The Role of Socio-Cultural Factors in Faculty Members’ Acceptance of Moodle at GUST

Dissertation

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Abstract

One of the mainstreams of e-learning research is the justification and prediction of adoption and use of this mode of learning. Several theories have been developed to understand the phenomenon of e-learning acceptance. These theories have uncovered a variety of factors regarding adoption and use of e-learning. In particular, the technology acceptance model (TAM) (Davis, 1989) is recognized as a parsimonious model in demonstrating Information and Communications Technologies (ICT) use at the individual level.

The aim of this instrumental case study was to understand the mechanism by which socio-cultural differences could describe and anticipate behavior toward a Learning Management System (LMS). The socio-cultural factors addressed in this research included values, tools and technology, language, internalization, identification, and compliance.

In this case study, I have employed mixed methods to understand the role of social and cultural factors on the faculty’s decision to adopt Moodle at a private university, Gulf University for Science and Technology (GUST), in Kuwait. I distributed a survey to all faculty members at GUST and used interviews to learn about the faculty’s experiences with Moodle and to understand the influence of culture and social influences on their adoption of the program. In addition, I obtained documents that included the history of GUST and the adoption history of LMSs. The survey offered information about
the demographics, the general use of technology among the faculty at GUST, and their interaction with and use of Moodle. The interviews asked about the roles of these cultural factors (language, values, and technology) on adoption. The interviews also inquired about the role of the social influences of internalization, identification, and compliance on the faculty’s decision to adopt Moodle. In addition, the documents accessed from GUST detailed the history of GUST, the different LMS options the institution went through, and the different functions used on Moodle and their frequencies.

Although faculty members had different nationalities, backgrounds, and origins, the overall findings suggest that the main contributing factors to users’ acceptance of the LMS were their previous knowledge and experience with technology, their internalization of the importance of using the LMS, and the system’s usefulness. The majority of the survey respondents and interviewees showed previous experience with technology either during their school years or on their own. Also, the majority of the respondents and all of the interviewees demonstrated an internalization of the importance of using Moodle. In addition, the surveys and interviews emphasized the role of usefulness over the ease of use on the faculty’s adoption of Moodle.

The study showed that the faculty found that some tools and functions of Moodle were not easy to use, which contributed to their frustration toward using it. The survey respondents and the interview participants suggested more training on making better use of Moodle and the best ways to use it in the classroom. At the same time, they suggested some type of incentive to encourage disinterested faculty to use Moodle.
Dedication

Thereupon [Solomon] smiled joyously at her words, and said: “O my Sustainer! Inspire me so that I may forever be grateful for those blessings of Thine with which Thou hast graced me and my parents, and that I may do what is right [in a manner] that will please Thee; and include me, by Thy grace, among Thy righteous servants!”

Qur’an, An-Naml 19

I dedicate my dissertation to two dear people whose actions and words of wisdom and encouragement live even after they passed away. My dad, Khalid Aljeeran, whose decision to continue his education while having five kids was an act of motivation. I also dedicate this dissertation to Hessa, my paternal grandmother, who raised me sincerely and passionately and watched over my kids when I attended classes. I am sure they are both resting in peace.

I dedicate this work to my mother, Laila Alnajjar, and my siblings Fatima, Amina, Raba’a, Maryam, Aisha, Arzaq, Hamad, and Omar.

I dedicate this dissertation to my three angels—Laila, Jana, and Fay—for their patience when away from their mother, for holding each other’s hands, and for sticking with each other because they knew that would bring happiness and warmth to my heart.

To my mother-in-law, I say thank you, your effort is much appreciated.
Most of all, I dedicate this work to my husband, Adel Sultan. I thank you for 26 years of support and 10 years of constant sacrifice. I thank you dearly for believing in me, for listening to me, for encouraging me. This work came alive because you believed that I could do it, and I couldn’t have done it without you.
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This, who does not thank for little, does not thank for much. He, who does not thank people, does not thank Allah.

Prophet Muhammad (PBUH)

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Chapter 1: Introduction

Read (Proclaim!) In the Name of your Lord, Who has created (all that exists). Has created man from a clot. Read (Proclaim!) And your Lord is the Most Generous. Who has taught (the writing) by the pen. Has taught man that which he knew not.

Qur’an, Al-Alaq 1-5

Background

In Kuwait, purely online higher education degrees are not recognized by the public employment sector, governmental ministries and businesses, which constitute the biggest employment market and the most appealing opportunities for new graduates. Higher education institutions in Kuwait are composed of public institutions funded fully by the government and are free of charge for Kuwaiti students. On the other hand, private institutions are only partially funded by the government, and therefore Kuwaiti and non-Kuwait students pay for their education. In some cases, the government will sponsor some Kuwaiti students for internal scholarships in the private sector.

Public higher education institutions in Kuwait still follow the traditional face-to-face teaching and learning system. In contrast, private higher education institutions in Kuwait are actively marketing their e-learning capabilities to students. In the context of this study, e-learning will be used to describe “instructional content or learning experience delivered or enabled by electronic technologies” (Ong, Lai, & Wang, 2004, p. 1).
One of the major components and the most visible aspect of online learning environments is the learning management system (LMS). According to Dagger, O’Connor, Lawless, Walsh, and Wade (2007), an LMS is an “e-learning platform… [that] provides holistic environments for delivering and managing educational experiences. They present suites of tools that support online course creation, maintenance, and delivery, student enrolment and management, education administration, and student performance reporting” (p. 29). LMS are grouped into two main categories: 1) open source initiatives that include Sakai, ATutor, Moodle, and Whiteboard and 2) proprietary solutions that include GradePoint, Desire2Learn, WebCT/Blackboard, and Learn.com (Dagger et al., 2007).

Although private higher education institutions in Kuwait are not fully online, they have been implementing LMS in their classrooms to create a blended learning environment. These private higher education institutions are implementing LMS as a step towards creating an e-learning environment in the future.

Gulf University for Science and Technology (GUST) is the first private institution in Kuwait and has the second-largest student enrollment. It was established with the intention of relieving the pressure on the public higher education institutions in Kuwait, Kuwait University, and The Public Authority for Applied Education and Training, while introducing a new form of learning that was based on incorporating technology in teaching. In 2005, the E-Learning Center of Excellence (ECE) was established and offered six customized courses purchased from Universal Knowledge Solutions. The first LMS introduced at GUST was Workplace through IBM Lotus. Then,

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1 This is the actual name of the institution.
in 2007, GUST switched to Microsoft Sharepoint, which was known as the MyGust portal. Although Sharepoint was used successfully by students and faculty as it was a familiar system within Microsoft Office, GUST decided to switch to an open-source technology—Moodle—in 2012. GUST reached this decision because it was facing new expenses associated with its new location, more advanced and integrated technology, and new students services.

Moodle is an open-source LMS from the second generation of e-learning platforms from 1999 onward that addressed the failures of the first-generation platforms and resolved many of them. Moodle focused on sharing learning objectives, progression of learning objectives, and learner information besides sharing content (Dagger et al., 2007). GUST’s adoption expectations for Moodle were not met however, as they anticipated that faculty members would integrate Moodle in teaching their courses and not use it only for administrative practices.

Given that the administration’s expectation of a more significant adoption was not realized, they began to search for answers. GUST was puzzled by the reasons behind the lack of adoption by faculty. In a conversation I had with Mr. Zain, a member of the E-learning Center of Excellence at GUST, he shared his thoughts regarding the reasons behind the lack of using Moodle. He said,

The frequent changes in the e-learning system led to drastic changes in GUST’s educational practices. As a result, resistance to change from the old traditional ways of delivering content and familiarization from the old LMS to the new LMS.

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2 Pseudonyms used to represent all participants from GSUT
has always been one of the biggest obstacles facing the successful utilization of e-learning tools (Personal communication, August, 2015).

My interviews with various members of the administration clearly indicated that GUST’s internal evaluation could not identify a clear reason why some faculty members at this time have still not adopted it. As for the low adoption rate, there seemed to be something else beyond the technical capabilities and ease of use of the platform.

In this study, I explored the reasons that contributed to the lack of the adoption of Moodle at GUST. When I looked at the faculty members of GUST, I immediately recognized the cultural and background diversity of the faculty members. The majority of the faculty members at GUST were non-Kuwaitis, and consisted of a mixture of Arabs and non-Arabs. At GUST, the faculty is a diverse ethnic mix from countries all around the world. This led me to explore the socio-cultural factors that influenced the faculty members’ adoption of Moodle.

One of the most important determinants of adopting a technology are the individual factors, according to Lewis, Agarwal, and Sambamurthy (2003). Several studies found that individual factors such as personal innovativeness, prior experience, perceived usefulness, image and enjoyment with using technology played a powerful role in influencing each individual’s adoption (Lewis, Agarwal & Sambamurthy, 2003; Venkatesh & Davis, 2000). The users’ adoption of technology was affected by their social environment, and other users in their social environment also had an influence on their technology adoption (Talukder & Quazi, 2011). Lam, Cho, and Qu (2007) claimed that when individuals perceive a social pressure from a person they recognize as important, they are more likely to perform an act.
Although the administrations in the higher education institutions make the
decisions to adopt a technology, it is crucial to investigate the subsequent technology
adoption by employees. If the employees do not accept the technology, then the expected
benefits cannot be reached (Talukder, 2012). Ajzen (1991) believed that individuals
would accept a change—the introduction of new technology—if they were convinced
that they would benefit from it. Kukafka, Johnson, Linfante, and Allegrante (2003)
concluded that the inadequacy of technology adoption is still a problem, even though
hardware and software are advancing at a fast pace.

In exploring whether individuals have an inherent bias against technology,
Postman (1995) indicated that it does not make sense for a person to be against
technology, and he compared this to being against food, and we need both. He went on to
explain:

To observe that it is dangerous to eat too much food, or to eat food with no
nutritional value, is not to be ‘antifood.’ It is to suggest what may be the best uses
of food...It’s about how technology creates new worlds, for good or ill. (p. 191-192)

Postman (1995) wrote, “All technological change is a Faustian bargain” (p. 195).
Technological change includes both positives and negatives. When implementing a new
technology, Postman suggested keeping some principles in mind:

1. There are advantages and disadvantages associated with each new technology.

   GUST’s introduction of a new LMS for the third time should have shed some
   light on the adoption process. GUST should have studied their new adoption more
closely, looking at the advantages and disadvantages of the new system and
whether it was worth the switch. If they realized that they had to go with the new adoption, then they have had a logical expectation of adoption, time required for adoption, and a plan to face problems of adoption.

2. The advantages and disadvantages of new technology do not affect all target user groups equally. This is a reflection of the faculty members’ relationship with technology. This could show GUST that faculty members’ adoption is not equal because they are affected by different factors such as their knowledge of using technology, their need for external help offered by the institution, the courses they teach, and how adaptable are they to the new technology.

3. It is not necessary that new technologies add something new, as they might only change things. Even though it was the decision of the institution to implement Moodle, the faculty members who were required to use it. So involving the faculty members in the decision-making process for introducing a new system would serve the institution well. The faculty members could present the benefits of implementing a new technology, or they could recommend preserving the previous technology. The users can help explain whether the new technology will encourage their adoption because of its usefulness or it may hinder their adoption because it is deemed useless.

Deubel (2007) reminded us that one of the purposes of conducting research in educational technology is to provide proof of its effectiveness. However, when the research yields mixed results, it is an invitation for individuals and institutions to reflect on their “good or ill…or lack of” implementation of that technology.
The implementation of technology in education does not necessarily mean improved education, but the informed implementation of technology will help get the user closer to rejecting the idea of “one size fits all” in teaching and learning (Patrick, 2014). In the late 1990s and early 2000, e-learning adoption grew dramatically around the world, especially in the United States (Wang & Reeves, 2006). The National Center for Education Statistics estimated U.S. undergraduate enrollment in at least one online course increased from 8% to 20% between 2000 and 2008 (Radford, 2011). Ambient Insight Research (2009) predicted that in 2014 the U.S. market demand for e-learning services and products would grow to $49.6 billion. From 2000 to 2007, the publications on e-learning grew 12.43% (Hung, 2012). E-learning moved from being “peripheral” in higher education to being integral (Amiel & Reeves, 2008; Harasim, 2000).

**E-learning**

Although e-learning started in the 1980s, it is not known exactly how the term originated (Moore, Dickson-Deane, Galyen, & Chen, 2010). E-learning includes a variety of computer-based learning, delivery systems, and media (e.g., multimedia, educational programming, simulations, and games). E-learning can also offer active learner-centered pedagogies by enabling teachers to mentor learning rather than merely deliver it and to focus on the learning outcomes while aiming to include other activities that create desirable learning outcomes (Nicholson, 2007; Bousbahi & Alrazgan, 2015). E-learning can be in the form of courses, modules, or learning objects and include synchronous or asynchronous communications that are accessible from various locations anytime (Ali & Magalhaes, 2008).
There are various definitions of e-learning in the literature, and in general, the term e-learning is broadly used to describe “instructional content or learning experience delivered or enabled by electronic technologies” (Ong et al., 2004, p. 1). In addition, a more restrictive definition of e-learning limits it to delivering content via the Internet (Jones, 2003). A broader definition of e-learning includes content and instructional methods distributed through one or more of the following means: CD-ROM, the Internet, audio and videotapes, satellite broadcasts, and interactive TV (Ellis, 2004; Urdan & Weggen, 2000). The previous definition concludes that e-learning uses Information and Communication Technology (ICTs) to assist in learning and training initiatives (Kiget, Wanyembi, & Peters, 2014; Sun, Tsai, Finger, Chen, & Yeh, 2008). It also has been expanded to include mobile and wireless learning applications (Kinshuk, Suhonen, Sutinen, & Goh, 2003; Lehner, Nösekabel, & Lehmann, 2003). This research uses this broader definition because it covered different aspects of e-learning such as delivery, content, facilitation, and its adaptability to new devices and forms.

**Learning Management Systems**

Originally developed in the 1990s, learning management systems (LMS) are a technology used to deliver and support the e-learning process on the Internet (Coates, James, & Baldwin, 2005). Some of the common LMS include Moodle, Blackboard, WebCT, desire2learn, and eleap (Kiget et al. 2014).

The LMS, a component of the ICTs, helps deliver learning materials to learners and allows instructors and learners to interact and engage in an online experience. It allows instructors to post relevant content, conduct online discussions, maintain grades,
and engage in and manage synchronous and asynchronous learning activities. It also incorporates various pedagogical and course administration tools that are capable of managing content, managing user profiles, and managing and creating courses, while helping educational institutions design virtual learning environments for on-campus students, and fully virtual learning environments for online students (Coates et al., 2005).

LMS is known by other names including “learning platforms,” “distributed learning systems,” “course management systems,” “content management systems,” “portals,” and “instructional management systems.” The size and capacity of an LMS depends on the adopting institution’s needs and capabilities. It can be used to manage a course, provide total support for a university’s teaching and learning programs, or it can be used to support and run virtual universities (Coates et al., 2005). The LMS allows instructors to add content to the university’s e-learning website and customize it to complement a certain course (McClelland, 2001). Because an LMS does not require an instructor to have advanced web development skills, it can reduce one of the main limitations of web-based learning adoption by faculty, namely a lack of technical expertise (Parikh & Verma, 2002). Some of the main characteristics of LMS, according to Coates, James, and Baldwin (2005) include:

- Course administration and pedagogy functions: synchronous and asynchronous interactions (emails, chats, discussion forums, list serves, and instant messaging)
- Development and delivery of content (learning resources, development of learning object, and links to Internet resources)
- Formative and summative assessment (homework and project submission, tests, collaborative work, and feedback)
• Class and user management (course registration, enrollment, scheduling, grades, managing students’ activities)

LMS are becoming an essential part of higher education, especially in recent years when online programs, such as the University of Phoenix, Coursera, and edX have changed the perception of higher education. Leading LMS providers are establishing broader groups of clients (Riddle, 2013). Some of the biggest names among LMS providers include:

• **Blackboard**: Over the years, it owned WebCT and Prometheus, and as of 2011, it held around 51% of the market share (a drop down from 76% in 2006). The company initiated Blackboard Mobile to expand its activity.

• **Moodle**: This is an open-source LMS that provides its software for free through a GNU General Public License. It was 19% behind Blackboard in 2011, but continues to draw partners around the world.

• **Desire2Learn**: This is a major player in the LMS market outside of Canada, and it trails Blackboard and Moodle with an 11% of market share. It included new products in its system, Binder (a mobile app) and Campus Life (a campus-specific app).

• **Sakai**: This is being supported by Blackboard and supports hundreds of educational organizations. Sakai recently merged with Jasig, creating Apereo, a nonprofit open-source educational software.

• **Canvas**: This is an open-source LMS that offers various features to its users such as hands-free updates and speed grading. According to Instructure, its
manufacturer, feedback and suggestions played a major role in its initial build and continuous updating.

A report by Edutechnica for 2013-2014 presented some changes to the LMS market in the United States, the United Kingdom, Canada, and Australia. While Blackboard is trying to increase its distribution to educational institutions, it is losing market share. Moodle, D2L, and Sakai adoption by educational institutions remains static, with no new enrollments in Moodle and only two new institutional enrollments for both D2L and Sakai. On the other hand, Canvas has proven to be the fastest-growing LMS, up about 40% for one year (Hill, 2014).

**Developed and Developing Countries and E-learning**

The e-learning market is growing around the world. In the late 1990s and early 2000s, many higher-education institutions around the world started to adopt e-learning (Arbaugh & Duray, 2002; Wu, Tsai, Chen, & Wu, 2006). The fastest-growing regions, according to an Ambient Insight report (2012), the expected fastest-growing region for e-learning adoption between 2011 and 2016 is Asia (driven by India, China, and Australia), followed by Eastern Europe (driven by Russia), then Africa, Latin America, the Middle East, Western Europe, and lastly North America. The expected growth of e-learning in these regions indicates the growth of the LMS adoption. The Middle East e-learning market is growing rapidly, and the main contributors to the increased adoption are governments, private schools, and corporations (Docebo, 2014). Although North America is not expected to be among the fastest-growing region for e-learning adoption, it is still the most mature market for e-learning in the world (Docebo, 2014). Up until 2013, 99%
of the U.S. colleges and universities reported having LMS in place (Dahlstrom, Brooks, & Bichsel, 2014).

The majority of e-learning research, literature, and standards were designed for technology adoption in developed cultures (Alkharang & Ghinea, 2013). Thus, the factors and barriers influencing the use of e-learning in different societies and cultures may vary from the ones recognized in the developed cultures (Ali & Magalhaes, 2008). According to the Ambient Insight (2015) report, the primary catalysts that drive the market of self-paced e-learning include reduced educational budgets, migration of education industry to the digital world, growth of online enrollment, digitization initiatives, and demand for language learning.

According to Adkins (2013a), African countries are expected to witness 15% growth of e-learning adoption between 2011 and 2016. Senegal was projected with the most growth, a 30% increase, followed by Zambia (28%), Zimbabwe (25%), and Kenya (25%). A report by Docebo (2014) studied the growth of e-learning in several countries of the Middle East in 2013 and predicted growth and revenue for 2016. Oman was projected with the most growth at 19.6%, followed by Lebanon (16%), Turkey (12.9%), and Kuwait (12.6%).

On a global level, some countries are enjoying greater success than others in terms of the adoption of e-learning in higher education. The adoption of educational technology is different between developed and developing countries and varies within these countries as well. In developing countries, some research has examined the use of the Internet by faculty. Dong (2003) investigated Chinese faculty Internet use and found that younger faculty with higher degrees used the Internet more often. These individuals
spent most of their time checking their emails and browsing the World Wide Web. Research suggested that faculty use could be an indication that they are more comfortable and productive if the Internet is integrated into their teaching methods (Adika, 2003; Mamtora, 2003; Nasir Uddin, 2003; Nyamboga, Ongonda, & Raymond, 2004; Ojedokun & Owolabi, 2003). The faculty members from China, Fiji, Botswana, and Kenya (e.g., Dong, 2003; Mamtora, 2003; Nyamboga, Ongonda, & Raymond, 2004; Ojedokun & Owolabi, 2003) who used the Internet were either self-taught or learned from colleagues or friends.

Research on e-learning implementation uncovered many barriers that led to e-learning failure. An example of failed e-learning adoption is research conducted on the adoption of e-learning at a private university in Ghana. Five years afterwards, only a few faculty members were using the system (Asunka, 2012). The results of the study indicated that various cultural factors played a role in obstructing the adoption of e-learning. Factors including cost, administrative support, technical support, policy, and workloads were identified as influencers of technology implementation for faculty members.

Although institutions invest significantly in IT innovations and implementation, there are still significant numbers of projects in developing countries reported as failures (Abbasi, Chandio, Soomro, & Shah, 2011). An example of an LMS failure is the case of Makerere University Business School in Uganda. The research done by Mayoka and Kyeyune (2012) showed that adoption of the open-source LMS environment, Knowledge Environment for Web-based Learning (KEWL), was unsuccessful. The analysis of a research questionnaire survey concluded that assistant lecturers and lecturers were more
inclined to use e-learning than senior professors because they resisted change. In
addition, the survey results showed that, although students knew of the availability of an
LMS, they were not comfortable using it. While in developed countries, e-learning has
been successful in many institutions, the adoption has lagged in others (Bashiruddin,
Basit, & Naeem, 2010; Gulatee & Combes, 2007). This may be a result of limitations in
the e-learning design and interface that is more often based on implementation, resource
availability, and technology infrastructure in western countries (Hill, Loch, Straub, & El-
Sheshai, 1998). The literature on e-learning adoption in the developing world indicates
that its adoption is more successful among younger generations and people with higher
academic qualifications. Faculty members mostly use the Internet if their academic
institutions require it. In addition, if the e-learning system replaces the existing traditional
systems, senior faculty members may resist.

A successful example of e-learning adoption in higher education in a developed
country is the Online Learning in Management (OLIM) postgraduate program at
Hamburg University, Germany. The research on this program showed that it succeeded
when it focused on (i) the didactic and e-learning capabilities of teachers and students and
(ii) constant assessment and modification of the program (Bruhn-Suhr, 2004).

There are many success stories of e-learning adoption in developed countries,
while developing countries still struggle to achieve the success mark with many factors
that contribute to the success or failure of the adoption. Among the many contributing
factors, the cultural and social dimensions of each adopting country and institution should
be examined closely.
One of the main reasons contributing to the failure of adopting e-learning in developing countries is that the technology is being designed initially for developed countries, which makes it culturally biased to fit the social and cultural framework of the developing countries (Hill et al., 1998). Technology acceptance theories frequently emphasize technology implementation as based on individual motivators rather than normative beliefs influenced by culture. However, studies analyzing technology acceptance by examining individual beliefs often show mixed results, indicating that the inclusion of social and organizational factors are more consistent with actual human behavior (Abbasi, Tarhini, Hassouna, & Shah, 2015). Factors including the amount of resources available, perceptions of the relevance and usefulness of technology, and organizational support for technology may differ in non-western countries. The different cultures and social interactions in each society influence the adoption of the technology. The successful adoption of e-learning in a developed country does not mean that will be successful in a developing country.

