

The ABP launched its vocabulary-learning app for students at the start of the academic year. ZAVA is a research-based and pedagogically sound self-access app containing a list of 1200 essential high-frequency general and academic vocabulary. The list of words was designed by ABP faculty based on current research into the most vital words students need for success in undergraduate studies. The app contains thirteen unique activity types which progress through six key stages of vocabulary learning. The activities were specifically designed to support Arabic-speaking learners of English.

Figure 3. University annual report clip.

The day I took the interview with Lisa, I wrote in my reflective notes, "I saw various photographs displayed on the wall in Lisa's office, which shows students work of Arabic culture." As Nadia said, "in UAE culture is racing towards technology," and Sam expresses the same views "culture is changing, it is racing towards technology" (Sam). I experienced the same opinions as I entered the private university and was recorded in my reflective journal notes. It stated, "As I entered the university to go to Lisa's office, I saw students in groups in the corridor sitting area with laptops and discussing and completing some work."

Archival data collected showed various pictures where female students use multiple mobile devices in the classroom. The university's Instagram page shows multiple photographs and videos of various apps created by students to promote Arabic culture in the region. Archival data report showed one particular mobile application called Boum App, developed by the federal university students to promote Arabic culture. Below is the clipping was taken from the federal university website, where the students who developed it gives details of the mobile application.

> Boum' is a mobile application based on user content that will allow people to experience the U.A.E from local users. Being Emirati is an important aspect of Boum. "We wanted to do something different, like no other, even though a lot of mobile applications exist, ours is different because it is created by two Emirati females and also our main goal is to have Boum as the top mobile application for the U.A.E".

Archival data also displayed some pictures display female students' collaboration inside the classroom using mobile devices, and this was as also reported by Azim saying that "One main aspect of UAE culture is boundless or connectivity." Archival data collected also showed Lisa's class work posted on her class Instagram page besides multicultural concepts; it displayed some of the flyers, images, and ideas that promote Arabic culture. Below is picture taken from Lisa's office wall.

Figure 4. Picture of student's work-from Lisa's office wall.

Azim showed me pictures of various applications created by students. One such app was Happiness App and Abu Dhabi Tourism app developed by the students. Both apps promote Arabic culture. After recording the interview, in my researcher's reflexive

notes, I wrote about the applications Azim showed me on his mobile. Below is the screenshot of my reflexive notes.

> Azim showed me the pictures of various applications created by students. One such app was "Happiness App" and 'Abu Dhabi Tourism app" developed by the students. Both apps promote Arabic culture.

Figure 5. Reflexive notes.

Azim also mentioned the mobile applications in his class reflective notes that he shared. Below is the screenshot of the file. The applications are highlighted in yellow.

> My students have developed various types of apps, such as Ask Student to communicate with another student in order to solve an issue, salon applications, easy recharge of phone app, books distribution app, tolerance and happiness app and more. Some apps like Indoor navigation, air quality monitoring and Abu Dhabi tourism apps were reported at higher level.

Figure 6. File screen shot.

Considering the link between culture and mobile technology, from the interview data, archival data, and researcher's reflexive notes, overall, it showed that is a link between mobile technology and culture. Some of the participants gave some good examples. Some participants talked about mobile applications that promote Arabic culture. Someone talked, for example, about girls being photographed, and someone said that even if they suspect a girl is cheating in the exam, he is not allowed to tell her to reveal whether she has a phone underneath. Some minor cultural issues were reported, but overall mobile technology promotes Arabic culture and culture is racing towards mobile technology.

Research Question 3

What are the perceptions of UAE faculty members in higher education about the challenges related to the integration of mobile devices as an instructional resource?

Table 8 shows the thematic framework in relation to the Research Question 3, developed as a result of the eight interview transcripts, four with the private, and four with the federal university faculty.

Table 8

Codes Generated in Relation to Research Question 3

Code name	Interviewees	References
Challenges	8	70
Distraction	6	19
Technical difficulties	4	7
Lack of support from the university	3	4
Not knowing how to integrate mobile devices into teaching	3	6
Mobile technology encouraging cheating	3	4
Teachers' difficulties in using mobile devices	2	6
Privacy challenges	3	3
Students' difficulties in using mobile technology	1	2
Limited knowledge of teaching with mobile devices	2	4
Turning challenges into advantages	3	11
Professional development	3	6
The lack of professional development or guidelines for mobile technology teaching	4	7
Support for students on how to use mobile devices	2	4

Theme 1: Challenges (Subtheme: Distraction, technical difficulties, lack of support from the university, not knowing how to integrate mobile devices into teaching, mobile technology encouraging cheating, faculty's' difficulties in using mobile devices, privacy challenges, students' difficulties in using mobile technology, limited knowledge of teaching with mobile devices). The faculty was also aware of specific challenges related to integrating mobile devices into classrooms (coded 70 times across eight interviews). The most commonly mentioned challenge was that these devices could be the source of distraction (coded 19 times across six interviews). Although the faculty' "know that you can do a lot of activities in the classroom using mobile phones" (Matt), "for that, you need to have trust in the students" (Matt). Matt, for example, influenced by negative experiences with letting the students use their mobile phones in the classroom, eventually decided to restrict the use of this device in his classes, concluding, "for me, the use of mobile phones in the classroom is dead."

> One day I walked very slowly, and I saw the student playing the game. So, I decided that I am not going to use a mobile phone at all. *For me, the use of mobile phones in the classroom is dead*. For me, mobile phones are a source of distraction for students. So, I don't want to waste my time and other students' time and get distractions in classrooms. (Matt)

Five other faculty also raised concerns about the negative influence of mobile phones. Noting, for example, that when the students are "left on their own, they could be divergent to social media" (Sam) and that "unfortunately, most of the time, cellular phones, smartphones, etc. are used in the classroom for texting, WhatsApp, Snap Chat

and a lot of social media" (Hamad). Mobile phones may not only distract the students who are using them but may also "break the links between the faculty and the students" (Hamad) and interrupt the whole "class environment" (Azim). He expressed,

> It is interrupting the class environment. This device is also interrupting in the educational process. During class time, some students will forget to turn it into silent mode, it will disturb the class. It is also possible that sometimes the students will forget their phones in the previous class, so they come again to collect it, and it disturbs the class, it is a minute and rare occasion, but if it happens, it disturbs the class. These are the negative aspects of the device sometimes we face because of this.

When unskillfully handled, the use of mobile phones in the classroom can be "a nightmare" (Hamad). The faculty also raised concerns about mobile technology encouraging cheating (coded four times across three interviews), noting that "technology can be very dangerous - plagiarism, cheating, copying" (Nadia) and "some students use the mobile device for cheating" (Hamad).

Another challenge, in the faculty's' view, is over-relying on mobile technology (coded seven times across four interviews). Jean raised concerns, for example, about "this idea of 'bigger is better, newer is better, and more technology is better.'" As a result, she explained, "there's this underlying norm that says there needs to be technology in the classroom and, you know, the more you have, the better," with which she does not agree. Nadia also noted that "the problem I see in a lot of classrooms is that they force the use of technology," and believed that "sometimes doing things manually would be more

effective." Nabel, on the other hand, raised concerns about the fact that "when you're completely dependent on [mobile technology] yeah there could definitely be [technical] problems that pop up and once in a while has happened."