Discussions thus far suggest, linkages between influencing factors and technology adoption in developing countries have predominantly focused on limitations of access, faculty’s use of the internet and faculty’s compulsion to use technology in delivering instruction. In this context, technology acceptance theories posit normative individual behavior as having more explanatory power in explaining e-learning behavior and technology adoption as opposed to individual beliefs borne out of cultural factors. This may be myopic in the sense that, most of the technology acceptance theories have been developed by western researchers and may not have been subjected to the nuanced analysis to recognize the shaping effect of socio-cultural dimensions born out of national
characteristics. In this vein, this study will examine whether technology adoption in a developing country like Kuwait has indeed been influenced by social and cultural factors.

**Kuwait and E-learning**

The first online initiative in higher education in Kuwait was by the Distance Learning Center at Kuwait University in 2001 (Kuwait University, n.d.). The E-Learning Center of Excellence (ECE) at GUST followed in 2005. The Ministry of Higher Education (MHE) and the Private Universities Council had planned for e-learning inclusion within the institutions. The problem with this idea was the gap between the planning and the actual implementation.

MHE is investing in e-learning technologies through the establishment of Distance Learning Center at Kuwait University. However, this investment is being hampered by the MHE, which does not permit an online course in the university. It also does not allow students on scholarships in developed countries to enroll in an online class (Kuwait Cultural Office, n.d.). The decision to prevent students from experiencing an online education contradicts its development and investment in an e-learning center. It is evident that there was a gap between the planning and the implementation and the adoption of e-learning between developed and developing countries.

Various studies investigated behavior and usage intention towards the acceptance of LMS, while little research focused on the influence of external variables on LMS usage (Davis, 1989; Venkatesh, Morris, Davis, & Davis, 2003). Consequently, it is essential to conduct research that examines the factors influencing LMS acceptance.
among faculty in higher education. There has been little research done on faculty in Kuwait that examined the socio-cultural factors and their influence on the faculty use of LMS. The problem under investigation revolves around understanding reasons for the lower rate of usage of LMS for teaching and learning within the faculty at GUST. The socio-cultural factors that influence the faculty’s acceptance and resistance of LMS as an e-learning platform had to be identified.

This research examined the problem of Moodle adoption faced by GUST as part of its curriculum. GUST has gone through three different LMS since it adopted e-learning, and the current system implemented is Moodle. Still, GUST lacks full adoption of the LMS by its faculty members.

**Statement of the Problem**

The challenges faced by GUST is the minimal use of Moodle by its faculty members. GUST takes this issue seriously because the lack of Moodle implementation goes against GUST’s vision, mission, goals, and objectives. The vision statement of the ECE is “to be the National leading Centre for e-Learning” (E-Learning, n.d.). In addition, their mission aimed to “spread the E-Culture and the latest educational technologies and methodologies to deliver and facilitate online teaching and learning experience to enable the access to the quality education in a technology-driven future” (E-Learning, n.d.).

Among the goals listed by the ECE at GUST is to “Enhance the quality of teaching and learning by employing modern instructional materials and methods and expand usages of educational technologies in teaching and learning (Moodle—Learning
Management System)” (E-Learning, n.d.). At the same time, the objectives of GUST’s ECE are:

1. To promote the use of online performance evaluation.
2. To encourage the use of videos, audios, and other media.
3. To widen the learning accessibility in and out of campus.
4. To convert course contents into interactive online formats.
5. Provide students and faculty with the latest collaboration tools that will enhance group working. (E-Learning, n.d.)

GUST’s statements of vision, mission, goals, and objectives give an idea of how important the integration of e-learning is to the institution.

**Purpose of the Study**

In a conversation with Mr. Zain, an administrator from GUST’s e-learning department, I was assured of the administration’s hope for increased usage of Moodle by GUST’s faculty (Personal communication, August 2015). GUST’s administration considered the limited use of Moodle as a waste of resources, in addition to being a misrepresentation of the university’s vision. Understanding the factors that affect LMS adoption might help ECE to resolve the low adoption of Moodle. According to Albirini (2006), the availability and accessibility of technology were not enough to guarantee a successful use of technology in higher education.

The analysis of socio-cultural perspectives has allowed for researchers to examine nuances of human behavior as affected by group dynamics. Race, ethnicity, gender, religion, and cultural norms and traditions have played roles in shaping how individuals make sense of their environments. In addition, these factors have impacted how
individuals learn and make decisions. Thus, socio-cultural contexts were analyzed in this study to provide a more holistic understanding of technology acceptance.

The research rationale demonstrated the significance of this proposed dissertation. This research explored the role of culture and society on the faculty’s acceptance of Moodle at GUST. University officials consider the faculty’s acceptance of Moodle as the first step toward the successful adoption of Moodle (Zain, Personal communication, August 2015). Technology innovation and its adoption depends also on a range of socio-cultural factors. Depending on the individual nuances of a particular society or specific characteristics of a culture, these factors may play important role in the overall adoption process of a new technology or innovation that has measurable impact on people’s lives. For example, word of mouth is a cultural dimension and within a close-knit society, a particular technological innovation may become popular among the initial users. This may impact the particular product’s overall adoption into a much broader group.

Similarly, if a particular culture values creativity, then any technological innovation considered to have creative value within that culture, will have a much better adoption rate than a product that may not be deemed creative. Moreover, cultural characteristics can influence social constructions of utility. When few members within a society recognize a particular technological innovation as having utility, the peer influence can enhance the adoption process for that product. It is important to note that, members of the GUST faculty come from many different cultures, they belong to various societies. Therefore, these faculty members are influenced by their individualism and uncertainties borne out of their cultural ties. Their responsiveness to various technology processes and products may be shaped by their social construction of utility and usefulness. Therefore,
this research investigated the role of socio-cultural influences, such as cultural factors (language, norms and values, technology and tools) and social factors (compliance, identification, and internalization), on GUST’s faculty members toward the acceptance and use of Moodle.

**Significance of the Study**

This research is significant because it investigated one of the challenges of technology acceptance in the developing country of Kuwait. Technology acceptance is manifested by the micro process of adoption of such technology within its target population. Therefore, this study focuses on the influence of socio-cultural elements in consumers’ level of adoption of a particular technology – LMS. More specifically, the research investigated the linkages between socio-cultural factors and LMS adoption through the prism of one of Kuwait’s higher education institutions, GUST.

The mixed-methods case study explored the role of social and cultural influences on faculty’s use of Moodle. The role of social and cultural influences on the faculty’s use of Moodle has not been investigated widely in the literature. This current research provided an understanding of how to plan for technology implementation while paying attention to factors other than those related to technology in a multi-culture institution. It also contributed to the literature addressing topics such as technology acceptance in developing countries, socio-cultural factors, technology acceptance model (TAM), mixed-methods research and technology, and finally higher education in a mixed culture.

This research investigation is significant for reasons at the local and national levels. It is important for higher education institutions such as GUST to fulfill their
mission, vision, and goals statements while limiting any gaps in the expected outcomes. When an expected result is not met, it is time to investigate the reasons behind the failure and to promote better outcomes. When Moodle was introduced at GUST as a medium of teaching and learning, the adoption was not at its fullest. It would be important to consider the challenge of technology acceptance through the vantage point of the user. This research serves as a discovery mechanism that will assist the administration of GUST by identifying the factors contributing to the adoption resistance of Moodle by the diverse faculty population at GUST. Additionally, this research could help other higher education institutions in Kuwait investigate their institution’s LMS resistance issues and lack of adoption of these technology platforms by their faculty.

On the national level, technology acceptance and adoption should be looked at differently, and not as a pure technology with hardware and software successes or failures. It is high time to investigate the contributing factors that are part of the adoption circle.

**Research Questions**

While keeping the previously outlined goals and perspectives in mind, this project addressed the following questions.

**Primary research question.**

Does socio-cultural factors influence the faculty members’ acceptance of Moodle at GUST?
Secondary research questions.

1. What is the influence of the cultural factors (language, norms and values, and technology and tools) on GUST’s faculty members’ adoption of Moodle?

2. What is the influence of the social factors (compliance, identification, and internalization) on GUST’s faculty members’ adoption of Moodle?

3. How do the different socio-cultural factors affect the perceived usefulness and ease of use of Moodle?

Conceptual Framework of the Study

The technology acceptance model (TAM) was used as a framework for analyzing and interpreting data in the study. TAM (Davis, 1989) is frequently used in research to examine how users make decisions on whether to implement and adopt technology. In TAM, extrinsic motivating factors influence how individuals decided to integrate technology and technological practices in their lives. Those factors that are examined using TAM include factors of perceived usefulness and perceived ease of use.

Perceived usefulness concerns the extent to which an individual believes that implementation or use of technological or virtual process will benefit his or her performance (Padilla-Meléndez, Del Aguila-Obra, & Garrido-Moreno, 2013). Perceived ease of use focuses on individual beliefs regarding the extent to which implementation of a technological process will require minimal effort, time, and resource dedication (Padilla-Meléndez et al., 2013). In TAM, extrinsic motivating factors are used to examine processes related to outcomes rather than perceptions on the activity itself.
Researchers interested in the acceptance of technology are focusing on the factors influencing the adoption of technology. With the continuous change in the work and learning and teaching practices, there is a need to re-examine users’ acceptance issues, especially in the education settings (Teo, 2011b). Lack of acceptance of technology causes the voluntary users to seek substitute technology and the devoted users to show dissatisfaction that lead to ineffective use, which could nullify many of the expected benefits of the technology in use.

To better understand the causes of lack of acceptance, researchers have studied various issues related to technology acceptance; some of the main issues studied are the users’ individual characteristics and the internal beliefs and their influence on usage behavior (Dillon & Morris, 1996). Therefore, understanding the external factors that affect the users’ decision to adopt technology is the issue investigated in this research, especially social and cultural factors. Understanding the influence of the socio-cultural factors on the individual’s decision is important, especially at GUST, because it includes faculty members from diverse social and cultural backgrounds. Once the administration understands the role of the external factors on adoption, they can make an informed decision when they plan to implement, change, or improve their learning technologies.

**Methodology**

In this research, I intended to understand whether the faculty members’ culture and society influenced their adoption of Moodle. A mixed research method is appropriate for this research as it helped to answer the research question from different perspectives, enhanced the various data sources’ validity, and complemented the information that
might be missed using the other methods. According to Creswell (2014), mixed-methods designs integrate qualitative and quantitative research. Qualitative data are open-ended and the responses are not predetermined, whereas quantitative data are mainly close-ended and derived from instruments such as surveys.

Implementing quantitative methods helped in exploring the overall adoption of Moodle at GUST, especially given it is a multi-culture institution with faculty members from more than 21 countries. The quantitative methods enabled me to understand the relationship between the faculty members’ cultural background and social influences and their decision to adopt the technology. To reach this understanding, I relied on gathering general information regarding the culture of the respondents through a survey questionnaire distributed to all 162 faculty members of GUST. The survey was designed to collect quantitative data and was completed by 75 faculty members. Additionally, I conducted semi-structured interviews with eight faculty members from different backgrounds, age groups, gender, years of experience, and degree levels.

**Research Site**

GUST is the first private higher education institution in Kuwait, established through a partnership with the University of Missouri at St. Louis (UMSL), and it is considered a prestigious university with competitive admission standards. Students are admitted based on their high school performance and on their English and Mathematics placement tests. The two colleges of GUST are College of Arts and Sciences (Department of Computer Science, English, Humanities and Social Sciences, Mass Communication and Multimedia, and Mathematics and Natural Sciences), and College of

At GUST, the majority of students are of Kuwaiti nationality with diverse nationalities among the faculty members, the majority being from North America, with others from Europe, Africa, Asia, Middle East, and Australia. English is the official mode of language for teaching and learning.

Limitations

There are a number of possible limitations to this study. First, the interview participants are all users of Moodle with different levels of adoption. Since all interviews for this project included faculty using Moodle, the points of view presented here represent those of individuals who are among the users of Moodle at GUST.

In addition, limitations in sampling are present, as participants in this study were recruited from one private higher education institution rather than a larger number of private schools. Finally, this study involved a single interview per participant. I have discussed all of these concerns in the methodology section in Chapter 3.

Organization of the Dissertation

This work is divided into five chapters. Chapter 1 begins by introducing the research, research problem, primary and secondary questions, methodology used, significance of the study, and the site where the research was conducted. Chapter 2 assesses this research problem against a detailed review of pertinent literature in this area. Chapter 3 provides a thorough explanation of the research methods utilized in this work.
Chapter 4 presents the results of the study. Chapter 5 discusses the research results in light of the research questions and provides recommendations for further investigation in this area of concern.

**Summary**

Chapter 1 provided background concerning e-learning adoption in Kuwait, specifically in the higher education setting. As part of the developing countries, Kuwait’s e-learning adoption was introduced and the adoption of e-learning in developed and developing countries was discussed. A specific LMS adoption was the focus of this study, which is the adoption of Moodle by GUST in Kuwait.

Chapter 1 also introduced the problems associated with faculty members’ adoption of Moodle at GUST and the different contributing factors. Still, the main focus was on the socio-cultural factors influencing the faculty’s acceptance of the LMS. The encumbrance on the administration at GUST to make the adoption of Moodle successful provided justification at the outset of this research regarding the nature and determinants of socio-cultural factors influencing LMS that may have an important bearing on the adoption of Moodle by GUST’s faculty. The initial point of this case study was set forth by the research questions.

Now, Chapter 2 presents the literature review that introduces knowledge concerning the history of education in Kuwait, history of GUST, TAM, and the various limiting factors to e-learning adoption.
Chapter 2: Literature Review

O mankind, indeed We have created you from male and female and made you into nations and tribes that you may know one another. Indeed, the most noble of you in the sight of Allah is the most righteous of you. And Allah is Knowing and Acquainted.

Qur’an, Al-Hujurat 13

Introduction

This study explored the social and cultural factors that affect faculty acceptance and use of Moodle at GUST, a private higher education institution in Kuwait. Postman (1995) posited that the contexts and ways in which individuals use technology have an impact on how individuals experience technology.

According to Wilson (2001) the main characteristics that control teachers’ degree of technology learning are their attitude towards technology, their teaching methods, and their power over technology. Kosak et al. (2004) mentioned that faculty’s attitude toward online instruction influences their willingness to use e-learning. Therefore, understanding the influences on faculty’s decision to teach online, particularly in developing countries, will help institutions in supporting the adoption of e-learning and its technologies (Panda & Mishra, 2007) such as LMS. For a successful implementation of e-learning in institutions, it is significant to assess the barriers and motivators for e-learning adoption. These factors may be different from one institution to the other, and from one country to the other.
Saade (2003) indicated that many higher education institutions face difficulties with delivery, effectiveness, and acceptance when providing e-learning. The acceptance and use by the users determine the success of e-learning systems (Sanchez & Hueros, 2010). Identifying the critical factors related to the acceptance of technology by the users in the e-learning environment is especially important in light of the increased need for institutions to rely on information systems and the increased introduction of new technologies into the learning environment (Park, 2009). The faculty’s acceptance of the instructional medium will prompt frequent use of LMS (Al-Busaidi & Al-Shihi, 2010; Asiri, Mahmud, Abu Baker, & Mohd Ayub, 2012), especially from being teacher-centered to learner-centered. This means that instructors need to implement the new technologies and use LMS wisely to deliver learning materials to students. In higher education settings, LMS administers online material for students, tracks their progress, and helps in assessments. It also enhances students’ independence while using the technology and access to the learning materials provided (Bousbahi & Alrazgan, 2015). For this reason, faculty acceptance of Moodle at GUST has become of paramount importance to the university.

This chapter reviews relevant literature regarding the factors that affect technology, especially e-learning and LMS use and acceptance. Due to the importance of technology acceptance in this study, the literature review starts with the idea of acceptance, faulty acceptance, and technology adoption. Additionally, I provided further insight by summarizing the history of education in Kuwait, GUST, and TAM.
Faculty Acceptance and Technology Adoption

Researchers in the field of IT structures and acceptance highlighted the importance of understanding individuals’ intrinsic perception that motivates behavior. The inherent perceptions might seem different across cultures. The variation could be apparent through individuals, organizations, and nationwide (e.g., Karahanna, Evaristo, & Srite, 2005; Srite & Karahanna, 2006; Straub, Keil, & Brenner, 1997).

A technology-rich learning environment is not enough to guarantee successful technology utilization and implementation in higher education (Albirini, 2006; Asiri et al., 2012). The instructor’s acceptance of technology is central in the utilization of technology in higher education. Therefore, the user’s lack of acceptance is a considerable barrier to the success of using technology. In other words, the success or failure of an ICT implementation relies heavily on a user’s acceptance of the technology (Asiri et al., 2012).

Oblinger and Maruyama (1996) observed that faculty often resist change, resist the need to learn a new technology, and believe that adopting technology is neither beneficial nor essential. According to Bailey and Cotlar (1994), faculty struggle with the pedagogical change to include technology because of their hesitation to try new practices. Faculty “fear … change in general or … technology in particular” (Bailey & Cotlar, 1994, p. 185). Proponents of technology adoption believe that the lack of adopting technology is the faculty’s lack of readiness to accept a new technology.

Davis (1993) indicated that user’s acceptance of technology has been observed to be a crucial factor for establishing the failure or success of information system planning. Dillon and Morris (1996) define user acceptance as “the demonstrable willingness within
a user group to employ information technology for the tasks it is designed to support” (p. 5). Agarwal (2000) writes that “acquiring appropriate IT is a necessary but not sufficient condition for utilizing it effectively” (p. 85). Consequently, examining the role of faculty acceptance of LMS is important in understanding its success or failure (Davis, 1989; Igbaria, 1990; Melone, 1990).

Although the relevant literature has presented several strategies for the adoption and ongoing use of e-learning technology, a significant number of institutions have disregarded the importance of the acceptance of technology in their implementation plans (Borotis, Zaharias, & Poulomenakou, 2008).

To study the cultural and social factors that influence faculty’s acceptance and use of Moodle in GUST, I used TAM. Using this model helped me to identify what role is played by the factors within this model in the acceptance of Moodle as an electronic course delivery system.

**History of Education in Kuwait**

Kuwait is a small country of only 6,880 square miles located on the Arabian Gulf (i.e., the Persian Gulf). Bordering Kuwait is the much larger Kingdom of Saudi Arabia and the Republic of Iraq. The country shares the Arabic language and the Islamic religion with its Gulf and Middle Eastern neighbors. Kuwait has similar cultural and religious beliefs as the other six Arabian Gulf countries. Kuwait has a population of 3.4 million as of 2014, yet, only 1.2 million of the country’s inhabitants are Kuwaiti citizens. The others are non-citizens, and they are considered immigrants. In 2013, the country’s GDP per capita income was above $48,900 (GDP per capita, 2015), the second highest in the area after Qatar, and oil production accounted for about half of Kuwait’s national income.
The employment in the oil industry and the public sector in Kuwait have risen to 90%. The Kuwaiti government is currently trying to find alternative employment options for its people to help stimulate the economy. With this in mind, national leadership is trying to diversify and enhance the skills of the country’s diverse labor force. Central to this effort is the reform of education at all levels (البلوتوت دولتی یهتريه وزارت، n.d.).

Educational efforts in Kuwait began informally at the beginning of the twentieth century. Originally, rich Kuwaiti families funded separate boys and girls learning groups called Alkatateeb (for boys) and Almotawa’a (for girls). The main subjects covered in these informal groups were the memorization of the Qur’an, writing, reading, and basic mathematics. The first formal school, Almubarakiyya, was founded in 1911, and the Alahmadiya School for girls was established in 1921. It was not until 1936 that the Kuwaiti government became involved in providing formal education to its citizens, and by 1945 the state had formed 17 schools.

After discovering oil in 1937, state revenue started to increase. The government invested more heavily in social services, including education. As a result, by 1960, 45,000 students were enrolled in public schools, of which 18,000 were female. In 1965, education became compulsory for children between the ages of 6 and 14 (Kuwait - Educational System, n.d.; World Data on Education, n.d.; بالأئرری دولتی یهتريه وزارت، n.d.; Private University Council, n.d.; Embassy of The State of Kuwait, n.d.).

By 2006, Kuwait had 1,145 schools at all levels of which 664 public schools were fully funded by the government, and 481 partially subsidized private schools. Public post-secondary education in Kuwait includes technical and vocational courses offered by the Public Authority for Applied Education and Training (PAAET), as well as general
courses at Kuwait University, the Higher Institute of Theatre Arts, and The Higher Institute of Music Arts. Also, 14 private universities were established including GUST, which was the first private higher education institution in the country, and Arab Open University (AOU), the private university with the largest enrollment (Kuwait - Educational System, n.d.; World Data on Education, n.d.; Embassy of The State of Kuwait, n.d.).

Over the past few decades, the number of private higher educational institutions in Kuwait has increased for several reasons. These reasons include: 1) the steady rise of students applying for higher education, 2) the overcrowding of the public higher education institutions, 3) the limited space and facilities in governmental institutions, and 4) the shortage of faculty in the public sector. At the same time, it is estimated that the countries with the highest percentage of private schools in the Middle East in 2016 will be United Arab Emirates (UAE) at 65%, Kuwait at 46%, and Jordan at 42% (Adkins, 2013b).

Understanding the Kuwaiti education system will help contextualize how it effects the inclusion of technology in education in Kuwait higher education, and the role of private higher education in adopting these technologies.

**Technology and Culture**

The cultural dynamics of Kuwait provide an interesting context to study e-learning. On one hand, Kuwait is a wealthy nation where its citizens have ready access to technology (Wheeler, 2001). On the other hand, censorship is practiced to some extent in Kuwait. The government was concerned that its people would be negatively manipulated...
by external political pressures and by easy access to immoral materials such as pornography, which contradicts the religious values of the nation (Mirza & Al-Abdulkareem, 2011).

In 1997, according to Wheeler (2001), Kuwait has rapidly adapted to new technologies and the Internet. 40% of customers of Gulf International, the Internet services provider in the Middle East, were residents of Kuwait. Another survey conducted by Dabbah Information Technology group (located in UAE) in 1998 covering the Arab and Islamic world found that that Kuwait had the highest density of Internet users among Islamic societies.

There are several reasons to explain the high use of the Internet in Kuwait. One is that the per capita income in Kuwait is considered one of the highest in the world, estimated to be above $48,900 (GDP per capita, n.d.). Another reason is that the possession of technology in Kuwaiti culture is a sign of social status. In Kuwait the Internet is an integral part of public discourse, and businesses rely on the Internet. Also daily conversation at work, home, cafes, and schools often rely on electronic technology. This reliance is also evident in the classroom. Most school curricula, from elementary to high school, include computer classes that teach the use of software and the Internet (Wheeler, 2001).

Top Arabic and English newspapers in Kuwait, such as *Al-Qabas, Al-Watan, Al-Rai Al-A’am*, and the *Arab Times*, have designated technology sections that keep readers up to date on current technologies and include reviews written by computer science experts and other professionals in the field. Weekly TV programs discuss the use of
technology, new computer games, the current technology trends, and answer viewers’
concerns about Internet safety and computer protection (Wheeler, 2001).

The widespread discussion of technology and new trends is evidenced by the
openness of the culture and the public’s desire to know more about technology. Also,
Wheeler (2001) observed that as part of the community services offered to the public,
governmental organizations like PAAET and institutions like Kuwait University hold free
public lectures and informative sessions about technology and the Internet. In 1992, the
Kuwaiti government was the first in the region to offer free Internet access to faculty and
students of Kuwait University and later to PAAET.

In Kuwait, according to Wheeler (2001), Internet use is concentrated mainly
among the youth. This subculture is creating an emerging mode of communication that
disrupts the traditional social practices and routines while giving the younger generations
sovereignty in how they conduct their lives. In 1998, Dr. Almazeedi, Dr. Ismail, and Dr.
Wheeler presented individual papers at the Kuwait Conference on the Information Super-
Highway on the impact of the Internet in Kuwait. They each concluded that
communication practices facilitated by the Internet have a bigger influence on the
Kuwaiti youth than other populations (Ismail & Almazeedi as cited in Wheeler, 2006).

The Gulf University for Science and Technology

History.

In January 1997, 41 faculty members at Kuwait University formed the Kuwait
Collaborative Group. The stated goal was to create the foundation for a “university of the
future” (GUST document). They envisioned a university that provided a modern and
more inclusive education to its students. Half way through 1999, their goal was realized when a group of Kuwaiti academics and businessmen collaborated to form GUST (About GUST, 2015).

Many factors in Kuwait led to the creation of GUST, including the increasing demand for higher education in the gulf region, the need to align with new requirements of the global technology era, and the necessity to relieve the pressure on the system of public higher education. Besides, founders desired to bring prestigious learning to Kuwait that prepared a new generation of learners to be leaders and professionals in the changing learning environment (GUST document, 2014).

GUST creators partnered with UMSL to help bring their educational vision to life. The State of Kuwait issued the Private Universities Decree, No. 34, in 2000. The issuance of the decree led to the development of the university and its necessary infrastructure and the establishment of a temporary campus in Hawally. The publication of Emiri Decree, No. 156, followed in 2002 and resulted in the legal completion of GUST as the first private university in the State of Kuwait. GUST’s first academic year was 2002-2003, and its first commencement ceremony was in June 2007 (About GUST, 2015; GUST document, 2014).

GUST offers undergraduate and graduate programs. The undergraduate program includes two colleges: College of Arts & Sciences and College of Business Administration. The College of Arts & Sciences includes Bachelor of Science in Computer Science, Bachelor of Arts in English Literature, Bachelor of Arts in English, Linguistics – Translation, Bachelor of Arts in English Secondary Education (female applicants only), and Bachelor of Arts in Mass Communication. Also, College of
Business Administration includes Bachelor of Science in Accounting, Bachelor of Science in Management Information Systems (MIS), Bachelor of Science in Business Administration with emphasis in Finance; Management and Organizational Behavior; International Business; and Marketing. Also, it offers a Master’s degree in Business Administration (MBA).

For the academic year 2014/2015, there were 160 faculty members teaching at GUST, among them 58 females and 102 males. Only 5 of the faculty are Kuwaitis, and the rest of the faculty population includes Arabs, Africans, Asians, Europeans, and North and South Americans. There are instructor level faculty members, assistant professors, visiting assisting professors, visiting associate professors, associate professors, and full professors.

The E-learning Center of Excellence.

The evolving educational needs of the student body encouraged GUST to implement distance learning and to invest in new technology to help achieve this goal. The administration of GUST has gone through several system changes to ensure quality, but the university’s leadership is still disappointed by the lack of faculty members’ use of the LMS. GUST offered ready-made online courses for faculty to use and adopt. During the Fall, Spring and Summer1 Semesters of the academic year 2010-2011, there were 1380 users of the online courses. These users included either faculty or students. During the following academic year, in 2011-2012, such user numbers rose to 2189. Moodle was first introduced in the year 2011-2012. Therefore, the increase of over 800 users on academic year over academic year may indicate the impact due to introduction of new technology. However, when GUST moved to full adoption of Moodle in Fall of 2012-
2013, the number of users accessing an online course dropped to 675, from the previous Fall’s number of 1047. This reduction of over 370 users was a significant drop of 35 percent. (GUST document, 2014). The administration attributed the decrease to the users’ familiarity with the previous LMS, by Microsoft, and their unwillingness to try a new system. Mr. Zain believed that the number of users in the academic year 2011-2012 (before the full adoption of Moodle) was higher but that doesn’t mean real adoption, it only means that there were over 1000 users the first year. This could indicate that the users were just trying the system, or simply just signing in, but not actually using Moodle. Since there was no answer offered to this question of why the numbers went down, the reason for the decrease in number of users was not fully ascertained.

In 2005, the ECE at GUST was unveiled introducing the first LMS by IBM, Lotus Workplace Learning Management System. It included six customized e-learning courses: Introduction to Management Information Services (MIS), Accounting, Algebra, Biology, Mass Media, and Trigonometry. Universal Knowledge Solutions (a company based in Dubai, UAE that provides online education products and services) designed the courses to be used as tools by faculty to enrich their teaching (About GUST, 2015; GUST document, 2014).

The faculty of GUST reported that the system was not user-friendly, which led the institution to switch to a different system, Microsoft Share-point, known as the MyGUST portal in 2007. At this point, GUST noticed increased usage by faculty due to their familiarity with Microsoft products and its interface design, and faculty and students reported that they were comfortable adapting to the new LMS (GUST document, 2014).
In 2008, GUST moved to its new campus located in Mishref and implemented state-of-the-art technology intended for the next five years. GUST invested in new services, systems, applications, and software to conduct business operations at the university. In the meantime, however, the e-learning department was faced with budgetary problems that hindered its progress. At this point, GUST had subscribed to more than 700 off-the-shelf e-learning courses through Skillsoft (a company that offers customized learning materials to organizations, businesses, and educational institutions). Unfortunately, because few of the faculty used these courses for a variety of reasons, they were discontinued (About GUST, 2015; GUST document, 2014). To simultaneously reduce costs as well as offer better e-learning options, the IT department at GUST switched to its third LMS, Moodle.

The 2012, GUST introduced Moodle, an open source technology. Being an open source system, GUST was more inclined to adopt Moodle especially in 2012 because it had moved to its new location, and was facing many expenses. At the same time, the administration believed it was easy to use, easy to download, and easy to upgrade, and the current version in use was 2.7.1 and had an expected version update to be completed by the end of the 2015/2016 academic year. There were 6565 users-including administration, students, and faculty using MyGUST by the 2014/2015 academic year.

The e-learning department observed that faculty members use Moodle mostly to post grades, provide feedback for students, online quizzes, tests, assessments, sending emails, and few use it to post announcements on forums, chats, projects, and links to resources and external materials. In 2014/2015 academic year, the e-learning department recorded that there were 13,181 files and folders uploaded and exchanged, 11,077
assignments submitted, 2675 quizzes taken, 2236 forum interactions, and 963 URL’s linked on Moodle. On the other hand, there were 203 chats, 13 wikis developed, 3 lessons, and 4 surveys generated on Moodle. This gap of usage and adoption was realized by GUST, where the majority of tools used in Moodle were the administrative and course management ones, while the administration was expecting more cooperative and constructive adoption of Moodle. Through MyGUST portal, e-learning courses are produced. Based on number of courses and sections, each faculty of GUST has an e-learning course created on Moodle. Moodle offered the ability to merge multiple sections to form one meta-course that includes all students enrolled in the course in one place. This feature allowed faculty to upload course files, resources and homework in one location rather than several locations.

**The Problem**

Based on an interview with Mr. Zain, one of the ECE’s administrators, he indicated, “there has not been an actual implementation of e-learning in GUST after 2007, and it has been limited to providing a collaboration tool through the LMS platform for student and faculty interaction” (Personal Communication, August, 2015). He added that e-learning technology has not been incorporated to its maximum in classes. Also, he commented that faculty members’ training included only how to manage the courses on the portal, but not in creating the online course. This assessment was also supported during my interview with Ms. Emily where she supported Mr. Zain’s view on the faculty training. Ms. Emily noted that, “new faculty are trained by the e-learning department so
that they are aware of the activities of Moodle so they can use it” (Personal Communication, August, 2015).

Mr. Zain in his conversation mentioned that several faculty members were not pushing the e-learning initiative forward, and were not satisfied with the administrative use of Moodle. He recognized that the majority of faculty members are not comfortable with using the new technology and are rather content with using the traditional methods. Mr. Zain believes that such lack of support by faculty for Moodle contributes to the failure of the Moodle initiative for building courses online.

In his conversation, Mr. Zain pointed out that attitude of the top and senior management in the university was not in line with the intention to build an e-learning culture. Recently, the management team was allotted a budget, which led to the creation of in-house online courses. Additional staff had been hired with goals and objectives established. Initiatives like mobile learning are also being considered. Mr. Zain added that one contributing factor to resistance to change from a traditional delivery system was the frequent e-learning system changes by GUST. It is one of the obstacles facing GUST regarding the successful utilization of e-learning tools. Based on my conversation with Mr. Zain, he referenced the internal survey conducted by GUST’s ECE in 2015. Although the survey was not properly analyzed, the ECE conducted it to reflect on the general adoption, and faculty’s feedback regarding the reasons contributing to faculty’s minimal use of online courses. While some faculty members described themselves as light users of technology, in general, most expressed that the system was difficult to use.

Although the relevant literature has presented several strategies for the adoption and ongoing use of e-learning technology, a significant number of institutions have
disregarded the importance of technology (Borotis et al., 2008). Many researchers have used the widely accepted TAM in different e-learning contexts to examine the users’ satisfaction, acceptance, and use of the e-learning tools (Wang, 2003; Ong et al., 2004).

The Technology Acceptance Model

History.

Various theoretical models have been introduced to anticipate acceptance behavior that influences the individuals’ ICT implementation success (Abbasi et al., 2011). Dillon and Morris (1996) defined technology acceptance as “the demonstrable willingness within a user group to employ information technology for the tasks it is designed to support” (p. 5). The TAM was introduced to predict individual’s acceptance behavior and adoption of technology (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989; Zakour, 2004; Venkatesh & Bala, 2008). It's been implemented in E-learning research and produced validated findings about technology acceptance in Western contexts (e.g. Chang & Tung, 2008; Halawi & McCarthy, 2008; Liu, Chen, Sun, Wible, & Kuo, 2010; Park, 2009; Saeed & Abdinnour-Helm, 2008; Walker & Johnson, 2008; Yi-Cheng, Chun-Yu, Yi-Chen, & Ron-Chen, 2007; Zhang, Zhao, & Tan, 2008).

The TAM model applies various theories when investigating an individual’s acceptance behavior on ICT adoption (Surendran, 2012). Among the theories used in examining technology adoption, there is the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), and the TAM. Both TPB and TAM originated from TRA.
Next, I present a brief discussion of these theories, and then I follow with a rationale for choosing TAM to be my guiding model.

**Theory of Reasoned Action (TRA).**

Developed by Fishbein and Ajzen (1975), the origin of this model is social psychology. The purpose of the TRA is to offer a model that explains and predicts individual behavior (Chuttur, 2009). TRA builds on the assumption that the individual is rational and will use information to make systematic decisions. In short, Ajzen and Fishbein (1975) introduced TRA to help researchers better predict the behavior and attitudes of study participants. In the TRA model, the main predictor of behavior is behavioral intention, while the individual's attitude towards the behavior influences the intention (Marangunic & Granic, 2014).

The model intends to describe the relationship between beliefs, attitudes, intentions, behaviors of individuals, and norms. A person’s behavioral intention, according to TRA, determines the intended behavior to be performed. In other words, the person’s attitude and subjective norms determine the behavioral intention of an individual (Fishbein & Ajzen, 1975; Davis et al., 1989; Sheppard, Hartwick, & Warshaw, 1988). Subjective norms as defined by Fishbein and Ajzen (1975) are “the person’s perception that most people who are important to him think he should or should not perform the behavior in question” (p. 302).

According to Fishbein and Ajzen (1975), TRA explains an individual's attitude toward certain behavior as being influenced by his or her beliefs about the outcomes of the behavior. A person’s beliefs are characterized by his or her “subjective probability” that performing a certain action will lead to a particular outcome. Therefore, TRA
proposes that external stimuli influence attitudes through altering the person’s beliefs. In TRA, subjective norms influence behavioral intentions, while normative beliefs and motivation to conform to the norms determine subjective norms. Attitudes or subjective norms indirectly affected by factors influencing the behavior are known as external variables (Fishbein & Ajzen, 1975). The following Figure 1 is adapted from Davis et al., 1989 (p. 984).

Figure 1. Theory of Reasoned Action (TRA). Adapted from User acceptance of computer technology: A comparison of two models, by F. D. Davis, R. P. Bagozzi, and P. R. Warshaw.

**Theory of Planned Behavior (TPB).**

Icek Ajzen proposed the Theory of Planned Behavior (TPB), an extension of the TRA, in 1985. TRA was extended because it did not focus on the constraints on individual behaviors that reduce the control of people over their actions. TPB adds a third
component that influences a person’s intention to carry out certain behaviors, and it results from the restraint on behaviors over which people have minimum control. The concept of the perceived behavioral control points to resources, opportunities, and skills in addition to the individual’s perception of how important it is to achieve the results. In TPB, the three variables—attitude, subjective norms, and perceived behavioral control—all have a direct influence on behavioral intention, which in turn influences behavior (Ajzen, 1985; Ajzen, 1991). The following Figure 2 is adapted from Silva and Dias (2007, p. 69).

*Figure 2. Theory of Planned Behavior (TPB). Adapted from Theories about technology acceptance: why the users accept or reject the information, by P. M. Silva and G. A. Dias (2007).*
Technology Acceptance Model (TAM).

In the 1970s, the need for institutions to adopt new technology increased, yet, researchers observed a low rate of adoption. The lack of adoption led researchers in the field to focus on studying the prediction of technology use (Chuttur, 2009). In 1986, Fred Davis, a doctoral student at the MIT Sloan School of Management was first to present TAM in his doctoral thesis. Davis built his new model on the TRA by Fishbein and Ajzen (1975) and other research studies of attitude. Fishbein and Ajzen (1975) used intention to explain behavior while observing and analyzing the user’s attitude, intended behavior, and actual behavior. In order to develop TAM, Davis (1986) used the TRA model and tried to adapt it to user acceptance of information systems (Chuttur, 2009).

TAM is widely used to explain the acceptance of an information system by the user. The main goal of TAM is to predict a user’s attitude, behaviors, and acceptance of new technology by considering external variables. The initial TAM model shown in Figure 3 consists of three categories:

1. Actual system use which “is a response that can be explained or predicted by user motivation.”
2. User motivation which “in turn is directly influenced by an external stimulus.”
3. Features and capabilities that are “external stimulus consisting of the actual system’s features and capabilities” (Chuttur, 2009, p. 1). Figure 3 is adopted from Chuttur (2009, p. 1).
In 1986, Davis further modified his model to introduce the TAM. In the earlier model of Davis, looking at Figure 3, it can be seen that the model was basic and it did not explain the internal dynamics of how various inputs give rise to the attitude. Therefore, Davis further modified his model to introduce two mediating processes, Perceived Ease of Use and Perceived Usefulness. As this has been shown in Figure 4. He proposed three factors to explain the user’s motivation: Perceived Ease of Use (PEU), Perceived Usefulness (PU), and Attitude Toward Using (A) the system. TAM assumes that a user’s acceptance or rejection of a system is his or her attitude towards the system. The user’s attitude, according to Davis, is influenced by two main beliefs: 1) perceived usefulness, and 2) perceived ease of use. Perceived ease of use is considered to have a direct effect on perceived usefulness. Finally, Davis hypothesizes that system design characteristics that are represented by sub-script X1, X2, and X3 directly influence both beliefs (Chuttur, 2009). In Davis’s initial draft, the main two determinants of actual system use in TAM
were PEU and PU. External variables of social, cultural, and political factors influenced the previous two determinants. Figure 4 is adapted from Chuttur (2009, p. 2).

![Diagram of the Technology Acceptance Model](image)

*Figure 4. Original TAM proposed by Fred Davis in 1986. Adapted from Overview of the Technology Acceptance Model: Origins, developments, and future directions, by M. Chuttur (2009).*

Davis further defined the two main factors of TAM, PU and PEU. PEU is defined as “the degree to which the prospective user expects the target system to be free of effort” (Surendran, 2012, p. 175-6). PU is “the prospective user’s subjective probability that using a specific application system will enhance his or her job or life performance” (Surendran, 2012, p. 175-6). The former—when the users feel that the technology is easy
to use—affects the latter, and they will consequently will be willing to use it and explore its usefulness. In many studies, this correlation between the two factors has been established (e.g., Davis, 1989, 1993; Venkatesh & Davis, 1996). The TAM model proposed by Davis did not focus on a particular topic, it proposed a general theory of technology use and adoption by the user (Pituch & Lee, 2006; Liu et al., 2010). Later, Davis (1986) went through testing phases and refined, added, and clarified his model by adding other variables. Davis revised the initial relationship between the factors. Since then, TAM has gone through several additions from different researchers, and it has become the leading model in explaining and predicting system use (Chuttur, 2009). Figure 5 is adapted from Davis et al. (1989, p. 985).
There were various case studies conducted to clarify and identify the influencing factors of technology adoption to help reduce technology resistance (Teo, 2011a).

**Why TAM?**

Researchers implemented TAM in different educational settings examining different parts and variables (e.g. Ahmed & Hasan, 2010; Coffman, 2015; Davis, 1986; Hackbarth & Grover, & Yi, 2003; Park, 2009; Selim 2003; Siegel, 2008; & Teo, 2011a).

In the literature on technology acceptance, the research identified several factors that influence technology acceptance including various external variables. The culture and
context where the technology is used influenced the outcome of the research, which indicates that there is no specific model that will be valid to all contexts. Consequently, this research will explore the acceptance of LMS by GUST’s faculty while focusing on the socio-cultural factors as the external variables. In studying the socio-cultural variables that affect the acceptance of LMS among GUST faculty members, I have used TAM as a guiding model for the research. The objective of the study is to analyze the faculty use of LMS in a mixed higher education culture. The selected constructs are socio-cultural factors such as: language, technology and tools, values, compliance, identification, and internalization.

Teachers and faculty are the initial users of technology, and are responsible for making the decision to either adopt or reject the technology (Teo, 2011a). To better understand the reasons contributing to the faculty’s acceptance or rejection of technology, it is important to consider the reasons behind such a decision.

According to Teo (2011a), TAM explains that the use of IT relies on the user’s intention to use the system. Attitude, which is influenced by PU and PEU, determines the user’s intention to use the system. However, the external variables that influence PEU and PU in certain contexts have to be identified, and Davis recommended more research to extend TAM with additional variables (Davis, 1989).

Many researchers studying e-learning acceptance have used the widely accepted TAM in different e-learning contexts. TAM was used to examine the users’ satisfaction, acceptance, and use of the e-learning tools (Wang, 2003; Ong et al., 2004). Earlier research displayed the role of PEU and PU on the adoption of e-learning (Selim, 2003;
Teo, 2011a). This study focused on understanding the socio-cultural factors that influence the use of LMS through PEU and PU.

Davis (1989) developed TAM to explore the elements that justify the individual’s acceptance or rejection of technology. He found out that PU and PEU are the two primary determinants of user’s belief about using technology (Li, 2010). The two behavioral beliefs, PU and PEU, induce the user’s behavior, intention, and actual behavior.

The question then becomes why TAM should be used instead of another framework. I chose to use TAM for this research because it is the most cited model for assessing user’s acceptance of technology on the individual level. It has also been validated by different studies, which established its reliability (Osman & Köhler, 2013; Surendran, 2012; Lee, Kozar, & Larsen, 2003). Various studies have utilized TAM to examine the use of e-learning, including Park (2009), Arenas-Gaitán, Ramírez-Correa, and Rondán-Cataluña (2011). It also allows me to test external factors that are not originally in the model. For this reason, I plan to understand the influence of socio-cultural factors on GUST’s faculty acceptance of LMS through PU and PEU.

Limitations of TAM.

Both TRA and TPB share the assumption that individuals make rational decisions when taking an action. Rational decision making presumes that individuals make a decision while being aware of the outcomes and impact of their action, or expecting optimum results (Basu 1996; Eppen, Gould, Schmidt, Moore, & Weatherford, 1998).

TRA was criticized for ignoring the importance of social factors (the environment’s influences on an individual’s behavior) (Ajzen, 1991) that are in real life, could determine the individual’s behavior (Grandon & Mykytyn, 2004; Werner, 2004),
and the high correlation drawn between attitude and subjective norms to behavioral intention, which led to behavior (Ajzen, 1985). Considering that behavioral intention is not always the sole determinant of behavior where the user lacks control over the behavior, TPB introduces another component “perceived behavioral control”. Ajzen extended TRA to cover the unconscious behaviors that lead to predicting behavioral intention (Ajzen, 1985).

TRA and TPB share the limitation in predicting behavior (Werner, 2004). The first limitation deals with the intention determinants and points out that they are not restricted to attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). Other factors may influence behavior, and it was present in studies that TRA or TPB can explain only 40% of the variance of behavior (Ajzen, 1991; Werner, 2004). The second limitation deals with the gap between the behavioral intention assessment and the actual behavior being assessed (Werner, 2004). During that time gap, the individual’s intention might change. The third limitation in both TRA and TPB is that they are predictive models; they predict the individual’s action based on certain criteria, which is not always true because individuals don’t always behave as predicted (Werner, 2004).

TRA and TPB have been applied to study the adoption from individual perspective. Later, TRA was modified to TAM to help understand user’s acceptance of new technology (Chin & Marcolin, 2001; Karahanna & Straub, 1999; Legris, Ingham, & Collerette, 2003). In TAM, the intent to use technology impacts the usage behavior. It is a linkage of TAM overlapping with TRA and TPB. Also, TAM, PU and PEU regulate the intentions to use, which is a linkage that replaces the effects of attitude and subjective
norms under TRA. It also replaces the effects of attitude, subjective norms, and perceived behavioral control in TPB (Bagozzi, 2007).

Although the original TAM and its extensions are used widely and extensively, the literature presents some limitations to the model (e.g., Taylor & Todd, 1995; Venkatesh, 2000; Venkatesh, Davis, & Morris, 2007). Among the limitations of TAM presented in the literature is a cultural bias consideration (Abbasi, Irani, & Chandino, 2010; Bagozzi, 2007; Rose & Straub, 1998; Straub, Keil, & Brenner, 1997). The literature shows that culture has an influence on acceptance. To combat potential biases, researchers have attempted to test TAM in developing countries to determine the extent to which cultural factors influence technology use. Frequently, when conducting research in non-western cultures, researchers apply the existing knowledge of developed countries about technology acceptance and apply it to other cultures building on their cultural beliefs and values (Hofstede, 1980). Nonetheless, users of technology around the world, according to Ziefle and Jakobs (2010), have different ideas, ways of thinking, cultural values, and assumptions.

Studies examining technology acceptance through TAM have more recently broadened to incorporate data in non-western countries (Tarhini, Hassouna, Abbasi, & Orozco, 2015). These studies have been used to assess whether or not TAM is culturally biased. Research has indicated that although cultural biases influence how users perceive technology, TAM analyses can be modified to include how situational contexts play a role in technology use. For example, Straub (1994) studied the use of fax and e-mail in two different countries with different cultures applying TAM. He concluded that culture played significant role in the choice of communication media between Japanese and
American workers. For the Japanese workers, they perceived Fax to be more useful than did the US workers. On the other hand, the American workers perceived the use of e-mail to be more useful. Also a study by Mao, Srite, Thatcher, and Yaprak (2005) concluded that in Turkey, perceived ease of use of mobile phone adoption was more important than in the US.