This links to the importance of meaningful use of mobile technology (coded 15 times across five interviews) that several faculty discussed. Jean, for example, argued that "using technology and mobile devices for the sake of using mobile devices is not a good enough reason," and explained that "I always try to make sure that I am driving the use of technology and the use of technology is not driving me." The use of mobile devices "needs to be meaningful," she further explained, and it "needs to transform the classroom and add something to the classroom." Nabel and Hamad also believe that faculty needs to be critical about the use of mobile devices, and both advantages and disadvantages need to be considered,

> Mobile devices they should always be looked at as tools, but also you need to look at them critically because you know you do gain things, you do gain efficiency, you do gain productivity in some way. But whenever you use these tools, there are things you could potentially lose in…. I think it depends on the subject, it depends on students, and it depends on faculty and a number of different factors. That is what I mean by engaging with technology critically; you need to ask these questions before you implement these tools because you know some forms of technology can be advantaging some and disadvantaging others. So, you need to engage with these questions. (Nabel)

> I think we come to the point that we need to understand this in our classrooms, as well as we also need to make sure that students are using it for learning, not for personal purposes. So maybe we need to ask questions and make sure that they are using, and we control these mobile devices. (Hamad)

The technical difficulties that Naved mentioned when discussing the issue of over-relying on mobile technology are, in fact, another challenge related to integrating mobile devices into classroom teaching (coded seven times across four interviews), and the faculty provided examples of WI-FI not working correctly, iPads breaking down, and problems related to operating systems incompatibility with the software and hardware being used. Nadia stated, "The WI-FI is not so strong, or some of the devices, you will not be able to log it. So, you waste so much time in doing something that is not that important."

These technical difficulties pose a problem in light of the lack of support from the university (coded four times across three interviews) that the faculty believed to be another challenge. The faculty raised concerns about not receiving support, in the case of the aforementioned technical problems, as well as about the university failing to pay for the license to the software the faculty were expected to use.

Another challenge faced by the faculty is not knowing how to integrate mobile devices into teaching (coded six times across three interviews). Nadia, for example, although being aware that smart boards can be a useful resource, does not know how to use this resource effectively. "I am sure it is a great resource, and I would love to be able to use it so that I can teach my student teachers, as all of them have a smart board in their

schools and I don't know how to use them very well" (Nadia).

Jean also finds the use of smart boards challenging. Although she knows how to use them in general, she does not know how to do it in a meaningful way. She wants "this to be a transformative experience, and I have yet to figure out how to do it." This issue links, to some extent, to faculty's' difficulties in using mobile technology in general (coded six times across two interviews). Nadia believed that "the main issue nowadays is that mobile devices are there, but [the faculty] do not know how to use it", and Jean raised concerns that the faculty are "very skeptical of just sort of going in and doing it and are just overwhelmed with 100 other things that they need to be doing." Personally, Jean found the use of Blackboard to be "too difficult." When discussing the issues related to integrating mobile devices into teaching, Nabel was the only one to mention students' difficulties in using mobile devices, explaining that the students he is teaching "tend to be older, they're older than the millennials" and that "they may not be as accustomed to using mobile devices so they may not be as tech-savvy." This issue was not mentioned by any faculty; however, and in fact, when discussing support for students on how to use technology (coded twice across two interviews), Matt explained "there is student support, if the student wants to know something more, we give training to them and it is completely free for them." Hamad, on the other hand, believes that students need to be given more support in understanding how to use mobile devices wisely and in a way that would enhance their learning, rather than hinder it,

> We faculty, need to increase their level of awareness by letting them know that these smart phone devices, are to be used to enhance their learning objectives and

> not vice versa. They are not here to interrupt you. I wish if we increase our students' awareness regarding the use of mobile technology, smart devices of using for learning in a smart and efficient manner so that they focus on their learning objectives in the classroom. And their awareness increases and don't use mobile for texting, don't watch movies in classrooms rather than they use mobile devices for educational purpose.

Finally, three faculty discussed privacy challenges (coded thrice across three interviews). Matt explained that "students are not knowledgeable regarding how to protect from external attacks," and Azim is concerned that the students take pictures with their phones and saving them in the database, "but the database is on the cloud" which can be easily "compromised." Naved also felt that his private life is sometimes disturbed. He stated,

> I could be getting messages at like around 11pm. you know and typically with the what's app message I tend to respond right away because I don't want to drop it or leave it out. So it requires you to be plugged in all the time and you're always accessible, which it's good but it has its drawbacks as well.

Theme 2: Limited knowledge of teaching with technology. When analyzing the faculty's accounts of benefits and challenges, two abstract, interpretive themes were created in addition to the themes, which directly corresponded to what the faculty explicitly stated. These were limited knowledge of teaching with technology (coded four times across two interviews) and turning challenges into advantages (coded 11 times across three interviews). Limited knowledge of teaching with technology was something

that seemed to emerge from 2 faculty's accounts, although they did not refer to it as such. One of the faculty, Lisa, questioned the effectiveness of the use of a social media platform Instagram in her teaching. "If you are doing something about languages, for example, Spanish. So, creating an Instagram page, as the Instagram page is a visual, I am not sure if it would be useful. What are you going to post? Grammar?"

> It could be argued, however, that social media platforms can, in fact, be used in any subject teaching, if the faculty knows how to do this skillfully. The other faculty, Matt, when asked about specific ways of integrating mobile technology into teaching, gave an account of various benefits of using his laptop for work, without providing any particular examples of incorporating it into classroom activities. This seemed to indicate that he was not aware of possible ways of doing this.

Theme 3: Turning challenges into advantages. The other interpretive theme, turning challenges into advantages, referred to some faculty's ability to use what may seem to be a challenging aspect of using mobile technology to facilitate learning. Azim, for example, when discussing the previously mentioned topic of privacy challenges, explained how he used these challenges to teach students about the security and to make his class more interactive and engaging.

> There are also other aspects that are used by this device, which help me in my course. Mobile technology is evolving at a very fast pace. There were lots of concerns, lots of problems, lots of questions, lots of security and privacy risks, which is related to my private security course and related to this course, both my

> courses. For instance, you have some applications like the Facebook messenger application that has the capacity to access your contact list, pictures, and your videos even if your device is in sleep mode. Some of these are security concerns when students are using it and working on the device. For my security course, for them, my security awareness is that … you know the application and you are accepting the terms and conditions, what they are asking for and what you are agreeing too. So, that gives them awareness, ok the device we are using there is a security threat, right in our hand and we are accepting this security threat we should and need to have awareness. These devices also help me to give them practical examples of what problems they might be facing.

Both Hamad and Sam held the view that "if you cannot ban mobile devices inside the classroom, if you cannot prevent it from getting inside the classroom, then use it" Hamad, and suggested that more focus is needed on how to utilize these devices to facilitate the students' learning effectively.

> So, if it is already there, let's use it. I think our students keep holding them, keep using them; they keep putting them on the desk. So, every time I can't just tell them to keep off. And sometimes it is not for personal use. So, let's just turn them around and use them to engage the students in the learning process, rather than to chase them. So, lets at least try to adapt these mobile devices to the maximum extent we can. (Hamad)

> How could we convert this to advantage is a question. The challenge is to get them focused on those mobile devices for a particular reason like studying, rather

> than just social interaction. And to get them to use it responsibly for a particular class or a specific topic that they want to study. I have seen students who are interested in mobile devices because they want to build the game on it, which is a good thing. If we could direct them, cultivate in them the interest to develop games and peruse technology where they could build those games, which is a good thing. We are not getting it out of the classroom; it is inside the classroom, so how do we get maximum utilization of that technology in the classroom. This is yet to be discovered or researched on. (Sam)

Matt said that it is a challenge while using mobile phones, as it is challenging to use a small screen and read or write stuff. He said that to overcome the problem, he uses a big screen of the laptop. As Matt teaches security course, as an expert in the field, he discusses various threats that mobile phones could have. So according to Matt, the best solution is to use laptops instead of small screen mobile phones. He stated,

> I hardly use the iPad or the tablet because typing with small devices is a big hassle. So mobile I don't use much as I am not happy with the security of the Android, and I have Android. Laptop has three layers of security, so I am more comfortable in using a laptop. It has operating system security; it has host security and schematic security. It also has firewall. These securities are lacking in other mobile devices. So, I prefer using my laptop.

Theme 4: Professional development. The challenges listed above may raise questions about the amount of professional development and support that the faculty receive regarding the integration of mobile devices into classroom instruction. Here, the

opinions varied, with some faculty stating that they do receive *professional development* opportunities (coded six times across three interviews) and some raising concerns about *the lack of professional development or guidelines for mobile technology teaching* (coded seven times across four interviews). Those who seemed satisfied with the support they receive explained,

> Here at the university, we have teams that provide periodic training using mobile technology, and they even certify you. There are several courses that you can attend, especially there are people who are actually researching mobile education also. So that's happening. So, the college promotes it. (Sam)
>
> We have professional development courses every semester, for example, using technology in the classroom, we have conferences. For example, last year, the university had sent me to Singapore for a conference on how to use mobile technology in the class. All technology… How to use Blackboard, laptops, mobile phones, and sub-technology, which is inherent in online learning. So, they spend heavily on faculty's professional development. (Matt)

"We are given professional development at the very beginning of the year, we are offered to ask questions and just to see how we can use it more effectively with our students'" (Nadia).

Theme 5: The lack of professional development or guidelines for technology teaching. Four faculty, however, raised concerns about the insufficient amount of support in this regard, noting that "you have to learn yourself; no one will teach you" (Lisa). Nadia, who at one point stated that there are professional development opportunities at

the university, at another point raised concerns that “they don’t fund training, and that is the problem. You fund the devices, but you don’t fund training, so it is such a waste of money.”

The archival data collected from the annual report affirmed the professional development for faculty members. Out of the 26 presentations, reported, one conference was on mobile technology to enhance innovative classroom teaching. Matt had shared with me the professional development report that he attended in another country. Below is the screenshot of the report. The blue highlight shows how Matt enhanced his teaching learning activities after he gained professional development in using mobile devices.

The conference demonstrated appropriate educational technologies that I can use in the classroom. During the Fall semester, I used ‘Basecamp’ for one group of CIT 499 students and got quite encouraging results. I attach a screenshot below from Basecamp. Based on the results from the conference, I intend to use try ‘G-suite’ as this might have better functionality. Moreover, the conference also presented ideas to improve learning retention by students.

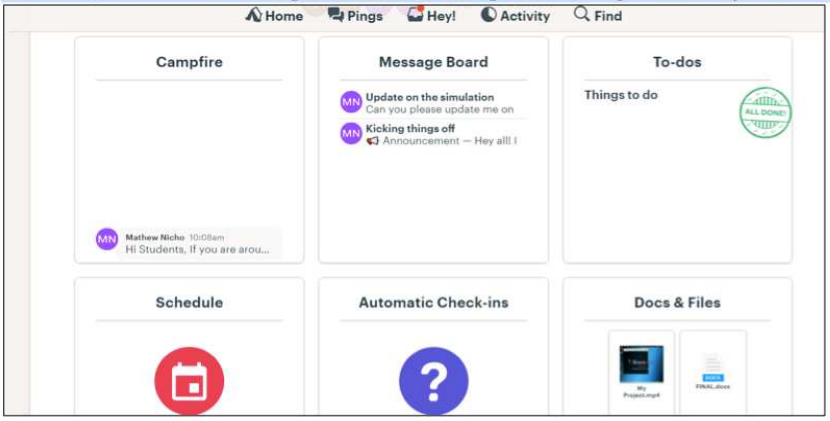


Figure 6. Matt’s conference report screenshot.

Archival data extracted from the university’s Instagram account showed Hamad (participating faculty), Attending a conference on i-scope (mobile technology). From the archival data file, Lisa mentioned how she and her students face technical difficulty when they use mobile devices. She says identifying the keyboard shortcuts and software

functions on mobile devices and requires assistance from the IT department, delaying the classwork. Below is the screenshot of the reflection by Lisa.

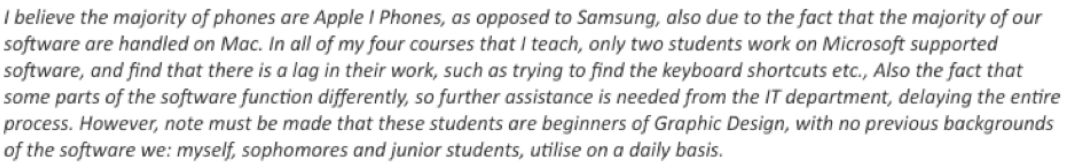

I believe the majority of phones are Apple I Phones, as opposed to Samsung, also due to the fact that the majority of our software are handled on Mac. In all of my four courses that I teach, only two students work on Microsoft supported software, and find that there is a lag in their work, such as trying to find the keyboard shortcuts etc., Also the fact that some parts of the software function differently, so further assistance is needed from the IT department, delaying the entire process. However, note must be made that these students are beginners of Graphic Design, with no previous backgrounds of the software we: myself, sophomores and junior students, utilise on a daily basis.

Figure 7. Screen shot of Lisa's end of the semester reflection.

The day I interviewed Jean, I wrote in my reflective journal. It affirms that the faculty gets professional development but lacks some guidelines according to Jean; all skills cannot be learned at one time. It stated,

> She took a deep breath when she was talking about professional development. She says learning new technology is a continuous process and hiring technology professional for a day and teaching the faculty how to use mobile technology is a waste as it is impossible to assimilate new apps in a day.

My reflective journal notes also affirm the privacy challenges that students and faculty. After recording the interview of Azim, I wrote in my reflective journal. It stated,

> He said that he not just teaches the course but also make students aware of the network security threats. He explained how on various occasions, he told the students not take personal pictures, as it is stored on university cloud and can be easily accessible. I also have learned a lot as I was taking the interview. He gave me hints and tips on how to be safe when using Wi-Fi and when Accepting terms and conditions of various apps and software's, especially of the third party.

My reflective journal notes also affirm distraction while using mobile phones in the classroom. After recording Matt's interview, I wrote in my reflective journal. It stated,

> Matt said that he and his students use the only laptop in the classroom. He showed me his mobile phone and said that he uses it for demonstration for his security course and then he kept it on the table with a big bang and said "Mobile phones are dead in my class; students are not allowed to use it.

Video clipping from the university's Instagram page displays typical girls' classroom, faculty-giving instructions while some students are playing with their laptops. This affirms that some mobile devices are sources of distraction in the classroom.

From the interview data, my reflective file, and archival data, I affirmed that faculty experienced distractions, privacy challenges, and technical difficulties while using mobile devices in the classroom. It also affirmed that faculty had professional development on mobile devices to enhance teaching-learning activities.

Summary

This qualitative case study was designed to explore faculty perceptions of using the mobile device as an instructional aid in a higher educational institution in the United Arab Emirates. Data were collected through face-to-face interviews of eight faculty participants from two universities. The results were triangulated using interview data, my reflexivity and archival data. Below is the summary of the findings in relation to the three research questions.