Review of the literature of TAM between the years 1991 and 2009 included research in 41 countries and showed that the majority of research using TAM was mainly conducted in the U.S. When studies in the U.S. (37.32%) are combined with research work conducted in Canada (5.54%), findings produced 42.86% of the research on TAM (Chang, Chou, & Yang, 2010), which contributed to its limited generalizability and reliability across other cultures.

Although TAM was suggested to be a culturally biased model, it has been used in research within the Gulf countries and produced confirming results through the use of additional criterion, including cultural values and subjective norms (Tarhini et al., 2015). Additionally, cultural bias suggestions in TAM have focused on the lack of consideration of subjective norms, which have now been incorporated in recent research. This research was done in Saudi Arabia (e.g. Al-Somali, Gholami, & Clegg, 2009; Anderson, Hubona, & Al-Gahtani, 2007; Averweg, 2005), Kuwait (e.g. Almutairi, 2007; Ashkanani, O’Hara, Lovatt, Abeer, & Tamtam, 2015; Rouibah, 2008), Qatar (e.g. Al-Shafi & Weerakkody, 2009a; Al-Shafi, & Weerakkody, 2009b), Bahrain (e.g. Al-Ammary, Al-Sherooqi, & Al-Sherooqi, 2014; AlSoufi, & Ali, 2014; Jalal, Marzooq, & Nabi, 2011; Kumar & Priyanka 2014), UAE (e.g. Aboelmaged, 2010; Selim, 2003), and Oman (e.g. Al-Jumeily, Hussain, & Crate, 2014; Al-lawati, Al-Jumeily, Lunn, & Laws, 2011; Sharma & Chandel, 2013). It
was conducted in various areas such as the intention to shop online, usage of IT in Ministries, social usage of instant messaging, impact of personal factors of instructors on e-learning acceptance, online banking, applicability of TAM, understanding academics’ business intelligence (BI), evaluating the antecedents of TAM, understanding BI in adopting e-government services, adoption of E-recruitment, M-banking, TAM for use of learning through websites, and cultural factors and TAM. The conformity of the results may be attributed to the fact that in the Gulf countries, a significant portion of the workforce is of foreign origin. It also applies to the academic environment and the institutes of higher education. Since an individual identifies and associates him to its cultural origins, it might have enabled generalizability and reliability of the findings.

Despite the concerns about cultural biases in TAM, new studies have redefined how TAM is used in non-western countries. When incorporating cultural values and subjective norms in TAM, research has indicated that TAM is an acceptable model to explain variance in technology acceptance (Tarhini, Hassouna, Abbasi, & Orozco, 2015).

**Extensions of TAM.**

Numerous technology-based products and services are not widely adopted, while other technologies are simply rejected (Burton-Jones & Hubona, 2006). Therefore, researchers view the study of predicting and explaining users’ adoption of new technologies as an important issue. In the field of technology adoption, it is important to know what comes before technology use. TAM is one of the commonly used models for understanding how technology’s attributes affect the usage of technology (Godoe & Johansen, 2012).
The TAM includes two main determinants of actual system use, PU and PEU. The perceived characteristics are assumed to have an effect on BI, which influence actual use (AU). In addition, it is presumed that PEU influence PU. This assumption is drawn from the logic that the easier the system is to use, the more useful it becomes due to the little effort needed to use the system (Davis, Bagozzi, & Warshaw, 1989).

The strongest determinant in the model is found to be PU (Burton-Jones & Hubona, 2006; King & He, 2006; Legris, Ingham, & Colleretta, 2003; McFarland & Hamilton, 2006). The two determinants are influenced by “external variables.” There are three categories of external variables that usually manifest in research; social factors, cultural factors, and political factors.

Since the development of TAM, many researchers in the field have tried to replicate and extend TAM, yet only a few researchers have attempted to understand and predict LMS use through evaluating the impact of social and cultural factors on usage (Davis, 1989). Several researchers in different fields have tested the model, and the results have been reliable. Many researchers who have used TAM in their research have modified the model in some way to fit their studies (Surendran, 2012). TAM went through several modifications by researchers through adding new variables to it (Adams, Nelson, & Todd, 1992; Davis, Bagozzi, & Warshaw, 1989; Dishaw & Strong, 1999; Karahanna & Straub, 1999; Lucas & Spitler, 2000; Venkatesh & Morris, 2000; Venkatesh, Morris, & Davis, 2003).

The research done by Agarwal and Prasad (1998) modified TAM by adding the concept of “compatibility” to the model. Also, Moon and Kim (2001) incorporated a “playfulness” factor to investigate the acceptance of the World Wide Web. On the other
hand, Nath, Bhal, and Kapoor (2013) suggested adding “social influences, computer self-efficacy, and technological facility” to modify the model. A different study by Chau and Hu (2001) added a “peer influence” factor to the model.

Farhat (2013) modified TAM in order to identify determinants of students’ acceptance of online learning, and they shape students’ intention to use online learning. The identified substantial factors were students’ perceived ease of use, usefulness, attitudes, and social influences of the students’ referent group. Zakour (2004) proposed to study the adoption, use, and acceptance of IT in two countries that were expected to be different in national culture values. Zakour used and modified TAM as the framework of her study, and added cultural values as factors in influencing the users’ acceptance.

In an attempt to better understand IT use, a few researchers (Rose & Straub, 1998; Srite, 2006; Straub, Keil, & Brenner, 1997) have tried to explore and examine the influence of cultural factors on the behavioral use. While culture conditions individuals in the society, TAM is typically used to explain the use of technology at the individual level. Zakour (2004) proposed to extend TAM to help understand what cultural factors may explain and predict behavior toward technology acceptance. In her research, Zakour (2004) integrated cultural values that were established in the literature.

The previous wide range of additions to TAM presented in the literature indicate that the model can address the modifications and allows for incorporating external factors to understand the acceptance of the technology.

In this research, I investigated the cultural and social factors that could influence the faculty’s use and acceptance of Moodle at GUST. Hofstede maintains “culture is always a collective phenomenon, because it is at least partly shared with people who live
or lived within the same social environment, which is where it was learned” (1980, p. 5). Nevertheless, it is only evident through the individuals in the society (Robinson, 1950; Straub, Loch, Evaristo, Karahanna, & Srite, 2002). Since online activities are geared towards individual interactions, testing at the individual level is suitable for building understandings about the effects of culture on e-learning (Hitosugi, 2009).

**External Factors**

Although the theme of external and internal barriers and success factors for e-learning acceptance, adoption, and use is widespread through the research, it has been categorized differently. Internal variables include attitude, pedagogical beliefs towards e-learning, and level of competency (Asiri et al., 2012; Rogers, 2000). In contrast, external variables “may exist outside the immediate environment of the system” (Asiri et al., 2012, p. 129).

Some of the external factors in the literature that influence the utilization and acceptance of technology include organizational, technological, and social factors (Rogers, 2000). The organizational barriers refer to “the organizational arrangement to support technology integration in the classroom” (Zhao, Pugh, Sheldon, & Byers, 2002, p. 503; Asiri et al., 2012). Technological barriers are “limited access to useful, relevant, and appropriate hardware and software” (Rogers, 1999, p. 9; Rogers, 2000; Asiri et al., 2012). Social factors, sometimes known as subjective norms, are “perceived external pressures to use (or not use) the [technology]” (Liker & Sindi, 1997, p. 152). Rogers (2000) added some barriers that are in between the internal and external such as limited
time, shortage of appropriate funds, and culture resistance to the adoption of learning technologies.

Selim (2007) grouped the critical success factors of e-learning within the university environment into four categories: (i) instructor, (ii) students, (iii) information technology, and (iv) university support. Equally, Beamish, Armistead, Watkinson, and Armfield (2002) identified two different categories of e-learning adoption. First, individual barriers such as the resistance of culture and the motivation of learners. Second, the technology barriers such as, availability and accessibility of technology, and cost. Muilenburg and Berge (2005) presented eight barriers to online, defined as: “(a) administrative/instructor issues, (b) social interaction, (c) academic skills, (d) technical skills, (e) learner motivation, (f) time and support for studies, (g) cost and access to the Internet, and (h) technical problems” (p. 35).

David, Poissant, and Rochette (2012) conducted a qualitative study and used individual semi-structured interviews with clinicians and managers. They found external variables in TAM that influenced perceived usefulness and perceived ease of use. They identified two factors that are related to technology, three factors that are related to users, and one factor that is related to technological support provided to users.

**Adoption Factors in Kuwait**

While studying e-learning barriers in Kuwait, Ali and Magalhaes (2008) identified several barriers based on the literature of Western cultures and compared them to the Kuwaiti culture. The results were ranked by the top four barriers for both cultures. In Western cultures, the barriers ranked (starting with more relevant to less relevant) as
follows: (i) cost, (ii) time, (iii) technology, and (iv) resistance to change. For Kuwaiti culture, the barriers were ranked (starting with more relevant to less relevant): (i) lack of management support, (ii) language barriers, (iii) IT problems, and (iv) workload and lack of time. They determined that the same barriers are ranked differently according to the culture they are introduced to. On the other hand, Alkharang and Ghinea (2013) grouped e-learning barriers into four main categories: (i) cost, (ii) time, (iii) technology, and (iv) attitude. They conducted a study on e-learning barriers facing Kuwait’s higher education institutions, and then compared them to barriers found in developed countries. They adopted barriers presented by Bernárdez (2003). To reconcile the key differences in barriers found in Kuwait, the barriers were re-examined and grouped into categories. Although different barriers were identified, the studies used different language when addressing technological concerns. The common barriers between the previous two studies can be grouped under three main categories:

1) Personal issues (time management, language, attitude towards e-learning, and user’s learning style preference)

2) Technical issues (infrastructure building and enhancement, connectivity maintenance, accessibility and usability, and inadequacy of technical support)

3) Organizational issues (lack of e-learning support, management support, strategic planning, time for learning and training, proper content and assessment, and encouragement and reliability
Socio-Cultural Factors

As was shown earlier, there are various barriers and motivators that influence the faculty’s use of e-learning. The factors included in this research approach the acceptance of LMS from a different view. This research looks specifically at the cultural and social factors that influence GUST’s faculty acceptance and use of Moodle.

The intra-culture diversity within the same country but in different institutions and organizations is also identified as a cultural influence (Hofstede, 1994; Srite & Karahanna, 2006). However, this is seldom examined in the literature on IT acceptance (Honold, 2000). Consequently, TAM neglected the role of the group, cultural, and social aspects when individuals construct acceptance choices.

Social influences.

The term “society” refers to a group of individuals who share the same living region and share the same culture (Barkan, 2010). Society influences individuals’ attitudes, actions, and beliefs (social norms) even though it does not determine them completely. Rashotte (2011) defined social influences “as change in an individual’s thoughts, feelings, attitudes, or behaviors that result from interaction with another individual or a group” (p. 4426).

It is observed that a person commits “real” modification to his or her feelings and behaviors when influenced by others who are identified as similar, desirable, or expert. In general, people change their beliefs according to others they regard as similar. Also, an individual is more likely to adopt the same view as his or her referent social group (the majority). Individuals are more inclined to change their opinions when influenced by an expert on the subject at hand (Rashotte, 2011).
The effect of external influences on the change of individual’s attitude was instigated by the impact of social factors (Kelman, 1958). According to Malhotra and Galletta (1999), Kelman differentiates between three variant practices of social influences that influence the individual’s behavior which are, (i) compliance, (ii) identification, and (iii) internalization.

1. Compliance: when a person adopts certain behavior with the expectation of gaining rewards or avoiding punishments not because he or she believes in its content.

2. Identification: when a person accepts influence because he or she desires to sustain a gratifying self-defining relation to an individual or group.

3. Internalization: when a person adopts a behavior because it is harmonious with his or her value system.

The social influence process that Kelman (1958) addressed as compliance can be represented by subjective norms (SN) that demonstrate the direct effect of others. Individuals usually accept the power of SNs so they can obtain the support and approval of the people whose opinions are significant to them (Shen, Lee, & Cheung, 2010). In the context of the faculty at GUST and the use of Moodle, the significant others can be another faculty, university administrators, or a member of a different group such as family or friends.

In the context of this study, when a faculty accepts a behavior or certain use (or not use) of technology because it aligns with ones’ own values and beliefs, this is a form of internalization (Shen et al., 2010). For example, a faculty at GUST might be enthusiastic towards using Moodle in all parts of the course, and finds others who share
the same interest, not necessarily in the same institution. In this case, the faculty and the others in the same interest group may find similarities of values and goals that may encourage them to create valuable information jointly. Therefore, the related ideas and concerns help to achieve internalization.

Identification is another form of social influence related to individual’s affiliation with other individuals or group (Kelman, 1985). Identification refers to “one’s conception of self in terms of thinking, feeling, and acting on the basis of a “group level of self” (as a member of the group) instead of a “personal self” (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987, in Shen et al., 2010, p. 27). When a person acknowledges the influence to create or sustain a positive self-defining relationship to another individual or group, then identification occurs. Therefore, identification directs the individual to select carefully a perception of belonging to a group (Bagozzi & Lee, 2002).

It is usually expected that individuals will perform an action influenced by social pressure from friends, family, colleagues, or even their boss (Kelman, 1958; Bagozzi, 2006), but it is worth considering how influential these pressures may be.

**Cultural influences.**

The cultural variables such as, discourse conventions, academic styles, and learning styles that influence the way learners think, feel, and act in learning settings result from cultural value systems that have an influence on the culture’s education system (Kamentz & Mandl, 2003). Culture constitutes symbols, language, beliefs, values, and artifacts that are part of any society (Barkan, 2010). Therefore, culture consists of various societal aspects: language, values, norms, rules, tools, technologies, customs, products, organizations, and institutions. Although the relationship between culture and
society is complex, culture includes the objects of a society. At the same time, people who share a common culture are part of the same society (Barkan, 2010).

The earlier definition of society signifies the importance of culture in society, especially when it influences the individual’s beliefs and behaviors. Individuals learn from their culture how to behave, and that is a key factor to set groups apart. Not only language sets people from different cultures apart, but it also influences how they use gestures when interacting. Culture is evident also in the values we consider important to teach our kids, besides other cultural factors (Barkan, 2010). In essence, without culture individuals would not have a society.

Hasan and Ditsa stated, “Of all the factors that must be considered in the adoption of information technology, culture is probably the most difficult to isolate, define and measure” (1999, p. 5). Although it is not easy to examine and measure culture, it is of high significance to understand. Failure to comprehend culture can lead to awkward mistakes and tense relationships, and sometimes even to life-and-death situations. Ghemawat and Reiche (2011) gave an example of the Korean airplane crashes from 1970 to 2000. The examination of the aircraft's black boxes revealed that the co-pilots and engineers were very respectful in their interaction with their pilots during the tense situation, and they seldom presented suggestions or solutions.

The co-pilots and engineers reacted in a way that did not contradict their captain. The Korean culture disapproves of an individual challenging his or her superior and considers this in appropriate behavior (Tavangarian, Leypold, Nolting, Roser, & Voigt, 2004). The airplane incident is an extreme example, but it sheds the light on the importance of understanding one’s culture to prevent similar or even less critical
situations. Besides, it proves that the cultural factors of society can have a direct influence on the behaviors of individuals.

The concept of culture is complex and broad, and it can be defined in many ways. The literature on culture presented various definitions of culture in an attempt to come up with an acceptable one, but little agreement has been reached. In an effort to come to a consensus on a definition, Kroeber and Kluckohn (1952) identified 164 definitions from different views and levels of understanding. While there was little agreement among researchers, few eminent definitions of culture were identified within the sociology, social psychology, and anthropology literature (Abbasi et al., 2011). The majority of the studies of culture, however, stemmed from the anthropological perspective. Presented below are the definitions that serve the purpose of this study.

Culture, according to Mead (1953), is a pattern of behavior that is shared. Alternatively, Hofstede (1991) introduced culture as “collective programming of mind that distinguishes the members of one group or category of people from another” (p. 5). Boldley (1994) indicated that culture contains what people think, what people do, and what they produce. Culture forms the values of members of the society, it shapes their assumptions, it forms their perceptions and behaviors.

Ghemawat and Reiche (2011) defined culture as ”a set of shared values, assumptions, and beliefs that are learned through membership in a group, and that influence the attitudes and behaviors of group members” (p. 1). Three main ideas stem from this definition. First, culture can be recognized as a collection of experiences that sets one group from another. Second, culture is not a birthright to its people, rather it is obtained through the course of socialization. A person acquires his or her culture through
the interaction with direct family, teachers, experiences, and the whole society. Third, the values of culture are what give priority to one’s action over the other (Ghemawat & Reiche, 2011).

Researchers agree that individuals’ and groups’ attitudes, values, and practices are shaped and shared by culture and that culture is a learned way of life that helps to distinguish its members from other group members by giving them a separate identity (Abbasi et al., 2011). In this context of this research, I will use the definition of Ghemawat and Reiche (2011) and the culture components presented by Barkan (2010).

**Language, values, and technology and tools.**

A language is a cultural tool that contains meaning in addition to alternative usage within a language that differentiates between one group from another (Al-Hunaiyyan, Al-Huwail, & Al-Sharhan, 2008). Language is central to interaction and therefore to any society’s culture. Individuals in a society learn language from their culture, just like they learn other aspects of the culture like what to eat or how to behave. The importance of language, according to Barkan, (2010), is not only associated with the interaction but extends to helping the individuals make their complex culture possible. Thus, language affects the individual’s understanding of the world surrounding them.

In the context of faculty acceptance of Moodle, language plays a significant role. Unless the users understand the language of the technology and view it not as complicated, the technology presents no value. Understanding the language does not rely only on substituting the words, the user has to be conscious of meanings, presumptions, and connotations. Many of the manuals, software design, keyboards, and materials that
are associated with computers are designed for English speakers. Thus, it is crucial to consider what effect language has on the user’s intention to use Moodle.

In addition, norms, standards, and expectations for behaving vary widely from one culture to the other. The expectation of certain behavior in a culture influences how individuals behave. There are two different types of norms, formal norms (also called mores and laws) and informal norms (also known as folkways and customs). The formal norms refer to the most critical standards of behaviors in a society such as traffic laws, criminal codes, cheating, and plagiarism in the education setting. While informal norms refer to the less critical behaviors in society, these norms still affect individuals’ behaviors, such as table manners (Barkan, 2010). In addition, some text and images may be considered as offending in certain culture, while it is not in other, just like some gestures and actions.

Values imply the ability to judge whether an act is good or bad and whether it is desired or undesired. The values of a culture form its norms. For example, the value of group harmony is highly desired in the Japanese culture. They desire the harmonious atmosphere of the social interaction and don’t approve of the interpersonal disagreements (Barkan, 2010). In the Arab world, the value of respecting, and in some situations obeying the elder, is crucial in sustaining the family relationship which is another strong value.

In the context of this study, I assessed the role of personal values on the faculty’s acceptance and use of Moodle, and considered the influence values have on the user’s interaction with Moodle.
Artifacts also known as material objects, comprise the society’s material culture. In simple societies, the tools used, the clothes worn, and the shelters lived in are considered artifacts. On the other hand, in modern societies artifacts or tools are more complex. Some cultures are called wireless cultures where they are dominated by smartphones, laptops, and GPS devices.

The development of technology was behind the creation of these tools, and the language associated with them (Barkan, 2010). When society accepts certain tools, artifacts, and technology, it uses them within the values and norms of the culture, while a different use may be considered offending.

This leads to a pertinent consideration. How do language, values, and technology all interact to affect the user’s acceptance of the technology? This consideration is at the core of this study, where I analyzed the interrelationship between those components that produce certain attitudes towards Moodle, which influence its adoption. The following Figure 6 represents the relationship between the research factors.
Summary

This chapter reviewed the literature in relation to the factors that affect the adoption of technology. The chapter particularly focused on the factors that affect the technology adoption by the faculty of higher education institutions. The socio-cultural factors might vary between the countries and between the employees in the same country of local and foreign origin. The chapter also investigated the theoretical models that highlight the acceptance of technology among users. However, there are unique external factors that contribute to the adoption of e-learning. The external factors mostly focused on infrastructure, cost, and management, among others. While the main focus in this
study was on socio-cultural factors contributing to adoption of LMS. Nevertheless, the majority of research done while incorporating culture was performed in certain geographical areas, mainly developed countries, and may not be replicable for other parts of the world, developing countries. The chapter also made a critical review of how these specificities have made an impact and how the subsequent models have reconciled for these location biases.

In this chapter, I have addressed the idea of acceptance of technology among faculty, and the influencing factors on such acceptance. I used TAM to understand whether those socio-cultural factors have an influence on the faculty’s acceptance. In the next chapter, I presented the methodology employed in this research.
Chapter 3: Research Design and Methodology

O Allah avail me what you have taught me, and teach me what would benefit me, and add to my knowledge, and praise be to God for everything.

Prophet Muhammad (PBUH)

Mixed-Methods Approach

This study used a mixed-methods case study methodology to answer the question: How do social and cultural factors affect faculty’s acceptance of Moodle at GUST? The nature of the research question determines the research methods (Creswell, 1994). To answer the research question, I relied on collecting the data needed through multiple methods to help in making a strong case and reliable conclusion. The main question dealt with social and cultural factors’ role on users’ adoption of Moodle at GUST.

To construct a robust framework for this case study, I had to collect data from different sources. Quantitative analysis of survey responses provided some meaningful relationships between socio-cultural factors and Moodle adoption. These preliminary findings were then investigated with qualitative analysis using semi-structured interviews to gain sufficient depth of understanding. Mixing quantitative data analysis with qualitative analysis provided data triangulation to generate better understanding of GUST faculty’s Moodle adoption. Examining the same phenomenon, use of Moodle, using mixed methods research allowed me to validate the responses I collected from the survey.
and the interviews by having outcomes from both methods side by side, and comparing and contrasting them to each other. The survey used in this research aimed to gather statistical information about the general use of Moodle by faculty at GUST. The survey helped in collecting information anonymously from a diverse range of faculty members, from different departments, different levels of education, different backgrounds, and experiences. The interviews aimed at uncovering the individuals’ adoption, the justifications of such use, the different experiences and background of the interviewees.

I used mixed qualitative and quantitative methods to collect and analyze the data using survey and interviews. Descriptive statistics was used to analyze the quantitative data. The qualitative data was analyzed using induction and coding for interview responses.

Tashakkori and Teddlie (2008) defined mixed methods studies as “studies that are products of the pragmatist paradigm and that combine the qualitative and quantitative approaches within different phases of the research process” (p. 22). This mixed-method study could include both methods in one stage of the study or within two stages of the research. Sometimes, researchers collect quantitative data and then try to qualify the data. It could be a single application within a certain phase, while a different application used in a following phase. The study may start with quantitative data, followed by qualitative data, and then could be analyzed either quantitatively or qualitatively depending on the research question. There are different strategies to approach the data collection and analysis in mixed methods research. The researcher could choose from the different strategies available, depending on the purpose of the study, the researcher could use among:
1. Sequential explanatory strategy, where the collection process starts with quantitative data followed by qualitative data, with equal priority in both phases.

2. Sequential transformative strategy, where the data collection is done through two distinct phases (either type can be collected first), and the priority can be given to either one data type or both.