Summary of Research Question 1

The themes include (a) the university's vision regarding mobile technology, (b) the use of mobile technology, and (c) benefits. Both the universities encouraged the faculty members to use mobile devices in their teaching-learning activities as they are aiming to be the leaders in the field. Some regulations and restriction were reported at an individual faculty level as well as school level. Faculty disclosed the various types of activities to enhance the pedagogical practices and to promote the university in general. The faculty uses different communicators to communicate with the students. Some faculty indicated that most exams are taken online. Faculty reported that students' motivation increases when social media is used to present their work not just to their peers but also to a wider audience. The use of social media not only strengthened bonds with faculty and students but students' family as well. With the use of mobile devices, parents were able to track students works and had a platform to comment on their children's work. Some faculty manifested that using various mobile applications for formative assessments, surveys, feedback, and group work, which makes the class proactive, enhances students' collaboration, and increases students' interest in the course. Overall faculty reported Increasing engagement, strengthening bonds, encouraging collaboration, improving pedagogical practices in general, saving time, more effective communication, increasing student motivation, students' enthusiasm and appreciation for faulty, and promoting the university while using mobile devices for instructional purpose.

Summary of Research Question 2

One theme emerged from this research that answered Research Question 2. The results showed a link between culture and mobile technology integration in the classroom. Faculty reported that UAE is becoming more and more Internet cultured and is racing towards mobile technology. Results indicated that one of the main aspects of UAE culture is boundless or connectivity. The UAE is pushing too hard for the use of technology in the classroom. Faculty reported that mobile technology had changed even the use of Arabic language among students. Some words of the Arabic language are replaced by English words. Faculty revealed that the students had developed various mobile applications enhances and promotes the culture of the UAE. Faculty reported that they are given guidance and instructions of the cultural norms, at the beginning of the academic year, and they are familiar with the culture and so knows what content to teach or not to teach using mobile devices. Although faculty indicated that cultural norms are explicitly explained, some minor cultural issues were reported while using mobile technology in the classroom.

Summary of Research Question 3

The five themes addressed the Research Question 3. There were various challenges reported such as distraction, cheating, technical difficulties, and faculty's difficulties in teaching with mobile technology. Faculty said that the most commonly mentioned challenge was that these devices could be the source of distraction. Some faculty raised concern faculty also raised concerns about mobile technology encouraging cheating. There were various challenges reported such as distraction, cheating, and

faculty's difficulties in teaching with mobile technology. Some faculty reported technical difficulties, examples of WI-FI not working correctly, iPads breaking down, and problems related to operating systems incompatibility with the software and hardware being used. Faculty also acknowledged not knowing how to integrate mobile devices into teaching. Faculty indicated that they need understand to assess kind of mobile technology; whether or not mobile technology is bringing substitute change or transformative change. The challenges were addressed to some extent with the faculty's professional development in using mobile devices to enhance pedagogical practices.

In Chapter 5, I will incorporate the results in relation to the research questions and the literature review, as well as the conceptual framework for this study. Chapter 5 will also contain limitations and recommendations for future research. Finally, I will conclude Chapter 5 with implication for social change.

Chapter 5: Discussion, Conclusion, and Recommendations

Introduction

The purpose of this qualitative, case study was to explore faculty perceptions of using the mobile device as an instructional aid in a higher educational institution in the UAE. The participants were drawn from two universities in the UAE. Four participants were from a private higher educational institution, while the other four members were from a federal institution. In this qualitative case study, I incorporated face-to-face interviews and supported these interviews with triangulation that included archival data and researcher's reflexivity to determine the experiences and perceptions of the faculty members in using mobile devices for pedagogical practices.

I found that both universities used technology, and they encouraged faculty to use mobile technology in all pedagogical practices. I discovered that all faculty and students were equipped with the latest mobile devices. The faculty recognized several benefits in integrating mobile devices into teaching and learning for both faculty and students. Overall, the faculty used social media to communicate with the students and showcase the students' work. I found a link between culture and mobile technology; I found that mobile technology promotes UAE culture as faculty facilitated the developed various mobile applications that enriched the culture of the UAE. The participants were aware of the challenges related to integrating mobile devices into classrooms like distractions, privacy challenges, and technical difficulties. I found that professional development was delivered to faculty members through the use mobile devices. Six faculty revealed that

the university spends money on mobile technology training, and two faculty members raised concerns about insufficient support from the university.

In Chapter 5, I will include the interpretation of my finding in relation to the conceptual framework, and I will compare the results of my study with the previous literature on the topic. I will relate the limitations of the study and outline a recommendation for further research. I will also discuss the implications for social change and provide a conclusion for the study.

Interpretation of the Findings

Before conducting this study, I extracted the literature relevant to my study. In this section, I interpret the key findings of the study and compare them to the peer-reviewed literature published in recent years. In Chapter 2, I described the ecological theory of Zhao and Frank (2003) to represent the use of mobile devices in education. In this chapter, I compare the results of the study with the theoretical framework. I present how the findings broadened, validated, or contradicted significant areas of the literature review. The major highlights include the university's vision regarding mobile technology; individual faculty' rules; the use of mobile technology in the classroom; benefits, challenges, and links between culture and mobile technology; and professional development.

The conclusion of the findings served to answer the following research questions:

RQ1: How do faculty members in UAE integrate mobile devices into teaching?

RQ 2: How does the integration of mobile devices in the classroom affect cultural assimilation in higher education when used as a teaching-learning tool?

RQ 3: What are the perceptions of UAE faculty members in higher education about the challenges related to the integration of mobile devices as an instructional resource?

Interpretations of Findings Related to Research Question 1

The findings related to Research Question 1 generated three themes that emerged from the data collected: (a) the university's vision regarding mobile technology, (b) the use of mobile technology, and (c) benefits. Both of the universities fostered the use of mobile devices for pedagogical practices and to promote the university in general. Faculty reported that mobile devices were used as platforms for creating projects such as mobile applications and graphic designs that enhanced students' creativity. Some regulations and restriction were revealed at an individual faculty level as well as school level. The faculty reported that social media served as hubs for students' collaboration and communication. I also revealed that students' motivation increased when social media was used to showcase their work to a broader audience. Overall faculty reported increasing student motivation, student's zeal and appreciation for faculty, increasing engagement, strengthening bonds, encouraging collaboration, saving time, providing more effective communication, and promoting the university while using mobile devices for pedagogical practices. The interpretations of the findings are related to the literature review below.

The University's Vision Regarding Mobile Technology

With respect to Research Question 1, all faculty reported that both universities gave precedence to the use of mobile technology and strove to become leaders in the field. This supports the UAE's Vision 2021 National Agenda to provide all universities and schools with latest technological tools and mobile technologies (Ewen, 2015), revitalizing curriculum and pedagogy (Murshidi, 2017) and improving teaching and learning using mobile devices (Briz-Ponce et al., 2016; Gitsaki et al., 2013). Although both universities in the current study encouraged faculty to use mobile devices for classroom use, few faculty used mobile devices in teaching and learning. These results aligned with Leem and Sung (2018), who investigated factors influencing faculty beliefs of using mobile devices and found that many faculty members do not integrate mobile devices in instruction.

From the study, mobile devices were used in both universities in every aspect of teaching and learning. I found that "every classroom is well equipped with an infrastructure that any mobile device can connect, whether it is the laptop or mobile or an iPad "(Matt). These study findings confirmed the previous research findings that higher education classrooms in the UAE are designed to support wireless technology to provide opportunities for faculty to transform teaching and learning processes (Al-Emran, 2014; Garrison, 2011; Gitsaki et al., 2013; Grant et al., 2015).

The Use of Mobile Technology

The participants reported the uses of mobile devices in the classroom for improving pedagogical practices. The faculty provided examples of class activities to

integrate mobile devices into teaching and learning, such as assessments, students feedback, online forums, use of various mobile applications for group activities, video editing, student collaboration, research quizzes, decision making, and hands-on activities. These findings are also supported in the literature. For example, Mehdipour and Zerehkafi (2013) reported conducting assessments using mobile devices. Researchers (Al-Emran et al., 2016; Barnes et al., 2010; Santos, 2013) reported online polling forums, blogs, and other digital apps, and Baran (2014) reported student collaboration. Mehdipour and Zerehkafi (2013) reported the use of mobile applications for recording, assessments, researching, and using online electronic books.

Benefits

The participants reported the use of social media for collaboration and increasing engagement, communication using mobile devices, and promoting the university in general. Kukulska-Hulme et al. (2011) reported similar benefits of using mobile devices, including spontaneous communication, flexibility, speed, fun, and intellectual stimulation. Looi et al. (2014) used flipped classrooms to capture real-time information and enhance students' collaboration in all class activities. Ekanayake and Wishart (2015) showed that mobile technology facilitated innovated teaching, while Baran (2014) reported enhanced student collaboration during class activities.

Interpretations of Findings Related to Research Question 2

In the findings related to Research Question 2, I found that there was a link between culture and mobile technology. I found that the UAE is becoming more Internet cultured. Mobile technology in the UAE has transformed education and the way people

work and interact, creating a technology savvy society. Faculty reported boundless connectivity as the culture in UAE is pushing hard for the use of mobile technology in the classroom. Faculty revealed that the students had developed various mobile applications to promote the culture of the UAE. The mobile applications that students created as projects exposed the rich Emirati culture to the students and faculty. Although faculty revealed that they were familiar with the culture, some minor cultural issues were reported. I found that the use of mobile devices in the classroom promoted Arabic culture. The interpretations of the finding are connected to the literature review below.

Culture and Mobile Technology

According to Tamin (2012), understanding the culture, challenges, and ethical aspect within a conservative society, such as the UAE is vital while using mobile technology for teaching. Federal universities in UAE have all Emirati students, while private universities have diverse international student population (Al Okaily, 2016). The study reported diverse faculty members teaching local Emirati students at the federal university students and multicultural students at the private university, which is similar to the findings of Al Okaily (2016) who reported that the expatriate faculty is teaching monocultural students in federal universities and multicultural students in private universities.

Al-Hunaiyyan et al. (2018) investigated faculties' and students' perceptions in public and private educational sectors in one Arab Gulf Country and reported cultural issues as barriers in mobile learning technologies. In my study, one faculty pointed out "age as a part of the culture" (Nadia). The background and the way faculty were taught,

"affect the comfortability with mobile technology" (Nadia). Nadia reported that faculty were 'technology immigrants." Prensky (2001) used the term "digital natives" for students who used digital tools such as computers, video games, digital music players, and cell phones from a young age. To teach the digital natives, Nadia stated, "We really as professors have to become so technology savvy" to teach the culture of digital natives as "the culture of UAE is racing towards technology."

Wiest and Eltantawy (2015) found cultural influences in the attitudes towards and use of mobile technologies between young Americans and young Arabs in the Arab world. Aburezeq and Ishtaiwa (2013) investigated preservice Arabic language teachers' perceptions and reported that mobile technology ensures an open and flexible space for communicating, expressing ideas, and exchanging information among students and faculty members. Palmer (2013) pointed out that instructors agreed that knowledge of the host culture equips them with the ability to choose technological resources and to design and implement classroom activities. The above studies supported my study, where I found that faculty were familiar with the culture, and they knew "what content to teach or not to teach using mobile devices" (Lisa). Another faculty stated, "I am sensitive to the fact that there are certain books or topics that are more sensitive, and I chose to bring into the class and which ones I emphasize and which ones I don't" (Jean). In this study, the faculty helped the students to develop many mobile applications; some of the applications are to promote Arabic culture. For example, some applications reported were vocabulary learning application to support Arabic speaking learners of English, Boum app, Happiness app, and Abu Dhabi Tourism app to experience UAE from local users. Wiest

and Eltantawy (2015), Aburezeq and Ishtaiwa (2013), and Palmer (2013) supported the findings of my study that there is a cultural influence on the use of mobile technology in higher educational institutions in the UAE.

Al-Hunaiyyan et al. (2018) investigated faculty and students' perception in public and private educational sectors in one Arab Gulf Country and reported cultural issues as barriers in mobile learning technologies. Al Okaily (2016) reported that conservative cultures could inhibit technology integration in teaching-learning activities. In the current study, some minor cultural issues were reported. Hamad reported that taking pictures inside a girls' classroom could be a cultural issue, but inside the boys' class, they do not care. Nabel reported another incident of taking the picture during the class activity. Hamad further stated that cheating using mobile devices could be an issue relating to culture. Although I found that UAE is "Internet cultured," Hamad reported that cultural issues in the universities are "that whenever we see the student using their cellular phone, we think that it means for their personal use." I found evidence of cultural influence in using mobile devices and confirmed Wiest and Eltantawy's (2015) findings, of the attitudes of using mobile technologies between young Americans and young Arabs in the Arab world. Wiest and Eltantawy found evidence of the strong cultural influence of using mobile technologies. They further say that there is evidence of change of the Arab participants' with increased opportunities for information sharing, in self-expression, and formation of social relationship.

Interpretations of Findings Related to Research Question 3

In the findings, four themes addressed Research Question 3. The themes include: (a) challenges, (b) limited knowledge of teaching with mobile devices, (c) turning challenges into advantages, and (d) professional development. The faculty reported significant challenges using mobile devices as distraction, technical difficulties, and lack of support from the university, not knowing how to integrate mobile devices into teaching, mobile technology encouraging cheating, privacy challenges, and students' problems in using mobile technology. Faculty in the study felt that the challenges the faculty faced in integrating mobile devices for pedagogical practices could not be adequately addressed through professional development. The interpretations of the finding are connected to the literature review below.

Challenges

The participating faculty reported challenges related to integrating mobile devices into classrooms. The most commonly mentioned challenge was that these mobile devices could be the source of distraction. Barnes et al. (2010) reported mobile devices as distractions and banned their use in classrooms. Shrivastava and Shrivastava (2014) examined college teachers' perceptions of classroom distraction due to mobile phones and found that teachers experienced distress when students used phones for texting and chatting. Lenhart (2012) also reported mobile devices as a source of distraction in the classroom, which contributed to the ban on mobile phones in most educational institutions. In this study, one faculty, Matt, was influenced by negative experiences with letting the students use their mobile phones in the classroom, and he eventually decided

to restrict the use of this device in his classes, concluding, “for me, the use of mobile phones in the classroom is dead.” Another faculty reported that some students “will forget to turn it into silent mode; it will disturb the class” (Azim).

Faculty also raised concerns about the negative influence of mobile devices. Some faculty also raised concerns about technology encouraging cheating. This result was consistent with Thomas et al. (2014), who indicated that concerns included classroom disruptions and cheating. Another challenge was over-relying on mobile technology. Shraim and Crompton (2015) mentioned technical difficulties, such as the inability to select the mobile application. Similar technical problems, along with not knowing how to integrate technology into teaching, were also reported in the current study. The study results support the earlier studies of several authors that explored and reported challenges such as cheating (O'Bannon & Thomas, 2015), learning disruption (Ishtaiwa et al., 2015; Lenhart, 2012; Shrivastava & Shrivastava, 2014), maintaining academic integrity (Paullet et al., 2015), curriculum challenges and lack of skills using mobile devices (Gitsaki et al., 2016; Handal et al., 2013). Faculty faced obstacles of network capacity and reliability (Grant et al., 2015; Kukulska-Hulme & Pettit, 2009; Kukulska-Hulme & Viberg, 2018); however, in the study, all faculty reported high-speed Internet and good wireless network and connectivity.