3. Concurrent triangulation strategy, where the two data collection phases are done simultaneously, while they are both given equal opportunity. The data could be combined and merged during the interpretation and analysis phases, and its main purpose is to confirm, corroborate, or cross-validate within a single study (Terrell, 2012).

This research relied on concurrent triangulation strategy. An example of the process of the mixed method used in this study is when a close-ended questionnaire is distributed to a large number of participants (faculty of GUST). As soon as the faculty started to submit their responses, the ones that agreed to participate in the interviews were contacted, and an open-ended interview was conducted (to a smaller subset of the initial batch of participants). In this study, I followed this methodology to explore my research questions. In general, mixed methods study allows the researcher to use multiple data sources to produce understanding during the investigation via the data triangulation process.

Denzin’s (1978) idea of triangulation includes blending different sources of data to study the same social phenomenon. He presented four different types of triangulation:

1. Data triangulation: using various sources of data in a study.
2. Investigator triangulation: involving different researchers.

3. Theory triangulation: applying several perspectives in the interpretation of a study.

4. Methodological triangulation: including different methods to examine a research problem.

On the other hand, Patton (1990) described three methods of triangulation, using methods to merge quantitative and qualitative data, using within methods to compare several sources of qualitative data, and different analysts of qualitative data to review multiple perspectives from various observers. In this research, across method of data triangulation was used to help me better understand the faculty’s acceptance through an assessment of their technology use, history, backgrounds (quantitative), and understanding the reasons behind their use of Moodle (qualitative).

For example, in this research I asked GUST’s faculty members to respond to a questionnaire that included questions about their use of both technology and Moodle at GUST. Simultaneously, I conducted semi-structured interviews with a sample of faculty members at the same institution asking about the same or similar topic using an interview protocol with an open-ended format. By combining the questionnaire’s numerical data with semi-structured interview’s narrative data, I was looking for occurrences of agreement and disagreement within the two sources of data.

The survey and interviews were conducted in English because it is the common language among faculty at GUST, in addition to being the language used in the classroom and the curriculum. There were 162 faculty members for the 2015/2016 academic year, in different departments and from various countries of origin including: Australia, Belgium,
Canada, Egypt, France, Holland, India, Ireland, Jordan, Kuwait, Malaysia, New Zealand, Romania, Russia, Scotland, South Africa, Syrian Arab Republic, Switzerland, Turkey, United Kingdom, and the United States. Only twenty-two faculty members out of the 162 were Kuwaitis (GUST document, 2015).

**Case Study Research**

There are different research methods for collecting and analyzing data in mixed methods study. Each research method choice informs data collection, theoretical assumptions, and research practices (Creswell, 1994). This is a case study research. Merriam (1998) perceived “the case as a thing, a single entity, a unit around which there are boundaries” (p. 27). A case can be a person, a program, a group, a specific policy, and so forth. Merriam believes that constructivism influences case study and she maintains, “the key philosophical assumption upon which all types of qualitative research are based is the view that reality is constructed by individuals interacting with their social worlds” (1998, p. 6). She also commented, “that reality is not an objective entity; rather, there are multiple interpretations of reality” (Merriam, 1998, p. 22).

Benbasat, Goldstein, and Mead (1987) defined a case study as an examination of “a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a few entities” (p. 370). The data collected for this case study were the sources from the survey and semi-structured interviews (Benbasat et al., 1987; Creswell, 2007).

Case studies have contributed significantly to researchers’ understanding of organizational culture (Chaffee & Tierney, 1988; Kanter, 1977; Kanter & Stein, 1979;
Schein, 2004). Brown (2008) writes that case study is a powerful method to “understand institutions of higher education as socially constructed organizations” (p. 2). This study examines the case of GUST, a large and leading private sector university in Kuwait. Yin (2003) distinguished the qualitative case studies according to the size of the case whether it is single, single with embedded units, and multiple-case studies. The single holistic case involves one individual or a single group of participants who have a common trait among them that make them to be considered as one case, and studied as one case. The single case may examine a group of students failing English 101 in a certain institution. While single case with embedded units considers investigating an issue shared by different individual in different contexts. It could investigate the same group of students failing the same English 101, but in different institution to understand one unique case. On the other hand, it is considered multiple-case studies when there is more than a single case to be studied. In this scenario, the researcher may study various participants in different contexts, for different issues, followed by making comparison among different cases. A typical example would be analyzing the learning processes of various groups of students studying English 101 in different institutions across the country. Such comparison would then allow the researcher to analyze the different contributing factors in the different contexts. The current research study is a single case study examining the influencing factors on faculty’s adoption of Moodle within one institution.

Creswell (2007) differentiated between the instrumental case study, the collective or multiple case study and the intrinsic case study. Instrumental case study, according to Stake (1995), is a study where the researcher investigates an issue, and then chooses a case to demonstrate the issue in question. In a collective case study, the researcher selects
the issue to be investigated, and then selects various cases to explain the issue being studied. Intrinsic case study, on the other hand, focuses on the case itself because it would usually demonstrate a unique situation (Stake, 1995).

In the case of GUST, I consider it to be an instrumental case study because my purpose in this research is to “gain insight and understanding” (Baxter & Jack, 2008, p. 548) of a certain situation, and the case in this sense is the adoption of Moodle by GUST’s faculty. Here, using the case of Moodle adoption at GUST, I am trying to explore how socio-cultural factors may contribute to technology adoption within an organizational setting.

Creswell (2007) pointed out that one of the challenges in case study research is identifying the case. Merriam (1998) noted that as long as researchers can identify the event that attracted them and outline the borders of what is going to be studied, then the researcher could call it a case. The researcher must determine the bounded system that is worthy of study, whether it is the case itself or an issue that the case tries to clarify. Miles and Huberman (1994) defined the case as, “a phenomenon of some sort occurring in a bounded context. The case is, ‘in effect, your unit of analysis’” (p. 25). To determine what is the case of this study, I considered the following; Do I want to analyze the faculty in the study? Do I want to analyze Moodle? Do I want to analyze the process of adoption? My answer to the question was the analysis of the adoption, which led me to further define my case. Yin (2003) and Stake (1995) recommended placing boundaries on the case to prevent it from expanding. Creswell (2003) suggested binding the case by time and place. Stake (1995) recommended binding it by time and activity, while, Miles and Huberman (1994) suggested binding it by definition and context. I defined my case
by the place (GUST), activity (the adoption of Moodle), and context (the external factors related to the adoption of Moodle by GUST’s faculty). In this study, I have used the interactive dynamics between technology adoption and socio-cultural factors within a single organization. The study is bounded in the sense that it used the behavioral patterns, attitudes, and concerns of a group of professionals within one organization and attempted to build a theoretical framework of technology adoption.

Yazan (2015) summarized the case study attributes as: being particularistic (focusing on a particular situation, incident, program, or event), descriptive (producing a rich and full explanation of the studied case), and heuristic (explaining and clarifying the understanding of the case studied). This research was a single case study of “faculty adoption of Moodle at GUST.” At first, I was interested in understanding what would contribute to a successful adoption of e-learning in Kuwait’s higher education. Though there was no identifiable cases of pure e-learning adoption in the public or private higher education sectors in Kuwait, the use of blended learning with the assistance of learning management systems (LMS) was observed. The decision to investigate e-learning supported by LMS directed me to look at institutions among the first to adopt LMS, and I came across three higher education institutions in Kuwait, one of which was a public institution, and the other two were private universities. I planned to study the public higher education institution, but it was a large institution with small e-learning center trying to cover all colleges with limited staff. So, I shifted my attention to the other two institutions. I met with an administrator at GUST, and he welcomed the idea of my research. Thus, GUST became my point of interest. I met with few members in the administration and e-learning center, and talked about their services and LMS. One idea
was mentioned a few times while I was talking with members of GUST, and that was their observation of the lack of adoption of Moodle among the faculty. This repeated comment directed my intention to look at the factors influencing faculty members’ adoption. The previous factors directed me to choose “faculty adoption of Moodle at GUST” as my case.

Yin (2009) clarified that case study method is “empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (p. 13). Thus, limiting the research study from being too broad is to have some boundaries. Limiting the scope of the study helps it from including unintended phenomena to be studied. Therefore, I focused the study on investigating the GUST faculty in examining their Moodle acceptance.

Creswell (2007) described the procedures for conducting a case study. It first starts with determining whether or not the case study is the right approach to conducting the research in hand. One way to ensure this is by making sure that the case is well defined and has boundaries, at the same time the purpose is to present an in-depth understanding of the case. The case study allowed me to study a “bounded system” or case while employing “informative and contextual data” (Brown, 2008) to explain and analyze the findings. The interpretation of data led to better comprehension of the situation being studied that could not be collected otherwise (MacNealy, 1997).

Examining a case study starts with stating the research question and the significance of the research. Looking at GUST faculty’s acceptance of Moodle shed light on the contributing factors that limited their use, and could help the institution to re-
examine its technology adoption policies and practices. Identifying the case, according to Creswell (2007) is the second step of the procedure. The researcher should identify the case, cases, individuals, program, event, or activity.

The next step is to focus on data collection. In a case study, there are multiple resources to collect extensive data. Yin (2003) suggested that the researcher choose among some, or all of the six types of information that include, interviews, direct observation, participant observation, documents, archival records, and physical artifacts. Benbasat et al., (1987) mentioned that most of the case studies surveyed were qualitative, but few included quantitative data in the form of questionnaires. In the case of GUST’s faculty, I used data from a survey and semi-structured interviews.

The following step is the analysis process. Stake (1995) observed that at this stage, a detailed description of the data would emerge. It may include details about the case history, the chronology of incidents, or a day-by-day presentation of the case activities. Merriam (1998) defined data analysis as “the process of making sense out of the data. Moreover, making sense out of data involves consolidating, reducing, and interpreting what people have said and what the researcher has seen and read—it is the process of making meaning” (p. 178). She also encouraged concurrent data collection and analysis. After reporting of data, the researcher might emphasize specific issues of the case to better understand the complex dynamics at play (Stake, 1995).

The final step in conducting a case study is the interpretation phase. In this step, the researcher reports the meaning of the case. This phase according to Lincoln and Guba (1985) constitutes the lessons learned from the case.
Interpretive researchers assume that reality is accessed through social constructions such as using language, consciousness, and shared meanings (Myers, 1997). Interpretive methods of research in ICT according to Walsham (1993) is an “[aim] at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context” (p. 4-5).

The focus of interpretive research is on identifying, documenting, and knowing through interpreting view, values, meanings, beliefs, and thoughts. Geertz (1973) explains the interpretive view of data as “our own constructions of other people’s constructions of what they and their compatriots are up to” (p. 9). So, in this case study, I tried to understand the social and cultural factors that play a role in the faculty decision-making process through their own understanding of the contributors to adoption while using interpretive approach to code, analyze, and conclude the data.

**Participant Recruitment and Selection**

Due to the study’s focus on the faculty, the participants came from GUST’s College of Arts and Sciences and College of Business Administration. There were 162 teaching faculty at GUST in the 2015/2016 academic year, some of whom also held an administrative position. Data was collected from the faculty through two methods:

- An online survey of all active faculty members.
- Follow-up semi-structured in-person interviews with a subset of faculty members

I obtained the participants’ emails addresses from the strategic planning department at GUST, and I emailed the survey to all 162 faculty of GUST including an
invitation email through Qualtrics. The survey went live on February 19, 2016 and was closed on March 19, 2016. Two weeks after the start date of the survey, I sent a reminder email through Qualtrics to the participants encouraging their participation and reminding them of the time left. A second reminder by GUST’s administration followed and was sent 1 week before the survey expired. The following table includes the steps taken towards distributing the survey and collecting the data.

Table 1

Survey Distribution and Collection

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
<th>Number contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb. 19, 2016</td>
<td>Initial email</td>
<td>162</td>
</tr>
<tr>
<td>Feb. 19, 2016</td>
<td>Link sent</td>
<td>162</td>
</tr>
<tr>
<td>March 4, 2016</td>
<td>Reminder 1</td>
<td>162</td>
</tr>
<tr>
<td>March 12, 2016</td>
<td>Reminder 2</td>
<td></td>
</tr>
<tr>
<td>March 19, 2016</td>
<td>Survey closed</td>
<td></td>
</tr>
</tbody>
</table>

I selected participants for the interview through the questionnaire. The last two questions in the survey asked the participants for their email address if they were willing to participate in a follow up interview.

Initially I planned to select a subset of faculty based on maximum variation purposive sampling. Patton (1990) argues that the “logic and power of purposeful
sampling lies in selecting information-rich cases for study in depth” (p. 169). According to Palys (2008), this sampling strategy searches for “individuals who cover the spectrum of positions and perspectives in relation to the phenomenon one is studying” (p. 697). Creswell (2007) explained that it is the best-suited strategy for selecting participants in case study design, because it will illustrate various cases and describe diverse views about the case.

Because of the limitations I faced while being physically away from the research location, I settled for interviewing participants who agreed to participate in the interviews through the questionnaire by submitting their emails. I was happy with the diverse interviewees’ backgrounds, and I realized that they represented the diverse community of GUST. Choosing interview candidates among the questionnaire’s respondents was useful because I didn’t have to worry whether or not my sample would represent diversity, since the faculty members at GUST were diverse in nature, as they came from 22 different countries of origin with different degree levels and majors. Diversity was evident among the interviewees where their ages ranged from 35 to 55 and higher. Also, there were 4 male and 4 female participants, which is an equal representation of gender. Also, new and old recruits of GUST were part of the interviewees.

Also, since this work engages human subjects, there were some steps that I took to protect the rights and security of the participants. First, the research did not involve any practice that could increase the risk to individuals beyond those related to ordinary day-to-day life. Second, participation was voluntary, and no compensation was offered for volunteering to participate. Third, the interviewees had the choice to opt out of the research at any time. Fourth, I used pseudonyms in the text to protect the identity and
privacy of the individuals involved in the research after collecting the data. Finally, access to raw data was limited to my committee members and me. I made sure that participants were aware of their rights, the purpose of this study, and the procedures involved in this project. I provided each interviewee with an informed consent form to read and agree upon before conducting the interview. The form also included my contact information, my advisor’s contact information, and the contact information for a review board member not associated with the research project in case of possible inquiries and concerns. A copy of the form is available in Appendix A.

For in-depth interviews, Creswell (2007) recommended a sample of not more than 4-5 interviewees for a case study design. Creswell writes that the purpose of case study research is to “determine how the culture works rather than to understand an issue or problem using the case as specific illustration” (p. 73). This number should “provide ample opportunity to identify themes of the cases” (Creswell, 2007, p. 128). This research sample started at seventeen candidates to participate in the interviews, but ended up with actual eight interviewees.

From the online survey submission, there were six participants who agreed to participate in the interview. Out of which, eleven participants replied through the paper-based surveys submission. Due to cancelations from some of the faculty members, I was able to conduct eight interviews that lasted 50-70 minutes each.

**Data Collection**

In an effort to understand how socio-cultural factors impacted the faculty’s decision of adopting Moodle, I examined data, some readily available for analysis, while
others I had to collect and then analyze. This is a mixed method research that incorporated two different types of data: a survey, and a semi-structured interviews.

**The survey.**

First, with regards to the survey, I requested permission to use “University of Wisconsin System Faculty/Academic Staff Survey– Spring 2014,” and the chair of the committee, Al Hartman, approved my use of the survey to adapt to my research. The survey administered by “UW Executive Committee” to report on faculty and staff’s “Online Teaching, Learning & Support Report for 2014.” The survey aimed at learning about the needs and satisfaction levels of the university’s faculty and instructional staff regarding their use of technology in their teaching and learning. Also, it included questions about the effectiveness of the LMS in general, its performance, and the quality of LMS support. The survey questions ranged from fixed response, open response, fill-in response, and it included 5 sections that I found beneficial. I have detailed those sections below:

- **Section 1: Demographics**
- **Section 2: Use of Learning Management Systems**
- **Section 3: Experience with various functionalities of the user’s Learning Management System.** There are three parts to this section: Administration functions, Communication tools, and Assessment & Grading features
- **Section 4: Overall Experience with the LMS Use**
- **Section 5: Other Technologies Currently Used or Plan to Use in the Instruction.**

In order to make a better use of the survey, I decided to modify it so it can relate more directly to my research question. I started by reorganizing the survey sections,
while the original survey ended with the demographic section, instead I pushed this section to the top and started the survey with it. Also, I excluded some questions originally introduced in the survey, so the respondents don’t have to answer questions that are irrelevant to their situation. For example, I eliminated the sections dealing with “Mobile Technology” and “Rich Media/Video Use Section”. I eliminated these sections because, these options were not offered by GUST, and second, they are not relevant to my research. Also, I decided to add some open-ended questions following each group of the original survey questions for two reasons. First, to help get a better understanding of the respondent’s answers, and second, to help develop and focus the interview questions. The survey started with informed consent, as the first question, once the participant read and agreed to the terms of the survey, the faculty member was directed to the survey questions, otherwise, the survey ended with “thank you for your time”. A copy of the survey informed consent and questions is available in Appendix B.

The survey was administered to collect background information about the faculty’s demographics (eg. Q 2, 3, and 4), their use of technology, and Moodle specifically (eg. Q 12, 13, and 14), factors associated with culture and society (eg. Q 24, 27, and 29), and information related to PU and PEU (eg. Q 15, 16, and 18). I created, sent, and collected the electronic survey through Qualtrics. I chose Qualtrics because it was easy to use, it allowed the participant to finish the survey in multiple sessions, it worked on mobile devices, and it sent reminders of the incomplete survey.

Six days after the distribution of the survey, I received several emails form GUST’s faculty informing me that they were having a problem opening the link to the survey. So, I emailed a hard copy of the survey to the ones that had emailed me.
there, they made copies for their colleagues. Once the participants filled out the survey, they designated a faculty member who was in an administrative position to scan the answered surveys and then email the responses back to me.

Sivo, Saunders, Chang, and Jiang (2006) conducted a review of the literature from 1998 to 2002 that included six information system journals, they were: AIS, Information System Research, Management Information Systems Quarterly, European Journal of Information Systems, Management Science, and Journal of MIS. Their literature review showed that the average questionnaire response rate is between 22% and 59.4%. The response rate of this study was 45.3%.

The analysis of the UW System Faculty/Academic Staff Survey helped me to create a clear picture of the institution’s demographics, understand the adoption of Moodle at GUST, the faculty’s variant experience level with technology, the initial attitude toward using Moodle, and contributing factors to the acceptance of Moodle. Also, the survey analysis complemented the interviews, and when combined they produced a better understanding of the faculty members’ interaction with Moodle.

**Interviews.**

The semi-structured interviews helped me explore how socio-cultural factors affected the individuals’ acceptance of Moodle. Once survey participants agreed to participate in the interview, I started to contact individuals through email to arrange for a meeting date and time. Qualitative methods neither work with a large number of participants, nor aim to generalize the findings (Glesne, 2006). Qualitative researchers on the contrary, select information-rich cases from which one can learn a great deal about issues of central importance to the purpose of the research.
**Interview procedure.**

Brenner (2006) wrote that the purpose of open-ended interviews is to show an effort to “understand informants on their own terms and how they make meaning of their own lives, experiences, and cognitive processes” (p. 537). Eliciting the faculty members’ experiences with Moodle in this research required a combination of asking the proper questions and constructing a convenient environment for interviewees to share their information and personal experiences. While conducting interviews with the participants, an interview guide is useful in ensuring coverage of the significant parts of the research (Seidman, 1998). I used a set of questions for this research, which can be viewed in Appendix C. While I had a set of questions, I still remained flexible in the sequence of asking the questions, the wording of the questions, and the selecting of the questions depending on each interview’s dynamics. This flexibility permitted me to explore some themes that came up during the conversation. Watson (1997) suggested following an interview protocol, which is “a guide created beforehand to assist the interviewer in conducting an interview and collecting data from it” (p. 32). He outlined a few points to include in the protocol, and I followed some that were relevant to my needs in conducting the interviews. Those included:

- Don’t ask too many questions. This is a key point to keep the interviewee’s interest in continuing with the interview. I limited mine to twelve questions that I practiced earlier and made sure that they didn’t run over the time limit my participants agreed on. Still, if the interviewee wanted to go beyond the agreed upon time, I made sure that I had at least 30 minutes extra for each interview.
• Keep questions simple and related. The purpose of this is to ask questions that are short using simple words for ease in understanding by everyone. I intended to ask the questions using basic words without including scientific terminology.

• Phrase questions to get a process. I used how, what, and where questions to understand how things work instead of using why questions which may put interviewee on the defense by answering the question. Also, questions such as yes and no are not recommended because they produce short dichotomous answers, and that is not the purpose of conducting interviews. I made sure that none of the questions I asked started with why. I did not ask yes and no questions, because I wanted to elicit more response from the interviewee.

• Keep questions neutral. Phrase the questions in an unbiased way to ensure that responses are not tailored toward the interviewer’s desire. Biased questions may provide answers that are satisfactory to the interviewer, but do not give an accurate response. In conducting the interviews, my intention was to understand, not to collect information that was satisfactory to me.

The majority of the interviews (seven out of eight) took place online through Skype, and one interview was conducted through a WhatsApp call. While some interviewees preferred to conduct the interview from home, others connected from work. The majority of the participants (six out of eight) preferred to meet during a weekday immediately after work, which meant that I had to connect between 2:00 – 5:00 a.m. (EST). The time conflict was hard to manage because Kuwait is 8 hours ahead of Columbus, OH where I am currently located.
Prior to the start of each interview, I would email the participant the informed consent form, and ask them to read it. Watson (1997) provided some guidelines on conducting the interview, and I tried to follow the ones that were more appropriate to the context. Once we connected online, I would start by greeting them and introduce myself, chat briefly with the interviewee, and then discuss the consent form verbally, and ask their permission to audio record the interview. I reminded the interviewee about the initial time planned for the interview, which was one hour in length, and I made my best effort to abide by it. The actual interviews ranged from 50 to 70 minutes, depending on the interviewee’s responses.

Not all interviews started and ended in the same way, but I planned to start and end my interviews similarly to have a smooth flow. I planned to begin the interviews with initial questions about the faculty’s major and department affiliation, years of experience at GUST, and the country from where he or she graduated. I tried to start with these few question to create a non-threatening interview environment. At the end of the interview, I made sure to thank the interviewee for their time, and told them how valuable their responses were. In this research study, the data collection process conducted as shown in Table 2 below.
Table 2

Data Collection Process

<table>
<thead>
<tr>
<th>Data</th>
<th>Start to End Date</th>
<th>Expected Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
<td>Feb. 19, 2014 to March 19, 2014</td>
<td>Demographic information, experience, influencing factors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Socio-cultural influences and effect on use of technology</td>
</tr>
<tr>
<td>Interviews</td>
<td>Feb. 25, 2014 to March 22, 2014</td>
<td></td>
</tr>
</tbody>
</table>

A brief review of some of the practical difficulties in scheduling narrative interviews with the faculty overseas would provide some illuminating insight for future researchers. For example, two of the participants who initially agreed to conduct the interviews did not respond to the emails upon follow up to arrange a meeting time. Another participant seemed promising based on the initial response. Yet, it became clear after many waiting sessions and missed scheduled meetings that included, waking up at odd hours, such as, 2 a.m. twice, 4 a.m. thrice, and emails from the faculty that proclaimed she had “forgot” the scheduled time. Quickly I realized that this particular interview was not going to happen. Finally, this study concluded based on eight successful interviews that lasted from 50-70 minutes each.

Now, a brief look at the difficulties I faced in conducting these interviews. First, since the interviews took place through Skype, the initial connection on three of the interviews was not good quality. While the connections stabilized during the two
interviews and all interview questions were thoroughly discussed to my satisfaction. During one of the interviews the exchange needed to be switched and completed via WhatsApp call. There were other interesting distractions during the interview sessions, one of which is noteworthy for its unique nuance. During one of the interviews in which the interview was being conducted while the participant was at home conducting the interview during the weekend, the interviewee’s family members interrupted the process frequently. This was a learning lesson, as the difficulties did not discourage my intention to continue the interviews. Rather, they helped me to think more deeply about the purpose of conducting interviews, the right tool to use for each interview, and how the process could be shaped by nuances of cultural differences.

Reflecting back, as a doctoral candidate I realized the difficulty a student faces during the data collection process and how diligent the candidate has to be to preserve the integrity of the process, the time it takes to ensure the study is based on cohesive and cogent data, I became more committed to never refuse a student’s request to conduct an interview when asked post my PhD. This also imparted some valuable lesson in me. It helped me prepare in advance and procure a second source of conducting the interview, just in case the original scheduled one did not work. During the second half of the process, I prepared myself with second options, especially when I often had to rely on the vagaries of technology. In addition, I know now that I have to be more patient with my interviewees because different cultures present different interactions and accepted behaviors.
Data Analysis

In this case study, multiple methods of data collection were used to help increase credibility and triangulation between the data. The data collected for this research came from different sources such as, survey and personal interviews.

In case study design, the researcher stops collecting data and starts the analysis process once a point of saturation is reached (Creswell, 2007). A researcher could reach the point of saturation when “the collection of new data does not shed any further light on the issue under investigation” (Mason, 2010, para. 2). To ensure the quality of a good case study, I took some steps to ensure the data collected was valid and sufficient.

There are various types of “raw” data generated from this research such as, audio recordings of interviews, notes taken during the interviews, and survey responses. In order to start analyzing the data, I had to convert all raw data to text format.

The survey.

The primary purpose of the survey was to represent the demographics of the interviewees, give background information on the faculty members’ use of technology and LMS, the respondents’ views of Moodle at GUST, and general view on the influencing factors of adoption. With this in mind, I analyzed the survey responses using descriptive statistics in an effort to assess the findings of the numerical data, and I obtained an exploratory statistical analysis on the data by running frequency distributions on the survey question responses. Survey responses consisted of both categorical and continuous data and I analyzed distribution patterns of these responses for both types of responses. The survey provided information in five different categories. First, the survey started with demographics information, second, the use of LMS, third, the faculty’s
experience with different functions of Moodle, fourth, the overall experience with Moodle, and fifth, information about the faculty’s use of other technologies in instruction.

I conducted a series of chi-square tests for association to examine whether a relationship exists among the following categorical demographic and Moodle adoption variables:

(a) Nationality (Kuwaiti, American, Egyptian, Other) and use of Moodle as an administrative function tool (strong agree, agree, neutral, disagree, strongly disagree);

(b) Nationality (Kuwaiti, American, Egyptian, Other) and use of Moodle as a communication tool (strong agree, agree, neutral, disagree, strongly disagree);

(c) Nationality (Kuwaiti, American, Egyptian, Other) and personal belief towards adopting Moodle (strong agree, agree, neutral, disagree, strongly disagree);

(d) Department (Arts and Sciences, Economics and Management of Information Systems, Humanities, Natural sciences) and use of Moodle as an administrative function tool (strong agree, agree, neutral, disagree, strongly disagree);

(e) Department (Arts and Sciences, Economics and Management of Information Systems, Humanities, Natural sciences) and use of Moodle as a communication tool (strong agree, agree, neutral, disagree, strongly disagree);

(f) Department (Arts and Sciences, Economics and Management of Information Systems, Humanities, Natural sciences) and personal belief towards adopting Moodle (strong agree, agree, neutral, disagree, strongly disagree);

(g) Degree (bachelors, masters, doctorate) and use of Moodle as an administrative function tool (strong agree, agree, neutral, disagree, strongly disagree);
(h) Degree (bachelors, masters, doctorate) and use of Moodle as a communication tool (strong agree, agree, neutral, disagree, strongly disagree);

(i) Degree (bachelors, masters, doctorate) and personal belief towards adopting Moodle (strong agree, agree, neutral, disagree, strongly disagree);

(j) Gender (male, female) and use of Moodle as an administrative function tool (strong agree, agree, neutral, disagree, strongly disagree);

(k) Gender (male, female) and use of Moodle as a communication tool (strong agree, agree, neutral, disagree, strongly disagree);

(l) Gender (male, female) and personal belief towards adopting Moodle (strong agree, agree, neutral, disagree, strongly disagree);

(m) Language (Arabic, other) and use of Moodle as an administrative function tool (strong agree, agree, neutral, disagree, strongly disagree);

(n) Language (Arabic, other) and use of Moodle as a communication tool (strong agree, agree, neutral, disagree, strongly disagree);

(o) Language (Arabic, other) and personal belief towards adopting Moodle (strong agree, agree, neutral, disagree, strongly disagree);

Several assumptions had to be met for the chi-square test for association. These assumptions included: (a) existence of two categorical variables for the test for association, (b) independence of observations, and (c) meeting sample size requirements. All assumptions were met for chi-square tests.

Assumption 1:

To examine associations between categorical variables, all ordinal variables were treated as nominal variables (use of Moodle as an administrative function tool, use of
Moodle as a communication tool, and personal belief toward adopting Moodle). In the study, all demographic variables were also nominal, which meant both variables were categorical. Therefore, assumption 1 is satisfied for the analysis.

Assumption 2:

Since no participant belonged to more than one group, the independence of observations was met for each of the variables used in the study. This applied to both demographic variables and participant responses, which satisfied the independence assumption for the chi-square test.

Assumption 3:

The contingency table for the study was greater than 2X2. This required that 80% of the cross-tabulation cells have expected values of 5 or more. When conducting the series of chi-square tests for association, all expected cell frequencies were greater than five. Therefore, the sample size requirement that the dataset must not be too small has been met and therefore, there is no need to use the maximum likelihood ratio chi-square or any correction, such as Yates’ correction or Cochran’s correction. The p-value significance level was set at .05. The chi-square test for association was then conducted using SPSS v. 23.

Interviews.

I started analyzing the interviews by transcribing the audio recordings prior the analysis. I transcribed these recordings while making preliminary analytical notes about the interviews. Once I had all data in text form, I started applying my analytical scheme to the data. First, I started by organizing the corpus of data into labeled files. Second, I followed with describing each section of the transcribed interviews and add labels to the
ideas presented. Next, I worked back and forth within the data corpus trying to find patterns and recurring themes.

Later, I grouped similar themes together and created codes to label each group of themes, and that was the main step towards data analysis. Coding, according to Glesne is a “progressive process of sorting and defining and defining and sorting those scraps of collected data (i.e., observation notes, interview transcripts, memos, documents and notes from relevant literature) that are applicable to your research purpose” (2006, p. 152). A code is frequently a word or short expression that “symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (Saldana, 2009, p. 3). The coding of data can be established in two steps, according to Saldana (2009), these include the first cycle coding and the second cycle coding. The first can range from one word to complete sentence to a page-long text. While the later can be either the same codes or a regrouping and reorganizing of the codes, with the final coding aims at representing the main ideas and express the case’s primary content and nature.

I started with codes that are related to the external variables-the social and cultural factors- and the ones that are part of the framework- PU and PEU. Afterward, any new emergent code was noted, but some were not included because they did not relate directly to the research question. Codes emerge from the repeated ideas in the interviews forming categories and subcategories and naming the codes categories (Glesne, 2006). Each main code gathered identified a central idea, and there were as many major codes as needed to cover all the data. The early analysis led to the later analysis of data. When the codes grew in number and got more complicated, it was time to connect the events, collapse
codes, and determine information and stories within the codes to make better sense of the data. Represented in Table 3 are some of the initial codes that I looked for while analyzing the interviews. The codes originated from TAM and the socio-cultural factors presented earlier.

<table>
<thead>
<tr>
<th>Codes List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial List of Codes</td>
</tr>
<tr>
<td>Compliance</td>
</tr>
<tr>
<td>Identification</td>
</tr>
<tr>
<td>Internalization</td>
</tr>
<tr>
<td>Language</td>
</tr>
<tr>
<td>Values</td>
</tr>
<tr>
<td>Technology and tools</td>
</tr>
<tr>
<td>Perceived usefulness (PU)</td>
</tr>
<tr>
<td>Perceived ease of use (PEU)</td>
</tr>
</tbody>
</table>

Finally, I created a table for each interviewee, in which each interviewee’s response to each group of questions and was represented with the codes from the transcribed data. An example of such representation is available in Appendix D. Creswell (1998) suggested strategies to ensure sufficiency and validity of data such as,
triangulation of the multiple data collected. Data collection in case study design relies on the triangulation of data and saturation.

Triangulation refers to the “use of multiple forms of qualitative research methods… [and it] reflects an attempt to secure an in-depth understanding of the phenomenon in question” (Denzin, 2012, p. 82). According to Eisner (1991), the purpose to triangulate data is to provide “a confluence of evidence that breeds credibility” (p. 110). After analyzing the data, I made the connection between the results of the survey and the analyzed interviews. Making the connection between the data either confirmed, rejected, or presented new ideas and questions to the research.

Clarification was assured by thoroughly reflecting on my subjectivity, and how I used it and monitored it in my research. Denzin (2012) wrote, “objective reality can never be captured” (p. 82). It can be challenging to have control over the range of experiences when collecting descriptive data. It is also a challenge to prevent interviewer bias (Warr & Pyett, 1999). When implementing a descriptive question such as, “Could you please tell me how did you arrive at the decision to use Moodle?” I considered the aim of the question and tried to obtain data for that purpose, but not to steer the participants to get inductive data. The research findings and information were representative of the participants’ views, voice, and state of the inquiry, but not a representative of my, the researcher, motivations, perspectives, and biases (Lincoln & Guba, 1985; Polit & Beck, 2012). It took some practice at the beginning, when I first started writing themes, to distance myself from the shared opinions and experiences by the interviewees. But, at some point I was able to create that distance and limit my personal bias.
Member checking is the sharing of the transcribed interviews, the analytical thoughts, and an abstract of the final report with the interview subjects. It is intended to confirm the ideas the interviewees shared with me previously. In essence, the interviewee checks the findings to ensure that my transcriptions represented their narrative of experiences (Holloway & Wheeler, 2010; Koch, 1994; Saldana, 2009; Thomas & Magilvy, 2011). Lincoln and Guba (1985) believed that member checking is a continuous process through the data analysis process. I contacted the participants asking them to go over the summary and notes of the interview and check for my understanding of their views. Five of the participants accepted my invitation, they looked over the transcripts, confirmed their views and my interpretation of the ideas exchanged during the interview, while the other three participants remarked that they “trusted” my transcription and analysis, and agreed that I represented their views as objectively as possible.

Content rich narrative provided me with both a robust context and sufficient fact base to connect the results with the research context. Data analysis included description of the context, the environment where the research took place, and a triangulation of data from different resources to present the full picture. In providing a rich and thick description, according to Holdford (2008), the data analysis should aim at making sense of the research results for the readers in a meaningful way. The researcher's job is to paint a picture through words for the reader to have the full understanding of the environment and the results.

When I finished analyzing the majority of interviews, I started focusing on “classifying and categorizing” (Glesne, 2006, p. 152). Once the coding process was finalized, I found that many of the same codes were being repeated throughout the text.
(Saldana, 2009). Rubin and Rubin (1995) recommended that the researcher refine the codes and their content before starting to compare them with each other for emerging themes. Putting the same data together into clusters helped me create an organizational framework, and then I was able to break down the above codes into sub-codes, a copy of the analysis cluster is available in Appendix E. While analyzing, coding, grouping, and reorganizing, clearer ideas evolved. Bernard (2006) stated that analysis “is the search for patterns in data and for ideas that help explain why those patterns are there in the first place” (p. 452). After analyzing the interviews, I was able to draw some connection between the social and cultural factors with the two primary components of TAM. Those two primary components are PU and PEU.

In addition, there are codes that were not incorporated directly into the analysis because they weren’t directly associated with the research question, but they were part of the shared experience and the faculty’s views towards incorporating technology and LMS in the classroom. Some of the ideas I coded are the faculty’s attitude towards Moodle, faculty’s frustration with Moodle specifically and technology in general (technical problems), the faculty’s decision to adopt Moodle based on how they perceived the students benefit from it, and the role of administration in the adoption process.

**Research Limitations**

Briefly I will outline some of the limitations inherent in the chosen research approach that were presented in the introductory chapter of this research. First, the interviewees were all users of Moodle with different levels of adoption. Since all interviews for this project included faculty using Moodle, the points of view presented
here represents those of individuals who are among the users of Moodle at GUST. This in fact is a choice I made to keep the focus on the research rather than being a limitation. Since this research is concerned with investigating Moodle use among faculty of GUST, conducting interviews with faculty of different levels of adoption means that different faculty members have different use level reflecting on the influencing factors that limit or enhance Moodle adoption. This would be important in the conclusion of this study, where some faculty members talked about the influencing factors for their Moodle use, and others present the limiting factors to their adoption of Moodle. It must be recognized that interviewing only heavy users may not yield as much valid information.

Also, participants from this study were recruited from one private higher education institution rather than a larger number of private schools. Although my intention was not to compare and contrast different institutions, issues of access to those other schools played a role in my decision to research only one private higher education institution. However, I tried to compensate for that by interacting with individuals in administrative positions in order to learn more about the adoption of Moodle at GUST.

Another limitation of this study is that it involved a single interview per participant to understand the personal experience of each participant that ranged from 2-10 years of experience in the institution. Such an apparent limitation may not signify a key disadvantage since I accompanied the interviews with surveys and documents to give a broader idea of the use at GUST. Therefore, conducting one interview will suffice for the purpose of this research and it did provide richer details about the research question. Also, I interviewed eight participants, each narrating a personal experience. Consequently, I created a rich collection of data successfully.
Summary

In this chapter, I have detailed the research methodology for this study. I started with presenting a general idea of the case study approach and the mixed method approach. Then, I described the process of recruitment and selection of participants. Next, I detailed the data collection process, followed by the interviews’ procedure. I next discussed the data analysis methods. Lastly, I concluded with discussing the limitations and how I addressed each one of them. The next chapter will present the results of this research.
Chapter 4: Results

Do not follow that of which you have no knowledge, and refrain from groundless assertions and conjectures.

Qur’an, Al-Isra 36

The purpose of this study was to examine the influence of socio-cultural factors on faculty member’s adoption of LMS (Moodle) at GUST in Kuwait. The study examined cultural factors, such as, values, languages, and technology and tools practices. Further, the study examined social factors, as introduced by Kelman (1958), by analyzing how compliance, internalization, and identification may have influenced the faculty’s adoption of Moodle. The main research question asks does socio-cultural factors influence faculty’s acceptance of Moodle at GUST?

The Process

The study consisted of two separate phases. The participants for the study were faculty members of GUST. The first instrument administered was a questionnaire that was sent to all 162 faculty members, from which 83 responded, and 75 of those responses were counted as valid. The second instrument was a semi-structured interview, in which the faculty member was asked several questions in an online face-to-face session via Skype. Invitation to participate in this semi-structured interview was included at the end
of the survey, from which 17 faculty members agreed to be interviewed, but 8 interviews were actually conducted due to various constraints encountered during the data collection phase. The interviews averaged 50-70 minutes in length. These interviews were conducted and initial reports generated after assigning pseudonyms to the interviewees in an effort to both protect interviewee’s anonymity and eliminate bias from the process.

**Analysis of the Survey**

A structured survey with preselected multiple-choice options and open-ended questions were given to participants. This was designed to assess the extent of a faculty member’s immersion into technology-mediated instruction and to examine the factors that may have influenced such technology adoption. Structuring the process with pre-selected and bounded options allowed assessment of the nature and strength of technology adoption and the drivers of such adoption.

This chapter presents an analysis of the results of the survey instrument. The survey instrument was a questionnaire based on 35 questions, out of which 7 were demographic questions. Collected data consisted of responses from 75 participants. Demographic analyses data showed that participants came from various demographic backgrounds of education level, nationality, age, and academic affiliation as detailed in Table 4. The participants surveyed included faculty members of GUST that responded to the survey either by email or online.
Table 4

Scio-Demographics Characteristics of the Survey Participants

<table>
<thead>
<tr>
<th></th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nationality</strong></td>
<td></td>
</tr>
<tr>
<td>Kuwaiti</td>
<td>13.33%</td>
</tr>
<tr>
<td>American</td>
<td>21.67%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>13.51%</td>
</tr>
<tr>
<td>Egyptian</td>
<td>2.70%</td>
</tr>
<tr>
<td>Other</td>
<td>48.65%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>46.67%</td>
</tr>
<tr>
<td>Male</td>
<td>53.33%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
</tr>
<tr>
<td><strong>Academic Title</strong></td>
<td></td>
</tr>
<tr>
<td>Professor</td>
<td>5.41%</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>51.35%</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>12.16%</td>
</tr>
<tr>
<td>Other</td>
<td>31.08%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
</tr>
<tr>
<td><strong>College Affiliation</strong></td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Science</td>
<td>60.00%</td>
</tr>
<tr>
<td>Business</td>
<td>40.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
</tr>
</tbody>
</table>
Table 4 Continued

<table>
<thead>
<tr>
<th>Highest Degree Earned</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelors</td>
<td>2.60%</td>
</tr>
<tr>
<td>Masters</td>
<td>20.78%</td>
</tr>
<tr>
<td>Doctorate</td>
<td>76.62%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>25-34</td>
<td>24.00%</td>
</tr>
<tr>
<td>35-44</td>
<td>22.67%</td>
</tr>
<tr>
<td>45-54</td>
<td>36.00%</td>
</tr>
<tr>
<td>55 or older</td>
<td>17.33%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Demographic analysis.**

Demographic data of the survey participants were measured by questions 17 through 21 and 31 to 32. The participants’ demographic details are summarized as nationality, gender, academic classification, college, department, age, and highest degree earned as displayed in Table 4.

The demographic data revealed a multi-cultural, multi-ethnic and multi-nationality distribution. Looking at the nationality data from 75 valid responses, Kuwaiti faculty represented only 13.33%, while American faculty, 21.67% of the sample, constituted the higher proportion of all nationalities represented. This was followed by
14% from the United Kingdom and 3% from Egypt. The majority 49% reported their nationality as other, which included such nationalities as South African, Australian, Indian, and Syrian. From a gender breakdown, there were 47% female and 53% male. Educational background of all participants was a mix of bachelors, masters, and doctorate degrees. The overwhelming majority, 76% reported having a doctorate, while 21% reported having a master’s degree and 3% reported having a bachelor’s degree. Of these participants, their faculty classification revealed that 51% held the title assistant professor, 12% associate professor, 5.4% professor and nearly 39% were reported as others. The majority of participants, 60% were affiliated with the Arts & Science College and the remaining 40% were affiliated with the business school at their college. Additionally, the survey asked the age of each participant within a range. The survey revealed 36% reported to be between 45 – 54 years old, 24% reported to be between 25–35 years old, 23% reported to be between 35–44%, and 17% reported to be 55 or older. Table 5 represents the respondents’ demographics compared to the total population of GUST.

Table 5

<table>
<thead>
<tr>
<th>Interviewee Respondents</th>
<th>Survey Respondents</th>
<th>GUST Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Continued
Table 5 Continued

<table>
<thead>
<tr>
<th>Nationality</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuwait</td>
<td>1</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>Non-Kuwait</td>
<td>7</td>
<td>65</td>
<td>141</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>4</td>
<td>40</td>
<td>105</td>
</tr>
<tr>
<td>Female</td>
<td>4</td>
<td>35</td>
<td>55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Academic Classification</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>0</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>7</td>
<td>38</td>
<td>76</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>0</td>
<td>9</td>
<td>27</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>21</td>
<td>43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Department</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science</td>
<td>0</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>English</td>
<td>3</td>
<td>31</td>
<td>27</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>1</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>Mass Communication</td>
<td>1</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Math/Natural Science</td>
<td>0</td>
<td>12</td>
<td>26</td>
</tr>
<tr>
<td>Accounting &amp; MIS</td>
<td>1</td>
<td>14</td>
<td>19</td>
</tr>
<tr>
<td>Business Administration</td>
<td>1</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>Econ. &amp; Finance</td>
<td>1</td>
<td>6</td>
<td>21</td>
</tr>
</tbody>
</table>
**Survey questions.**

The study is focused on comparing survey participants’ opinion, expectation, and experience with the Moodle LMS. The majority of questions centered on responses and opinions regarding Moodle as a personalized learning system built to provide teachers and educators a robust platform for learning.

The survey instrument included 19 questions categorized into 3 measures of user experiences. These include: (i) responses to questions 1 through 3 which focused on the general experience, and opinion of using learning management systems, (ii) questions 4 through 13 focused on the specific use of Moodle as a LMS, and (iii) questions 24, 27, and 28 focused on the attitude and feeling about using Moodle.

**Use of Learning Management System.**

Questions 1 through 3 required a numeric response to a set of 3 questions, which explored the use of learning management systems, experience with teaching technology-mediated courses, and number of semesters LMS system has been used. Of this set of 3 questions, question 2 focused on whether the survey participants had experience in teaching technology-mediated courses over the previous 5 years. Of those respondents, 43% had fully online teaching technology experience, whereas, 32% used a hybrid mix of online and face-to-face teaching, and 24% had no technology teaching experience in the classroom.

The set of survey questions comprised of 4 through 15 focused on actual use of Moodle in the classroom. These questions gauged the participants’ ease of use, expectation of use, grading ability, and course management capability of Moodle. This set of 12 questions was scored from ‘1 to 6’ as Table 6 below reveals. Most difficult was
scored as ‘1’, being fairly difficult was scored as ‘2’, somewhat difficult was scored ‘3’, being somewhat easy was scored ‘4’, being fairly easy was scored ‘5’, and ‘6’ was scored as the easiest. Respondents had the option to choose 1, 2, 3, 4, 5, or 6 as their response.

Table 6

*Scoring Options*

<table>
<thead>
<tr>
<th>Most Difficult</th>
<th>Fairly Difficult</th>
<th>Somewhat Difficult</th>
<th>Somewhat Easy</th>
<th>Fairly Easy</th>
<th>Most Easy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

**Moodle specific usage.**

The reported responses were scored and totaled as a percentage. Survey question 4 asked how easy Moodle was to use in general. The results revealed that 45% scored Moodle somewhat easy, 27% scored Moodle as being somewhat difficult, 17% scored Moodle being most difficult, and 7.5% scored Moodle as fairly difficult. Survey question 5 inquired whether Moodle met the general administration needs of an instructor. The results revealed that 32% found meeting administrative needs with Moodle somewhat easy, 24% scored Moodle as somewhat difficult to handle administrative needs, 5% found Moodle fairly easy, and only 4% scored Moodle easy for such function. Question 6 asked how Moodle was as a communication tool in the classroom. Over 43% reported Moodle as somewhat difficult. Alternatively, just over 31% found Moodle somewhat
easy. The remaining 19% of participants found Moodle fairly difficult, and 4.35% found Moodle fairly easy. Figure 7 below represents question 6.