Limited Knowledge of Teaching with Mobile Devices

Faculty in the study felt the need to understand and assess the kind of mobile technology; whether or not mobile technology is bringing substitute change or transformative change. Faculty expressed a gap of not knowing how to integrate mobile

devices into teaching. This perceived difficulty to enrich and foster the teaching-learning process using mobile devices is documented in the previous research studies (Al-Ali, 2017; Anshari et.al., 2017; Al-Emran, 2014; Barnes & Herring, 2013; Bakhsh, Mahmood, & Sangi, 2017; Ishtaiwa et al., 2015).

Turning Challenges Into Advantages

Faculty expressed concerns with security and privacy risks when using mobile devices for the instructional purpose. Faculty in the study exhibited satisfaction that they could educate the students of the security threats and privacy risk that students could face. These findings are supported from the previous research by Sarrab et al. (2016), Mehdipour and Zerehkafi (2013), and Santos (2013) that reported content security or pirating issues as one of the challenges, in using mobile devices for classroom use. Shraim and Crompton (2015) felt that these challenges of using mobile devices for pedagogical practices arise due to lack of experience and knowledge of faculty members.

Faculty in the study reported that all students have mobile phones when they are in the classroom. Faculty specified that all students are addicted in using mobile devices for social interaction and getting them to use it responsibly for a particular class or specific topic is missing and is a challenge for all educators which is yet to be discovered. This study is consistent with findings from previous studies of Ishtaiwa et al. (2015) on faculty members' integration, affordances, and challenges on mobile learning reported learning disruption. Ishtaiwa et al. reported that faculty felt that students consider mobile devices as entertainment tools but it is difficult for the faculty to convince the students to use it constructively for learning. In a similar study, conducted on smartphones usage in

classroom, Anshari et al. (2017) reported challenges such as distraction and lack of skills in using smartphones. Anshari et al. recommended that faculty should create engaging and interactive lessons to minimize distractions.

Professional Development

Austin et al. (2014) found that most faculty reported little support related to professional development. In the current study, the faculty also reported little support. For example, Lisa said, "you have to learn yourself," and Nadia reported, "they don't fund training." Psiropoulos et al. (2016) identified a vast amount of literature on the professional development of educational technology, but little research on the effectiveness of professional development for using mobile devices in higher education. In the current study, one faculty, Jean, stated that professional development should be a continuous process and so hiring a professional for a day and "teaching the faculty how to use mobile technology is a waste as it is impossible to assimilate new apps in a day" (Jean). Opinions about professional development varied. Sam said that 'provide periodic training using mobile technology, and they even certify you" while Matt reported that university "spend heavily on faculty's professional development." The challenges reported in the current study regarding the use of mobile devices raised questions about the amount of professional development and support that the faculty received regarding the integration of mobile devices into classroom instruction.

Investigating faculty perception using mobile devices in the classroom is at its infancy (Bakhsh, Mahmood, & Sangi, 2017; Gitsaki et al., 2016; Parsons & Adhikar, 2016). Murshidi (2017) and Cheon et al. (2012) suggested further research on the topic.

My study aided to fill the gap in the literature as there is little research on faculty perception of using mobile devices in higher education in the UAE. Most of the findings from this study extended or confirmed the existing knowledge in the literature regarding the use of mobile devices in higher education in the UAE.

Interpretation in Context of Conceptual Framework

The ecological metaphor of Zhao and Frank (2003) provided a framework to investigate the research question of how the higher education faculty perceive the use of mobile devices for instruction. In this section, I explain the findings of the current study with the ecological framework developed for the study.

The higher educational institution is analogous to a particular area of the Great Lake waters where the zebra mussel invades and interacts with the local species and the physical environment. The university's mobile technology infrastructure with high-speed Internet and mobile devices used for the teaching-learning process make up the abiotic components. The biotic components are faculty members, students, and administrators who use mobile devices for classroom use. The three metaphorical equivalents that describe mobile technology use in the higher educational ecosystem are (a) higher educational institutions as ecosystems, (b) mobile device usage as living species, and (c) higher education faculty as members of a keystone species (Zhao & Frank, 2003).

Higher Educational Institutions as Ecosystems

The educational institution is analogous to the Great Lakes ecosystem where the zebra mussel settles and interacts with the local species and physical and physiological conditions (Zhao & Frank, 2003). In the current study, both university classroom

ecosystems were well equipped with an infrastructure that any mobile device can connect. Both higher education ecosystem supports paperless university campus (Rapanta et al., 2014). I found that the most common use of the mobile device was the laptop. As reported by participating faculty, Matt, "almost every student and faculty use laptop" and also reported by Sam, "so every student have a mobile device, at least a laptop. But mostly, I used laptops for my programming classes. Since it is a mandatory device." Mobile devices are the invasive species that has blended into the higher education ecosystem. By using mobile devices, the faculty in higher educational institutions designs instruction (Cavanaugh et al., 2013; Gitsaki et al., 2013).

Mobile Device Usage as Living Species

The different types of living species that were reported in the current study were (a) laptop, (b) mobile phone, (c) iPad, (d) apple watch, (e) robot, (f) professional camera, and (g) Apple TV. Zhao and Frank (2003) used the metaphor of the intrusion of the zebra mussels in the Great Lakes to represent the adoption of mobile technology in higher education. The Zebra mussels survived, and there was an unprecedented growth of Zebra mussels (mobile devices) in higher education in the UAE (Sung et al., 2016), which has revitalized curriculum and pedagogy (Murshidi, 2017).

Higher Educational Faculty as Members of a Keystone Species

Zhao and Frank (2003) pointed out that the successful integration of new technology (invasive species) depends on the competency of the teachers (keystone species) and other biotic and abiotic components. I found several ways that keystone species favored the growth of the zebra mussels in the ecosystem. Matt stated, "faculty

members are equipped with laptops and iPads." I found that keystone species use social media to both communicate with the students and showcase the students' work, and PowerPoint is used for presentations. Some keystone species use WhatsApp to communicate with their students. Some keystone species also use Poll Everywhere and Survey Monkey to collect student feedback and encouraged student collaboration using Google Docs and Kahoot. In the study, faculty encouraged students to participate in online forums, class websites, and social media platforms to enhance teaching and learning activities.

The findings are consistent with Zhao and Frank (2003), who found that faculty who perceive relative advantages for mobile devices reported more usage in all teaching activities. The results are consistent with findings from previous studies that fostered the use of mobile devices in the higher educational ecosystem (Al-Emran, 2014; Ekanayake & Wishart, 2015; Sung et al., 2016). I found that the keystone species as faculty members were compatible and successful in integrating invading species as mobile devices in all teaching-learning ecosystem.

Limitations

Limitations of a qualitative study are often related to the study design (Yin, 2014). In qualitative research, the researcher needs to reduce the limitations to gain transferability. There were various limitations to the study. Although there are many higher educational institutions in the UAE, for the current qualitative research, I only choose two higher educational institutions. The second limitation was the sample size. A total of eight participants were selected, four from one university and four from the other

university. The third limitation was limited literature on higher education faculty use of mobile devices for instructional purpose in the UAE. As such, my ability to generalize the results to a wide-ranging population is limited by the breadth of information obtained from the small number of participants.

To minimize the limitations, participants were made comfortable to answer the research questions. The rich, thick descriptive interview, archival records, and researcher's reflexivity (Merriam, 2009) have enhanced transferability of this qualitative research. Assuring confidentiality and using pseudo names, protecting the participants' identity, and maintaining anonymity enhanced trustworthiness. Also, I used methods such as triangulation and member checking to improve the trustworthiness of this qualitative research.