![Bar chart representing question 6](image)

*Figure 7. Question 6: Moodle as a communication tool in the classroom*

Survey question 7 inquired whether Moodle was meeting expected communication ability in the classroom. The majority 46% participants found Moodle somewhat difficult in meeting expectation, and 30% found Moodle somewhat easy in meeting expectations in the classroom. Another 20% found Moodle fairly difficult in meeting expectation and just fewer than 5% found Moodle fairly easy in meeting classroom expectations. Survey question 8 as shown in Figure 8 below focused on how easy is it to use Moodle’s grading assessment feature. Nearly 40% found the grading
assessment feature somewhat easy, 32% found the feature somewhat difficult, 14.5% found the feature fairly difficult, 8% found the feature fairly easy, and 5% of the participants found the feature easiest.

![Bar chart](image)

*Figure 8. Question 8: Moodle uses as a grading assessment tool*

The next series of questions, 9–13, focused on the ease and usage of Moodle, however these questions were somewhat nuanced and were scored slightly differently. Besides their scoring framework, question 13 was a layered question with 6 individual questions that explored Moodle use from various dimensions. Thus, the participants, in essence responded to a total of 10 questions in this section. As Table 7 details, survey
respondents had the option to select Strongly Agree ‘1’, Agree ‘2’, Neutral ‘3’, Disagree ‘4’, Strongly Disagree ‘5’, and NA for no response or not applicable ‘0’.

Table 7

*Scoring Options*

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Survey question 12 asked whether submitting final grades were easy via Moodle. In general, the participants reported scores were fairly evenly distributed, as 22% reported agreement and 22% reported neutral on the ease of submitting final grades. Similarly, 21% reported strongly agree, and 21% reported no comment on the ease of submitting final grades. The final 4% reported a strong disagreement in the ease of submitting grades.

Question 13 was a multi-layered question that assessed overall acceptance and evaluated whether such acceptance translated into recommendations. Question 13.1 focused on whether the use of Moodle was overall positive. The majority at 56% were in agreement that Moodle was a positive experience. Whereas, 13% were reported as neutral on the experience, and 6% disagreed that Moodle was a positive experience. Survey question 13.2 asked whether participants would recommend Moodle to their colleagues.
Here a majority at 54% was in agreement, and 25% were in strong agreement in recommending Moodle to others. Those that held neutral opinions were at 18%, and 3% reported disagreement in recommending Moodle. Survey question 13.3 focused on whether Moodle made course management easier. Nearly 48% responded in agreement, and 29% strongly agreed that Moodle made course management easier. Those that held neutral opinions were at 21%, and those that disagreed or had no comment were a combined 3%. Question 13.4 explored whether using Moodle within addition to the traditional styled face-to-face classroom setting improved the student learning.

Here the results were distributed as follows: 39% agreed that Moodle assisted in the traditional classroom setting, 33% were neutral, 23% strongly agreed, and 5% disagreed that Moodle improved the student learning in the traditional classroom. Question 13.5 as represented in Figure 9, also focused on whether Moodle usage improved learning in a hybrid environment. This question specifically asked whether Moodle improved learning in a course that combined online teaching and teaching vis-à-vis a traditional classroom environment. The participants agreed at 42% that Moodle did improve learning, but 29% remained neutral. Of the remaining participants 18% strongly agreed that Moodle improved the learning environment, but 11% had no comment on the question.
In this series of questions, the final question 13.6 focused on whether Moodle use as an online course was critical to student learning. The results were fairly evenly distributed. The majority either 26% agreed and 24% strongly agreed that Moodle was critical to student learning. Of the remaining, 21% that remained neutral equally matched those that had no comment at 21%. The remaining combined 10% disagreed and strongly disagreed that Moodle was critical to student learning.

**Attitudes regarding Moodle.**

The primary research question was measuring Moodle adoption as a result of socio-cultural factors. However, the questionnaire also measured existing attitudes toward Moodle. Results of the study indicated an attitude for us to see how attitude may have moderated Moodle adoption. Survey question 28 was a multi-layered question.
comprising 4 separate questions wrapped in one that focused on eliciting participants’ attitude related to Moodle adoption. Question 28.1 measured the distribution of participants with strong belief in the importance of using Moodle in the courses. The majority of participants reported 43% and 27% respectively, in agreement and strong agreement that Moodle was important in teaching courses. Those remaining were neutral at 21%, with the remaining combined 10% disagreed and strongly disagreed on the importance of Moodle in course usage.

Survey question 28.2, represented by Figure 10, asked whether participants felt pressure from superiors to adopt Moodle usage. Nearly 40% felt pressure from their superiors to use Moodle in the classroom and 11% strongly agreed to feeling pressure from their superiors to use Moodle, whereas, 23% disagreed and 21% remained neutral on feeling pressure from their superiors. Question 28.3 focused on whether participants were influenced by peers to adopt Moodle usage. The majority of participants at 45% were neutral on this question, but 24% and 11% agreed and strongly agreed, respectively that there was influence by peers to use Moodle. Just at 15% disagreed in feeling pressure from peers and the remaining combined 6% had no comment or strongly disagreed respectively on feeling pressure from peers to adopt Moodle usage. The final question 28.4, focused on whether the participant was influenced to use Moodle by the platform’s built in features and tools. The majority at 43% agreed and 23% strongly agreed that Moodle’s built in features influenced the continued usage of Moodle. The remaining 26% were neutral and 5% disagreed that Moodle’s built in features influenced the continued usage of the platform.
There were some open-ended questions in the survey. For example, Question 10 attempted to explore participants’ desire for additional features expected in Moodle. Very few participants responded and therefore, the aggregate response did not provide any meaningful quantitative data. However, their lack of response could be an indication of a general lack of faculty’s awareness related to the overall capabilities of the learning management systems. Participants may have chosen not to respond to open ended questions for several reasons. This may include uncertainty about the topic, lack of time, reluctance to answer open ended questions and perceptions that responses may be misconstrued or misinterpreted. Ultimately, it is not clear why participants chose not to respond. However, the general lack of responses does indicate some patterns.
First, cross references with both responses from other survey questions and semi-structured interview results reveal a sizeable percentage of participants did not have a complete understanding of Moodle’s capability. These capabilities contain a wide range of Moodle functionality. Looking at specific questions, where participants did not answer shows those responses relate to some of these Moodle functionalities. If the participants had full knowledge of all Moodle capabilities, these participants would have responded more adequately.

Second, within the survey setting participants showed general reluctance to answer questions that required longer answers or answers that did not fit within bounded multiple choices. Yet, when such open questions were posed during the semi-structured phase, participants showed more willingness to respond to those questions. It may be that open questions during this phase make survey participants unprepared as they were expecting structured multiple choice questions. O’Cathain and Thomas (2004) discussed the possibility of open questions during structured interviews posing problems for participants as such questions fall neither under quantitative category nor within a qualitative category (O’Cathain & Thomas, 2004).

Third, response rates of open questions within the survey exhibit interesting patterns, as they support above observations. For example, Question 30 asks participants whether they intend to use other technologies besides Moodle as teaching aid. The response rate was 33%. Such low response rate could mean a number of possibilities. It could be an indication of respondents’ lack of knowledge of Moodle’s full capability to compare with other educational technology resources. It could also be that respondents did not want to exhibit interest in other learning management tools that may not have
been sanctioned by the GUST administration. However, when the scope of the query was expanded to explore the participants’ view of future, such as, in Question 32, which asked how respondents view future technology would shape student learning, the response rate dropped to 21%. Similarly, when asked for final comments, as in Question 32, response rate did not do any better and stayed at 24%. This shows that, when the expectation is to answer pre-defined structured questions, respondents may not be interested to engage into expansive answers.

Similarly, Question 12 attempted to explore users’ reasoning to their receptiveness of Moodle’s remote grade submission capability. Once again, a lukewarm response of 13% did not provide meaningful data, as the faculty perhaps is still evaluating the feature in its entirety.

In Tables 8 through 10, questions were divided into Perceived Ease of Use (PEU), Perceived Usefulness (PU), and External Factors categories. Table 8 displays the findings for Perceived Ease of Use (PEU) factors, including the associated Moodle questions and percentage of participants in agreement with the surrounding theme addressed in the question. Question 4 discussing ease of use as an administrative tool resulted in the highest percentage of users in agreement with the central theme.
Table 8

Survey Questions Corresponding with Perceived Ease of Use (PEU) Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Questions</th>
<th>How Many Are in Agreement with the Central Theme of the Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Ease</td>
<td>Moodle:</td>
<td></td>
</tr>
<tr>
<td>of Use (PEU)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4) Ease of Use As an Administrative Tool</td>
<td>Q4) 58.21%</td>
<td></td>
</tr>
<tr>
<td>Q6) Ease of Use As a Communication Tool</td>
<td>Q6) 34.78%</td>
<td></td>
</tr>
<tr>
<td>Q8) Ease of Use As Grading Assessment Tool</td>
<td>Q8) 47.62%</td>
<td></td>
</tr>
<tr>
<td>Q11) Easy to submit grades through MyGust</td>
<td>Q11) 42.03%</td>
<td></td>
</tr>
</tbody>
</table>

Table 9 displays the findings for Perceived Usefulness (PU) factors, including the associated Moodle questions and percentage of participants in agreement with the surrounding theme addressed in the question. Question 13.3 discussing course management resulted in the highest percentage of users in agreement with the central theme.
Table 9

Survey Questions Corresponding with Perceived Usefulness (PU) Factors

<table>
<thead>
<tr>
<th>Perceived Usefulness (PU)</th>
<th>Moodle:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q4) Usefulness As an Administrative Tool</td>
</tr>
<tr>
<td></td>
<td>Q6) Usefulness As a Communication Tool</td>
</tr>
<tr>
<td></td>
<td>Q8) Usefulness As A Grading Assessment Tool</td>
</tr>
<tr>
<td></td>
<td>Q11) MyGust meets the needs of faculty</td>
</tr>
<tr>
<td></td>
<td>Q13.3) Made Course Management Easier</td>
</tr>
<tr>
<td></td>
<td>Q13.4) Improved students’ learning in Face-to-Face Course</td>
</tr>
</tbody>
</table>

Prior to embarking upon individual interviews with the 8 participants, limited statistical analysis was performed on a few variables as shown in the following Table 10. The demographic variables used were: academic qualification, department, language, gender, and nationality. Response variables analyzed as a measure of adoption were: ease of using Moodle as a common tool, ease of using as administrative tool, and personal belief in adopting Moodle.
Table 10

Variables Used for Quantitative Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables: Demographic</strong></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>18</td>
</tr>
<tr>
<td>Language</td>
<td>32</td>
</tr>
<tr>
<td>Nationality</td>
<td>17</td>
</tr>
<tr>
<td>Degree</td>
<td>31</td>
</tr>
<tr>
<td>Department</td>
<td>21</td>
</tr>
<tr>
<td><strong>Dependent Variables: Moodle Adoption</strong></td>
<td></td>
</tr>
<tr>
<td>Ease of Moodle as an Administrative Function</td>
<td>15.1</td>
</tr>
<tr>
<td>Tool</td>
<td></td>
</tr>
<tr>
<td>Ease of Moodle as a Communication Tool</td>
<td>17.1</td>
</tr>
<tr>
<td>Personal Belief Toward Adopting Moodle</td>
<td>29.1</td>
</tr>
</tbody>
</table>

Chi-square tests of association that examined relationships between demographic and Moodle adoption variables are displayed in Table 11. All expected cell frequencies were greater than five. There was a statistically significant association between nationality and ease of Moodle as an administrative function, $\chi^2(16) = 29.057, p$-value = .024. Chi-square tests of association that examined relationship between nationality and ease of Moodle as a communication tool resulted in $\chi^2(12) = 20.753, p$-value = .054. Therefore, the test of association is not statistically significant at 5 percent level of
significance, but it could be considered statistically significant if the level of significance is set at 10 percent.

Thus, variation in nationality influences perception of Moodle use as a communication tool and as an administrative function tool. Although chi-square results indicate relationships exist between (b) department and use of Moodle as an administrative function tool, and (b) department and use of Moodle as a communication tool, these relationships were not statistically significant. On the other hand, faculty degree, faculty gender, faculty language do not influence Moodle adoption. In the following section, I analyze how these broader trends emerge within the individual narratives.

Table 11

*Quantitative Analysis Based on Chi-Square*

<table>
<thead>
<tr>
<th>Moodle Adoption Based on Nationality</th>
<th>p-value</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of Moodle as an Administrative Function Tool</td>
<td>0.054**</td>
<td>Relationship is not statistically significant</td>
</tr>
<tr>
<td>Ease of Moodle as a Communication Tool</td>
<td>0.024*</td>
<td>Relationship is statistically significant</td>
</tr>
<tr>
<td>Personal Belief Toward Adopting Moodle</td>
<td>0.222</td>
<td>No Relationship Exists</td>
</tr>
</tbody>
</table>
Table 11 Continued

<table>
<thead>
<tr>
<th>Moodle Adoption Based on Department</th>
<th>p-value</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>(b) Ease of Moodle as an Administrative Function Tool</td>
<td>0.186</td>
<td>Relationship is not statistically significant</td>
</tr>
<tr>
<td>Ease of Moodle as a Communication Tool</td>
<td>0.101</td>
<td>Relationship is not statistically significant</td>
</tr>
<tr>
<td>Personal Belief Toward Adopting Moodle</td>
<td>0.735</td>
<td>No Relationship Exists</td>
</tr>
</tbody>
</table>

| Moodle Adoption Based on Degree (c)                  |         |                          |
| Ease of Moodle as an Administrative Function Tool    | 0.832   | No Relationship Exists   |
| Ease of Moodle as a Communication Tool               | 0.804   | No Relationship Exists   |
| Personal Belief Toward Adopting Moodle               | 0.641   | No Relationship Exists   |

| Moodle Adoption Based on Gender (d)                  | p-value | Conclusion               |
| Ease of Moodle as an Administrative Function Tool    | 0.534   | No Relationship Exists   |
| Ease of Moodle as a Communication Tool               | 0.928   | No Relationship Exists   |
| Personal Belief Toward Adopting Moodle               | 0.720   | No Relationship Exists   |
Table 11 Continued

<table>
<thead>
<tr>
<th>Moodle Adoption Based on Language</th>
<th>(e)</th>
<th>No Relationship Exists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of Moodle as an Administrative Function Tool</td>
<td>.739</td>
<td>No Relationship Exists</td>
</tr>
<tr>
<td>Ease of Moodle as a Communication Tool</td>
<td>.845</td>
<td>No Relationship Exists</td>
</tr>
<tr>
<td>Personal Belief Toward Adopting Moodle</td>
<td>.593</td>
<td>No Relationship Exists</td>
</tr>
</tbody>
</table>

* Association is significant at $p < 0.05$

Table 12 displays the findings for External factors, including the associated Moodle questions and percentage of participants in agreement with the surrounding theme addressed in the question. External factors included Internalization, Identification, Compliance, Values, Language, and Technology. Question 1 discussing experiences with learning management systems in the past 5 years resulted in the highest percentage of users in agreement with the central theme.
Table 12

*Survey Questions Corresponding with External Factors*

<table>
<thead>
<tr>
<th>Factor</th>
<th>Questions</th>
<th>How Many Are in Agreement with the Central Theme of the Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>External</td>
<td>Moodle:</td>
<td></td>
</tr>
<tr>
<td>Internalization (IN)</td>
<td>Q13.2) Will recommend it to colleagues</td>
<td>Q13.2) 78.26%</td>
</tr>
<tr>
<td>Identification (ID)</td>
<td>Q14.3) Satisfaction with help from colleagues and peers</td>
<td>Q14.3) 51.22%</td>
</tr>
<tr>
<td>Compliance (C)</td>
<td>Q28.2) Feeling pressure from superiors to adopt Moodle</td>
<td>Q28.2) 50%</td>
</tr>
<tr>
<td></td>
<td>Q28.3) Being influenced by peers to adopt Moodle</td>
<td>Q28.3) 34.33%</td>
</tr>
<tr>
<td>Values (V)</td>
<td>Q28.1) Strong belief in the importance of using Moodle in courses</td>
<td>Q28.1) 70.15%</td>
</tr>
<tr>
<td>Language (L)</td>
<td>Q6) Moodle with option in different language (as a communication tool)</td>
<td>Q6) 19.67%</td>
</tr>
<tr>
<td>Technology (T)</td>
<td>Q1) Experience with LMS in the past 5 years</td>
<td>Q1) 93.9%</td>
</tr>
</tbody>
</table>
Figure 11 above shows two sets of summative scores, one for PEU and the other for PU. The summative score for PEU comes from the above Table 8. Table 8 displays the response rates for agreeing on the prompts related to PEU factors. The pertinent questions are Question 4, question 6, question 8 and question 11, with corresponding response rates of agreement in percentages as 58.21, 34.78, 47.62 and 42.03 respectively. Recognizing that each factor is equally important in developing a composite for the perceived ease of usefulness of Moodle, a simple equal weighted average was taken with the weighting factor of 25%, which gave a composite summative score for PEU as 45.66. Similarly, the summative score for PU comes from the above Table 9. Table 8 displays the response rates for agreeing on the prompts related to PU factors. The pertinent questions are Question 4, question 6, question 8, question 11, question 13.3 and question 13.4 with corresponding response rates of agreement in percentages as 41.03, 34.43, 47.62 and 42.03 respectively.
48.11, 55.95, 76.12 and 61.42 respectively. Recognizing that each factor is equally important in developing a composite for the perceived ease of usefulness of Moodle, a simple equal weighted average was taken with the weighting factor of 16.67%, which gave a composite summative score for PEU as 52.84.

**Report on Semi-Structured Interviews**

The second phase of the data collection consisted of semi-structured interviews that were conducted online using a Skype video session. Invitations to participate in this semi-structured interview were included at the end of the survey, from which 17 faculty members agreed to be interviewed, but 8 actually were able to show up for the interview. After the interviews were completed, participants were assigned pseudonyms to protect the anonymity of the interviewee.

For the second instrument, initially six men and eleven women accepted the invitation to participate in the interviews, but the actual interviews conducted were eight, and they were 4 men and 4 women in total. Demographics projected the participants’ age ranges from 35 to 55 years and higher, and that the participants came from different backgrounds and held different academic degrees. Seven of the interviewees had PhD degrees, and one held a Master’s degree, and two of the interviewees were heads of their departments. From the ethnicity perspective, interviews participants include 1 Kuwaiti faculty, 2 Arab faculty members, 1 American faculty, 1 European faculty, 1 Asian faculty, 1 African faculty, and 1 originally Arab faculty with a western nationality.

The interviewees came from six different departments which included: Economics and Finance, Business Administration, Computer Science, Mass Communication, Humanities and Social Sciences, and the English department had three
participants. This was expected, as the English department is the department with the largest number of faculty members. Some of the interviewed faculty members were relatively new hires to GUST with 2 years of work experience, whereas others have been teaching at GUST for over a decade. Table 13 summarizes the interviewees who participated in the semi-structured interviews.

Table 13

*Description of Interviews*

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Date and Time</th>
<th>Status</th>
<th>Style</th>
<th>Format</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michelle</td>
<td>February 22 @ 10am</td>
<td>Conducted on date</td>
<td>Skype</td>
<td>Semi-Structured</td>
<td>75 minutes</td>
</tr>
</tbody>
</table>

Biographical Sketch of Michelle. Westerner faculty member. Although she doesn't view her experience as positive with Moodle, but she uses it in different aspects of the class and incorporates other tools into her teaching. She would rather have more help in using Moodle by attending workshops in order to know how to apply it more towards her teaching.

| Sami | February 25 @2am | Conducted on date | Skype | Semi-Structured | 65 minutes |

Biographical Sketch of Sami. Arab Faculty member, with a Ph.D. in Business with teaching experience and corporate work experience.

Continued
<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Conducted on</th>
<th>Time</th>
<th>Structured</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rashid</td>
<td>February 29</td>
<td>Skype</td>
<td>@3am</td>
<td>date</td>
<td>50</td>
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</table>

Biographical Sketch of Rashid. An Arab faculty member earned his PhD in from the USA. He uses tools of Moodle that he perceives appropriate to his curriculum. He tries to find technology suitable to his course objectives whether it is Moodle or other external tool.

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Conducted on</th>
<th>Time</th>
<th>Structured</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maryam</td>
<td>March 2</td>
<td>Skype</td>
<td>@2am</td>
<td>date</td>
<td>60</td>
</tr>
</tbody>
</table>

Biographical Sketch of Maryam. An Arab faculty member with Doctorate degree teaching in the College of Arts & Science. She had an experience with teaching face-to-face classes and blended ones. She described her experience with Moodle as positive, but still faced with some problems, and the help she gets from the e-learning department is not as she expected.

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Conducted on</th>
<th>Time</th>
<th>Structured</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamal</td>
<td>March 6</td>
<td>Skype</td>
<td>@6am</td>
<td>date</td>
<td>60</td>
</tr>
</tbody>
</table>

Biographical Sketch of Jamal. An Arab faculty member with a western nationality, have a PhD degree. He got years of teaching experience, with years of experience teaching online courses in his previous institution He used LMS previously, and used Moodle at GUST for various purposes.

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Conducted on</th>
<th>Time</th>
<th>Structured</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kathryn</td>
<td>March 7</td>
<td>Skype</td>
<td>@2am</td>
<td>date</td>
<td>55</td>
</tr>
</tbody>
</table>

Continued
Table 13 Continued

<table>
<thead>
<tr>
<th>Name</th>
<th>Conducted Date</th>
<th>Conducted On</th>
<th>Conducted Time</th>
<th>Conduction Software</th>
<th>Time</th>
<th>Methodology</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olivia</td>
<td>March 8</td>
<td>Skype</td>
<td>3am</td>
<td>Semi-Structured</td>
<td>65</td>
<td>minutes</td>
<td></td>
</tr>
</tbody>
</table>

Biographical Sketch of Olivia. A European Assistant professor teaching in the College of Arts and Science. Her overall experience with Moodle is positive and would recommend it to others. She relies on her colleagues & peers to help her with problems she faces with Moodle. Her reasons for using Moodle were: she has a personal belief in the importance of using Moodle; and feel pressured from her superiors to use it; & influenced by peers.

| Ali | March 11 | WhatsApp | Date (This was the third attempt) | Semi-Structured | 50 | minutes |

Biographical Sketch of Ali. A faculty member graduated from an Asian country. His use of Moodle is basic, but uses technology for personal purposes.

*Note. Participants were assigned pseudonyms to both protect the anonymity of the interviewee and retain the unbiased structure of the process.*

The participants in the study constituted a more diverse representation than actual demographic representation of the faculty population of GUST. Having a diverse sample of participants was important in this study because this study aimed to document the views of minority populations represented at GUST in addition to views of majority populations. This was also important to consider using TAM, as in-group and out-group
dynamics of faculty have an effect on technology acceptance. The use of a diverse sample allowed for a more nuanced understanding of the interplay between sociocultural factors and technology acceptance as interpreted by individuals in varied demographic categories.