Recommendations for Future Research

My recommendations for further research are affiliated with the results of the study and the gaps found in the review of the literature. The first recommendation is that more research is needed to understand the faculty use of social media for all pedagogical purposes. Mobile devices have proven applications in higher education institutions (Gikas & Grant, 2013). Researchers have investigated how mobile devices can be used to reinforce and improve teaching and learning (Looi et al., 2014; Santos, 2013). Scholars have also shown that social media is a source of distraction in classrooms (Thomas et al., 2014). Various researchers have examined the use of mobile devices in higher education, but few have investigated the faculty perception of the use of social media in the higher education classroom. The faculty in this study have used social media with the digital

natives to promote active learning and link the curriculum with real-life issues and also move classrooms into the mobile learning era needed for 21st-century teaching. Some faculty incorporate social media in their daily teaching activities. Three participating faculty used Instagram and what's the app for (a) displaying students' work, (b) announcement, (c) collaboration, and (d) communication. I found that using social media for class activities have increased students' participation, promoted culture through students' work, and enhanced students' motivation as their work is appreciated by not only their peers but also to the world outside including parents. Although using social media through mobile devices have accelerated students' learning, I found that not all faculty are using social media for teaching and learning. More research needs to be conducted in understanding faculty perceptions in using social media for teaching and learning in higher education in the UAE.

The second recommendation is that further research is needed to understand how to convert the challenges encountered by higher education faculty into the advantages of using mobile devices for all teaching-learning activities. Many researchers reported challenges in the use of mobile devices in education (Ally, 2013; Grant et al., 2015; Khaddage et al., 2015; Sung et al., 2016). In this current study, I found that as mobile technology in higher education is evolving at a swift pace, faculty members have shown concerns about the negative influence of using mobile devices in the classroom. The participants reported, "lots of concerns, lots of problems, lots of questions, lots of security and privacy risks" (Azim). Some faculty said that students could be "divergent to social media" (Sam) or "break the links between the faculty and the students" (Hamad),

or when unskillfully handled, could be a “nightmare” (Hamad) or “very dangerous” (Nadia). One faculty member said, “mobile devices are already there, so let's use it” (Hamad). Other participating faculty reported, “So how do we get maximum utilization of that mobile technology in the classroom. This is yet to be discovered or researched on.” (Sam). More research needs to be conducted to understand how to address the challenges faced by the faculty members and convert into the advantages of using mobile devices for all teaching-learning activities.

The third recommendation is that further empirical research is needed to understand the faculty perception of using mobile devices in higher education in the UAE. This study contributed to filling the gap in the literature by examining the faculty perceptions of using mobile devices in higher education in the UAE. Data collected for this study were from two higher educational institutions in the UAE. Future research on this topic should be conducted using a larger sample size from multiple universities across the UAE. A larger sample size would provide different perceptions of faculty members using mobile devices in higher education in the UAE.

Implications

Implications for Positive Social Change

The implications of this study for positive social change will be in relation to the individual, the higher educational organization, and society. The purpose of this qualitative case study was to explore faculty perceptions of using the mobile device as an instructional aid in a higher educational institution in the United Arab Emirates.

There is limited literature on the faculty use of mobile devices in higher education in the UAE (Domitrek & Raby, 2008; Karch, 2014). In relation to the individual, findings from this study may contribute to filling the gap in the literature by examining the faculty perceptions of using mobile devices in higher education in the UAE. The result of the study can lead to positive social change by encouraging faculty members to assist in planning mobile enhanced pedagogy. On the organizational level, the higher education institutions may better understand the use of mobile technology as instructional tool and organize more professional development in using mobile technology in higher education.

My study findings provide evidence of promoting university with the faculty use of mobile devices for classroom instruction. The study may promote social change and guide the higher education authorities in the UAE to understand faculty perceptions and investigate the latest mobile technology integration in relation to goals, curriculum, and program outcomes. The study may also guide the higher educational institutions on redesigning and enhancing curricula with more mobile-device-supported instruction.

In relation to society, this study contributes to positive social change, as today's digital natives are tomorrow's global citizens. Facilitating classroom instruction using mobile devices will contribute to students learning beyond the four walls of the classroom, allow them to communicate, collaborate, and promote 21st-century skills among the student community. Designing instruction using mobile devices, faculty will be able to facilitate skills, in students that are required for the future workforce.

Theoretical Implications

Zhao and Frank's (2003) ecological theory provided a foundation for the design and analysis of this study. According to Zhao and Frank's ecological theory, the invading species as mobile devices into the higher education classroom ecosystem may face several consequences. The invading species as mobile devices may win and wipe out the existing species. In the current study, technology took away the traditional methods of teaching and learning, where the keystone species as faculty play a significant role. I found that both universities in the UAE are supporting paperless university campus and using mobile devices, which means that faculty facilitate blended learning environment (Khaddage et al., 2015). Both invading species as mobile devices and existing species as desktop computers win and survive in the ecosystem and may eventually die due to limited capacity. Although this study discussed the use of mobile devices in higher education, desktop computers and whiteboard and books and pens are still used in today's classroom. In the current study, Lisa reported that her students are using desktop computers besides mobile devices. She said that while creating prototypes or mockups, her students check it "on a screen or monitor or how would it look when it's on the phone." Another participant Nadia expressed the need to use paper and pencil in the classroom besides the mobile devices. The study reports that both the invading species as mobile devices and the existing species, both survive in the educational ecosystem. When the existing species are dominant, the invading species as mobile devices lose and perish. However, my study did not show any sign of invading species of dying out or declining. The invading species coexists successfully with a wide range of existing species.

Both invading species as mobile devices and existing species as desktop computers due to variation and selection acquire new characteristics. The classroom use of mobile devices usually relates to the faculty's beliefs (Leem & Sung, 2018; Zhao & Frank, 2003). The variation can be due to variables such as anxiety, time constraints, and unclear expectations of the mobile learning environment (Psiropoulos et al., 2016) and can hinder the usage of mobile devices in the classroom (Shraim & Crompton, 2015; Sung et al., 2016). In the UAE, cultural considerations are factored (Raven, 2011) while using mobile devices in the classroom. Identifying best teaching pedagogy (Kukulska-Hulme, & Viberg, 2018; Murshidi, 2017) in using mobile devices for higher education faculty can add to the ecological framework of Zhao and Frank (2003). The ecological theory can also be used in quantitative research to understand further the various factors that hinder the use of mobile devices in higher education. The factors that can be considered in the quantitative study are from the management point of view about policy-making and strategic planning.

Recommendations for Practice

This study provides the basis to explore best practices associated with mobile device use as a teaching and learning tool. Designing and integrating a course for faculty-student in using mobile devices for instruction and providing on-going professional development with hands-on experience for higher education faculty members would reduce the gap between research and practice. I identified various challenges of using mobile devices in the classroom. The higher education faculty must find opportunities to reflect upon and reform the mobile technology-mediated learning environment.

Some faculty in the study have expressed mobile devices as a source of distraction. Educational organizations should conduct ongoing professional development programs that faculty can get hand-on experiences and use the distraction tools to plan mobile learning curriculum. The study reports enhanced students' creativity when faculty used social media for teaching and learning. Faculty in higher education can make effective use of mobile applications that allows students to gain knowledge through communication and collaboration and acquire digital literacy. In this study, higher education faculty in the UAE can reflect, analyze, and synthesize the best pedagogy for using mobile devices, giving an authentic learning experience.

Summary

This qualitative case study was designed to understand faculty perceptions of using the mobile device as an instructional aid in a higher educational institution in the UAE. The faculty in higher educational institutions in the UAE is committed to digital and mobile learning (Murshidi, 2017), facilitating blended learning environment (Khaddage et al., 2015), and preparing the future workforce and bringing about 21st-century skills (Gitsaki et al., 2016).

In both universities, every classroom was well equipped with an infrastructure that any mobile device can connect. The faculty used social media to both showcases the students' work and communicate with the students; several faculty used WhatsApp to communicate as it is more effective and faster. Some used Survey Monkey and polled it to collect student feedback, and they used Google Docs and various mobile applications such as Khahoot for formative assessments and see-saw application for group discussions

and to encourage student collaboration. Students are encouraged to participate in online forums, class websites, and social media profiles. They mostly used laptops, Mac Books, and iPads, although the use of mobile phones is also allowed to access some of the online content. The faculty also reported using laptops, iPads, mobile phones, high definition cameras, and Apple TV for teaching and learning process.

There was some evidence of links between culture and mobile technology. Some faculty were aware of, and sometimes faced, challenges with integrating technology into their classrooms, which raised concerns about the negative influence of mobile devices when unskillfully handled. The overall views regarding the use of technology in teaching and learning were positive. However, despite these positive attitudes and awareness of several benefits of using mobile devices in a classroom, some participants struggled with integrating them into their teaching, which was a result of insufficient support from the university. Some participants raised concerns about the lack of professional development in using mobile devices, while some seemed satisfied with the support they received. The challenges listed above have raised questions about the amount of professional development and support that the faculty received regarding the integration of mobile devices into classroom instruction. More ongoing professional development to turn these challenges into advantages is required for higher education faculty members to enrich instructional practices using mobile devices effectively.

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Appendix A: Letter of Cooperation

From
Provost for Faculty Affairs and Research
_____ University
UAE

Date:

Dear Shameen Monteiro,

Based on my review of your research proposal, I permit for you to conduct the study entitled Faculty Perceptions about the Role of Mobile Devices in Higher Education in the United Arab Emirates within the Zayed University/American University of Dubai. As part of this study, I authorize you to recruit participants through the use of invitation letters via email. Permission is also granted to distribute consent form, conduct face to face interviews, as well as conduct, follow up interviews, members checking and dissemination of your findings by providing a summary. Individuals participation will be voluntary and at their discretion.

We understand that our organization's responsibilities include: providing information to faculty and allow to conduct interviews in the premise of the university. Additionally, we will let you use classroom or conference room to hold interviews or meetings. We reserve the right to withdraw from the study at any time if our circumstances change.

The participant faculty will be responsible for complying with the university's research policies and requirements.

I confirm that I am authorized to approve research in this setting, and this plan complies with our university's policies.

I understand that the data collected will remain entirely confidential and will not be provided to anyone outside of the student's supervising faculty/staff without permission from Walden University IRB.

Sincerely,

Provost for Faculty Affairs and Research

Address

Appendix B: Invitation Letter

Dear Faculty

I am a doctoral student at the Walden University. I am conducting the research study to explore the perceptions of higher education faculty members in the United Arab Emirates who use mobile devices as an instructional tool.

I am writing to invite you to participate in my research study. To participate in this study, you need to use mobile devices in your classes currently. Participation in this study will include up to two interviews. In the first interview, I have preplanned research questions that should take less than 60 minutes of your time. The second interview will be en extension of the first interview for clarifying doubts on the information you shared in the first interview. The first interview will take place at the end of September or at the beginning of October, and the second interview at the end of October. Both the interviews will be audio recorded. You have the right not to answer any question or to pause the interview at any time. The interviews will take place on the premise of the university, in the conference room or the classroom allotted.

Your decision as to whether or not to take part in this study is completely of your free will. You can opt not to take part in my study or can withdraw at any time and there is no penalty. Your participation will not have any effect on your evaluation.

I am interested in this area of research because there is limited research in the area of the use of mobile devices in teaching-learning activities in higher education institutions of UAE. Your participation in the research study will help all the higher education faculty members to reflect on the best practices of mobile teaching and provide insights into issues faced while using mobile devices in classrooms.

Your responses will be kept confidential; the name will never identify to anyone. Your name will be kept confidential in reports, presentations, or publications, and other elements that may identify you. To protect your identity, Interview data will be coded.

If you are using mobile devices in teaching and learning and would like to be a participant in this study, please contact me via email or you con call me directly on my mobile number.

Shameen Monteiro
Email:
Mobile :

Appendix C: Faculty Follow up Letter

Date:

Greetings, Faculty name, will be inserted here

This is a follow up e-mail to my original letter of invitation-dated _____. I am inviting you to participate in this research, as you are an expert in the field of using mobile devices in your instruction.

The participation in this study is voluntary. I respect your decision of whether or not you choose to participate in the study. If you decide to join now, you are free to change your mind later and stop the interview process any time. Interviews will be conducted at your convenience.

Please go through the attached consent form. If you have any query regarding this study, you may contact me via e-mail at Shameen.monteiro@waldenu.edu or can call me or WhatsApp me at 0504234046.

If you agree to participate in this study, Please email me at shameen.monteiro@waldenu.edu; Your participation will help me not just complete my dissertation but also add knowledge to the limited existing literature on the use of mobile devices in higher education in UAE.

Thanking you in advance

Respectfully,

Shameen Monteiro
Ph.D. Candidate
Walden University

Appendix D: Participant Interview

Interview Guide

• Welcome note and introductions

• Verbally recall the content in the consent form

• Recall the purpose of the study

• Explain taping procedure

• Opening prompt: "Please let me know your experiences as a faculty in higher education; Origin: gender: years of teaching experience; the grade levels; various courses taught."

• Interview topics will be followed from below, Probing questions will be used as and when needed.

Research Question	Interview Topic	Probing Questions
RQ1: How do faculty members in UAE integrate mobile devices into teaching?	Experiences using mobile devices in teaching learning activities.	a. What is your university's vision of using mobile devices in classroom? b. Describe your institutional characteristics that influence faculty's adoption and integration of mobile devices into teaching. c. List are the different mobile devices that you use in your instruction d. What are the most commonly used mobile devices used by instructors in your institution? e. What teaching advantages do you perceive exist when teaching with mobile devices f. Describe various activities that you incorporate, using mobile devices, in your teaching activities. g. How has the implementation of mobile devices impacted your

		lessons?
RQ 2: How does the integration of mobile devices in the classroom affect cultural assimilation in higher education when used as a teaching-learning tool?	Experiences of culture affecting the use of mobile devices in classrooms of higher education in UAE.	a. How do the prevailing cultural norms in UAE affect mobile technology integration in higher education? b. How do you perceive and assess students' culture? c. How do students' cultural norms affect your choice of mobile learning activities and assignments?
RQ 3: What are the perceptions of UAE faculty members in higher education about the challenges related to the integration of mobile devices as an instructional resource?	Challenges using mobile devices in instruction.	a. What are the key challenges of integrating mobile devices as an instructional tool? b. What is the biggest challenge in using mobile devices as instructional tool? c. What are the various perceived challenges that you encounter using mobile devices in terms of i) competency ii) self-efficacy iii) accessibility iv) leadership support v) professional development vi) students learning and engagement. d. In the context of UAE, what do you perceive as the challenges to integrating e. Mobile devices into their teaching? f. How do you overcome all the challenges?

Appendix E: Archival Data Collection Form

Type of Document _____

Name of the Document_____

Collected from_____ Date _____

RQ1: How do faculty members in UAE integrate mobile devices into teaching?	RQ1: How do faculty members in UAE integrate mobile devices into teaching?	RQ 2: How does the integration of mobile devices in the classroom affect cultural assimilation in higher education when used as a teaching-learning tool?	RQ 3: What are the perceptions of UAE faculty members in higher education about the challenges related to the integration of mobile devices as an instructional resource?
Faculty's instructional activity using mobile devices	Advantages/Uses	Cultural Issue If any	Disadvantages