**Themes**

The analysis of survey results explored a multitude of relevant factors that may have affected the faculty’s technology use and adoption of Moodle at GUST. Analysis of semi-structured interviews presented information shared by faculty members to explore whether the socio-cultural factors influenced their acceptance of Moodle. The findings from the interviews are presented here in accordance with the main themes associated with the research question. In the following sections, each of these themes is discussed in detail, where the interview questions connected with the theme are identified and a narrative surrounding the overall examination of the various interviewees are presented. Overlaps with demographic characteristics observed in the survey allowed for a more holistic understanding of participant perspectives. Examining several factors in conjunction with one another provided more nuanced detail in interpreting the sociocultural factors that influenced technology acceptance.

**Theme 1: Faculty members’ background information and experience with Moodle.**

This theme is represented by questions a, b, c, d, e, f, 1, 2, and 12. The group of questions represented by this theme seeks information about i) the individual’s background, ii) years of experience at GUST, iii) general attitude towards technology,
and how it plays a role in the participant’s daily life, and iv) what and how the interviewee uses technology in general, and v) the faculty’s experience with Moodle.

This theme is based on open-ended questions with no certain direction or expected answer. Therefore, the participants were able to discuss their background information, use of technology on daily basis, and share their views or experiences with Moodle in general.

**Theme 2: Cultural influences.**

This theme is represented by questions 3 and 8. These questions were developed to investigate the role of culture in the user’s acceptance of Moodle. The cultural aspects investigated were (i) the user’s beliefs and norms, (ii) language used, and (ii) the user’s use and familiarity with technology tools.

**Theme 3: Social influences.**

This theme is represented by questions 7, 9, 10, and 11. The main focus of these questions was to understand the role of the social influences, introduced by Kelman (1958), on the individual’s acceptance of Moodle. The social influences were measured via three dimensions - (i) compliance, (ii) identification, and (iii) internalization.

**Theme 4: TAM components.**

This theme is represented by questions 4, 5, and 6. The last group of questions examined the two main determinants of actual use of TAM, and they are: (i) perceived usefulness, and (ii) perceived ease of use.
Theme 1: In-depth review: faculty members’ background information and experience with Moodle.

The background information for each participant provides the diversity of the responses. Each participant’s background and cultural connection influenced how he or she responded to interview questions, providing insight on the impacts of a user’s background influence on his or her decision to use technology, such as Moodle. The background information gathered in these questions deal with the faculty’s years of work at GUST, the country where the participants got the degree from, and his or her general attitude towards technology use in daily interactions. Also, information was garnered through the survey which deals with the nationality of the participants, the languages they speak, age range, gender, and experience with Moodle at GUST.

For example, Michelle, is a faculty member at GUST with over a decade of higher education experience. She was my first interviewee, and the interview lasted over 75 minutes because she was really eager to meet and talk about her experience as a higher education faculty in different colleges and countries. Her interest was shown through her interaction with the topic and she even suggested that she was available for a follow up interview if I needed extra clarification.

This instructor was very enthusiastic about her teaching style, her love for technology, and the different ways and approaches that she incorporates in her teaching. Her engagement with her students and courses was evident through the interview by answering the questions asked from her students’ point of view and from her experiences as a teacher.
Her survey responses showed that she did not have an experience with online courses, nor she taught an online class, but her use of technology stemmed from her own beliefs in its usefulness to students. She talked about her use of different technology that was influenced by her interest in learning more about technology, and attempt to find useful technology that could benefit her students. She gives examples of the tools she uses in her classroom, and why she uses them. She showed an interest in exploring and continuing to learn more technology just for the sake of having a successful learning experience for her students. At the end of the interview she asked me if I could help her explore useful technology for her classroom. Michelle is immersed in her role as a teacher, focused on the success of her students, and she finds that technology is another way to assist in her teaching.

Sami, is an Arab male faculty with eight years of teaching experience at GUST. He earned his degree from and had a work experience in North America. He described himself as “an addict” to technology, but still has “a good control with it.” His survey response showed that he uses many of the functions presented by Moodle. He criticized people’s extensive use of social technology in Kuwait, and thought that it is taking over their lives. He compared himself to others when using technology, and perceived that not everyone is aware of when and how to use technology. Although he is aware of the negative power of technology on daily life, he uses technology “extensively. I use it for all my courses, … uploading, … grading, … PP- you name it; I just use it extensively.”

Jamal, is an associate professor in the College of Business Administration. He is an Arab faculty who holds a western nationality. Before working at GUST, he had worked for over twenty years as a lecturer. His survey response showed that he taught
face-to-face classes and online courses, so he is knowledgeable in using technology. When asked about his attitude towards technology, he said, “I am a technology fan… I set my entire calendar, my appointments over my laptops-everything. I have all my work on--it is part of my daily life.” He also showed a big interest in using technology, he perceived it as “very useful for all aspects of our life … it gives us, it saves your time, costs, and you can achieve more accurate work with technology, rather than without technology.” At the same time, he was critical of the technology use in people’s daily life that he observed:

I agree, we need it … but to some extent… the main disadvantage… it is taking away from your family, from your friend. When you communicate over phones, rather than visiting your parents, your neighbor, or even your friend. So, it is a double-edged, you know.

About his experience with Moodle, he expressed his interest in using Moodle for his courses, “I consider myself as a Moodle fan… I use Moodle in every aspect in my teaching,” He already knows how to use LMS, and enjoys using it for his class work. He talked about his previous experience with LMSs. “I am not new for Moodle, because I started with WebCT, and then they upgraded to Blackboard. I shifted to Quiz Land in 2008 and then, in 2011 I updated to Moodle.” Although he enjoys using Moodle, he critiqued the adoption of Moodle by GUST. His comments included “to improve the use of Moodle is to give more flexibility, give more workshops, more seminars: How to set a quiz online assignment, and how to add and drop some users of Moodle.” Clearly, Dr. Jamal is an enthusiastic proponent of Moodle, and he internalized the usefulness of the
LMS, and would like to have more access to tools and functions of Moodle to enhance adoption within GUST.

Dr. Rashid is a Kuwaiti male faculty. He was exposed to and used different technologies as a graduate student. He finds that using technology in the daily life has become a need, and views the use of suitable technology in the classroom as essential for both students and faculty. In his survey responses, it showed that he used technology in the past, created MOOC classes, and listed various software that he use in his classroom. He explained that technology plays a role in:

Preparing students for today's day and age - I mean, they have to be very technologically apt, and while they're very good in certain skills, like social media, and mobile technology, they are often very weak in other technological areas. I think having that integrated into the educational experience is necessary for their future performance. As far as faculty go, it is a useful tool for things like classroom management, record keeping, assignments and all of that.

Although Dr. Rashid believes in the importance of technology in teaching and learning, he criticized GUST’s approach to technology. “It is become almost an obsession at the university, and so for me in an administrative position the amount of different systems I need to learn how to use is almost overwhelming.” GUST, in Dr. Rashid’s view, is over using technology in the administration units. “We have them for teaching, we have them for recruitment, we have different ones for work processes, we have others for IT requests, for event management, we have them for literally everything.” He criticized the automation of the GUST and said “at some point you reach almost a
saturation level. I'm actually pretty technologically competent and I know I find it difficult to keep up at times, so I know a lot of the faculty find it even more difficult.”

Dr. Rashid is a competent user of technology, and he “manages fairly intricate classes” when teaching, and includes “ongoing activities, collaborative group projects, and have different kinds of assignments that run extra credit, sometimes offer access to online materials, including MOOCs.” He also collaborates with DropBox to share files more easily with his students, a tool that does not work well in Moodle because it can’t handle large files. Dr. Rashid uses these tools with his students because his classes require the use of technology, but find his needs weren’t supported by Moodle, because it cannot handle projects with media files; Moodle is usually unreliable in dealing with such files.

His final comments on Moodle use at GUST were regarding the administration perception towards Moodle adoption. He strongly believes that GUST is doing it wrong by expecting all faculty members to adopt Moodle, first by expecting all faculty would use it, because as he puts it:

The university's trying to apply a one size fits all approach, you get people with a myopic view from the top, and they assume that everybody's classes and activities are more or less similar and they believe they can roll things out and they don't understand why people don't adopt them.

Secondly, “They only make a half-hearted effort of providing the resources to get people to really adopt it.” He believes that the biggest limitation to the adoption of Moodle at GUST is “the way our management thinks about Moodle at GUST.”
Dr. Kathryn, a Middle Eastern faculty who graduated from her home country and worked for several years before joining GUST, where she has worked since 2010. When I asked her about the role of technology in her life, she replied, “I use technology quite a lot. I check my email every half an hour, my WhatsApp, and I am on Facebook. I have a couple of email accounts, I check the news online, rather than in print.” She also commented that she perceived herself as a good user of technology, and sometimes wonder whether she is “addicted or not” to technology.

Dr. Kathryn expresses her interest in using technology, but most of her technology use is associated with social media. She talked about her use of technology to communicate with her family back home, and check her emails and messages on WhatsApp on her phone. At the same time, she disclosed that she is “not a very good user of Moodle.” Her survey response for question 24 regarding her experience with Moodle she disagreed that her experience with Moodle was positive, and she was neutral towards her recommendation of Moodle to others. Her limited interaction with Moodle was possibly triggered by her first exposure to the system. She said, “to be honest, when I first started using it I had no idea about what to do with it.”

Dr. Maryam is an Arab assistant professor, and is part of the College of Arts and Sciences. She has an experience in teaching in higher education, and has worked over a decade at GUST. She talked about her use of technology, and acknowledged that she mainly uses it for work purposes, and once she started Moodle, it simplified her life. Still, she acknowledges that she’s “not really obsessed with it.” Her main uses of technology include emails, connecting with family, reading books, and to do research. She
commented on technology use, “we have to be a little bit careful with it because sometimes it's not useful and sometimes it's time-consuming.”

Her comments align with her minimal use of technology, and her modest use of Moodle could have been triggered by her experience with the system. She identified Hot Potatoes, a free online tool that help create tests and quizzes, as the tool she uses most, still she doesn’t know how to incorporate it into Moodle. When she was faced with this problem, she contacted the e-learning department and asked for help, but they “had never heard of it. So I explained to them and they tried to figure out how to make it work, but at the end, it didn't work, so I just dropped it.”

For faculty who are not experienced in technology, change could be a trigger for lack of adoption. Dr. Maryam shared her confusion by saying, “when they changed Moodle’s version, they didn't tell us,” this caused a lot of frustration. She said, “with some versions some functions are handled differently. GUST never informed us they had changed the version, so we had to figure it out on our own.”

She shares Dr. Rashid’s idea of forcing faculty to use Moodle. She believes that it is more important to be an “excellent instructor and students will enjoy your class. A good instructor, at the end will be good, because sometimes you have to use Moodle, but you don’t know how at the end, it harms the course.” She believes that faculty members don’t have to use Moodle if they think they are better off without it, because “it’s very stressful and I don’t see the use of making people stressful.”

Also, she shares Dr. Rashid’s opinion about the pressure at GUST because “it’s not only Moodle but everything is electronically done.” So, the inclusion of technology in
the majority of the processes at GUST pressures the faculty to use it, which could
backfire on their performance and attitude.

Dr. Olivia is a European faculty has been living in Kuwait for the past ten years.
She has a positive attitude towards technologies, and she relates that to her past
experience with technology while a graduate student learning about teaching English. Her
survey response showed that she had a previous experience with LMS for the past 5-6
semesters. She said “I don’t think you can teach language without modern technology
today.” Then, she described her use of Moodle, and how she facilitates it in her
classroom. She used Moodle because “it’s a very flexible tool. I use it for my gradebook,
as a communication platform with the students, as a repository for samples and I grade on
Moodle. I get feedback on Moodle.” She also uses it to post handouts and additional
materials for her students such as review sheets and sample exams. As an English
teacher, she relies heavily on TurnItIn that is linked to Moodle. Her experience as a
teacher using technology in her classroom is that the discussion platform of Moodle does
not resonate well with students. She used discussion groups few times in the past, and
found out that students at GUST do not interact with it as she expected. She shares the
same experience with Dr. Jamal who also found that discussion groups weren’t
successful in his sessions, he premised it may be because of the culture, or possibly that
the course doesn’t work well with such feature.

The last interview I conducted was with Dr. Ali. It took few tries to arrange a time
to conduct the interview. The interview was finally conducted through a What’sApp call.
He graduated from Asian country and been teaching at GUST for ten years. Although Dr.
Ali mentioned that he was influenced to use technology when he was a graduate student
by the culture where he went for school, he said it was “far ahead in technology than
Kuwait.” At the same time, he reported on his minimal use of Moodle by saying “I
mainly use it for grades and for communicating with my students, I put links for the
students but no more than that. I don’t use it actively.” This is evident in his survey
response where he did not mark any feature as “currently using” or “planning to use”,
instead, he answered, “not planning to use” on all options offered by question 28
regarding the use of Moodle features. While his adoption is minimal, he stated that he
uses technology for personal and social purposes more often.

His frustration with Moodle was obvious throughout the interview, and this
could’ve contributed to his lack of use. When talking about his experience with Moodle
he said,

I have to learn everything. There’s no book to go back and refer to whenever you
have a problem. We have to go to the office or call the sister who’s responsible
for solving problems. On some times, there were some technical problems, and it
doesn’t give good results. Suppose you put points for midterm 1,2,3 and the final
you expect to get out of 100. You get wrong answer, the wrong calculation. So
the students would say, Dr. the calculation are wrong. But, I would say, I know
the system is wrong. So I have to do it manually again. We inform GUST of these
problems, but don’t find a good answer.

Theme 2: In-depth review: Cultural influences.

These questions investigated the cultural factors that influence the faculty’s
acceptance of Moodle. It also examined whether these factors influenced the faculty’s
decision to adopt Moodle. Dr. Sami explained the reason for his adoption of Moodle
saying that “because I have a technology background it's easy to use because of my background.” While Dr. Jamal’s reply to the question was:

When I came to GUST, I am so in advanced and familiar with Moodle. Even, I consider myself as expertise that is why I am happy to run this interview with you. I have a long experience from 2010, to now, using Moodle.

Dr. Maryam, when asked about how her cultural and technology background influenced her use of Moodle, her reply was “I've been using this type of tech before Moodle, … I’ve been using this type of thing for a long time.” She described her early exposure to using technology:

We had language labs, we had all the facilities on campus. So it was encouraging, I guess. I started teaching, I got lots of training courses and they all showed us how to use teaching technology. One of the things back then, video was a high technology, and we used to teach and we learned how to use video to teach in language classes. So I got that training when I start just out of college, started teaching, because, on campus, we had lots of facilities, so I was getting the training twice a week, and then, I'd go back to school, to my university, to my class, and apply it.

Dr. Rashid talked about his background in technology and said:

I come from a very technological background in terms of my education. I earned my PhD [close] to where Microsoft and Amazon and everybody come from. The [university I graduated from] is a very tech oriented university. Also, where I did my Masters … we used BlackBoard, so, I was used to classroom management systems anyway, and so I expected it.
He believes that adoption of technology not only associated with previous experiences, but “it has to do with education, has to do with personality type, risk taking, has to do with age and personal experiences.” He later commented that using Moodle is “Not a one shoe fits all. I think a lot of it has to do with the purpose, and then of course some of it has to do with the individual backgrounds, and part of it has to do with the system itself.”

Although she disclosed that her current adoption of Moodle has been influenced by her previous exposure to technology, Dr. Maryam does not believe that her own culture or the current Kuwaiti culture had anything to do with her acceptance of Moodle at GUST. She said “I don’t think culture influenced my adoption, what can affect my decision is not the culture differences, but our use of the technology. So it's our differences that influence our attitude.” Dr. Rashid, when asked about the influence of culture on the acceptance of using Moodle:

I don't see a major cultural difference. I have Arab faculty, some who use it and some who don't, I have American faculty, some who use it and some that don't. It is not strictly a generational thing. I'm sure culture does play a little bit of a role, but, I would say it's more of a mediating variable rather than a primary variable, in terms of technology adoption.

In general, the interviewees associated their previous exposure to technology with their use of Moodle at GUST. They expressed that their familiarity with technology and different LMSs was a motivator to adopt Moodle at GUST. Some added different aspects that influence the adoption beside the previous exposure to technology.
Theme 3: In-depth review: Social influences.

This group of questions was intended to gather information about the role of social influences on faculty members’ adoption of Moodle at GUST. The social influences adopted from Kelman (1958) were compliance, identification, and internalization. When asked about the social preferences influencing adoption of Moodle, and the role of the institution and other faculty members on adoption of Moodle, Dr. Sami presented different reasons to why and what influenced his use. He explained:

I came from a technology background … I love technology. It makes my life a lot easier. I use technology to communicate with people around the world. And with, now with academia, it makes it easy for me with students, our society, sometimes it works like mentoring by default. People like to have some, personal communication with others and to learn something. It's more like a group orientation. I don't think it's the institution itself made me use it, or liking it, as much as my eagerness to use it, personally. I like to use it, I always liked to use it. So, I love using it, so, it's not really that GUST made me that way- it's in me.

His response also is present through his survey answer to whether he was influenced by faculty members or administrators, and his reply was “strongly disagree”

Michelle talked about the influence of other faculty and the institution on her use by saying:

We have another professor she uses Google Docs. I came across that, and then learned to use Prezi. This other woman, I would love to be her student! In fact, when students ask me to recommend a teacher, I always recommend her.
Prompted by the inquiry as to whether he would recommend Moodle to his colleagues or not, Dr. Jamal replied, “I recommend it to my faculty member to use Moodle.” Regarding the personal practices that influenced his Moodle adoption, Dr. Jamal said “when I started … it is the only way to communicate with online students, because here in Kuwait, we have no online students.” Also, he acknowledges that his affiliation with professional organizations such as “CPA and CMA, they influenced me using technologies” because they,

Have a lot of figures, a lot of emails coming to open the links, so I used to do in all courses. I put the link to CPA America, CPA Australia, CMA America, Australia, UK- and sometimes I received very useful figures, or what is current exchange in stock market, and so I add this link to my Moodle site, to put my students in the current situation.

Also, Kathryn said “I am a member of TESOL, TESOL Kuwait, which is affiliated with TESOL international,” and that her affiliation with the group may have influenced her use. She explained:

TESOL organizes semi-regularly workshops for teachers, for teacher trainers. If someone had a presentation about using Moodle in an ESL class, we would have interest groups on how to integrate Moodle in your classes.

Some faculty members recognize that their use of Moodle was part of their previous exposure to technology in general, and in some cases to previous LMSs use, but they deny the role of the institution in influencing their adoption. These faculties expressed a strong opinion that, they recommend it to their colleagues out of their own convictions that Moodle use benefits the educational process. Some of the faculty
members attribute some of their interest and eventual adoption of Moodle to their being influenced in part by other faulty members and in part by the role institution may have played.

**Theme 4: In-depth review: TAM components**

The last set of questions focus on examining whether the two main components of TAM shape the adoption of technology. The main two components are (i) perceived ease of use (PEU), and (ii) perceived usefulness (PU). These components are influenced by the external factors, and in this study they are represented by the socio-cultural factors.

When Dr. Sami was asked about which is a stronger influence on his adoption, is it ease of use or usefulness, he replied:

It’s both for me. Because, I have a technology background, it's easy to use it, and at the same time, it's really useful, because it makes my life easier with the students. It is easy for me to use it, because of my background, and it's useful for me to use it, because it makes it easier for me. I upload everything, PowerPoint, exercises that a student may use because, it's a lot easier for me and then it grades itself.

When asked about the usefulness and ease of the administrative, communication, and assessment functions of Moodle, he responded “easy to use” and “exceeded my needs” on all 3 questions. Dr. Rashid expressed his idea about the usefulness of Moodle by saying:

I find it consolidates the different kinds of things that I can experiment with in teaching, and that's my primary reason I use it. It serves a purpose, and as long as it has utility I'll keep using, and where it doesn't have a utility I won't use it, and I
would expect the same from other faculty. So it fulfills a certain need in terms of providing information and access to information, but it's not a very good communication tool. For that I use other things.

In his survey questions, he marked “easy to use” on the usefulness and ease of the administrative, communication, and assessment functions of Moodle, while marked “some how useful” on the same functions of Moodle. Regarding the easiness of Moodle, he said “I find students don't tend to want to use it because it's much easier for them to use WhatsApp or some other technology.” About his personal experience with Moodle, and why he doesn’t think it is easy to use, Dr. Rashid said:

And every time I try and turn off and view the total score - it still comes back up next time I use the system. So, I find the grade book to be a particularly problematic part of Moodle, because that's essentially the key thing. I end up importing everything into Excel and double checking all the calculations that way, and several of the other faculty do as well. So that faculty who don't really like it, when they see that they have to do that, and then we have to input the final grades into a different system called the SIS system, that's just way too much. It doesn't make things easier. I mean whether you're used to keeping manual records, or their own Excel file as they go along, they would prefer to do that. So, I think there's an inherent limitation to the way it's set up, to get those sort of laggards to adopt it. The majority of the faculty was facing problems with that.

Dr. Jamal explained why it is important for him to use Moodle because “it's convenient and it is useful.” He explained his view by saying, “Moodle makes things easier, quicker, and more convenient, because every year, or every day, we have a new
technology which give us more benefit.” Dr. Jamal expressed how Moodle is useful and
easy to use for him, and expressed his reasons to adopt Moodle by saying that it is:

Not one reason, but many reasons. For example, it is easy to use, more
convenient to me and there is no limitation on space or time. So, overall, it is very
useful for me, and for my students. When I run my lecture in class, I record my
lecture, and then I post it to Moodle. I also post a lot of basic, assignments,
submission of assignments, grading quizzes, and answers to my tests on Moodle.

Finally, some faculty members expressed their appreciation to the easiness of
Moodle and its usefulness to their work. They presented examples of how Moodle helped
them achieve their goals successfully. Other faculty members realized that Moodle is
useful to their work, but still there are some features that are not easy to deal with.

Summary

In this chapter, I have outlined the findings from the survey and the semi-
structured interviews. By organizing the semi-structured interviews into four themes, I
explored in detail the primary research question of the role of socio-cultural factors
influence on faculty’s acceptance of Moodle at GUST. Besides providing a demographic
breakdown of the participants, survey questions explored how these socio-cultural
dimensions may have influenced participants’ Moodle adoption. When responding to
Moodle’s perceived ease of use across various dimensions, respondents’ agreement
ranged from 34.8% to 58.2%. When responding to Moodle’s perceived usefulness, such
responses ranged from 34.4% to 76.1%. Evaluating respondents’ Moodle adoption on
account of internalization, identification, and compliance, respondents recorded at least
50% agreement in each of the categories. Moreover, while more than 70% of the respondents believed in the importance of Moodle, majority indicated strong technology background before embarking on Moodle. Therefore, the objective of the semi-structured phase of the data collection was two-fold: to see how these trends unfold within the sample of interviewees and whether there is any discernible characteristic or factor that might show a contraindication. Semi-structured phase participants not only showed demographic distribution on par with the survey participants, their interview narrative corroborated the many themes of socio-cultural factors influencing technology adoption. In the next chapter, I will analyze each theme separately and then combine the analysis into an overall response to the main research question, representing the findings with the existing literature, and propose the extent to which the findings can be applied. In particular, I consider the relationships among these findings and hypothesize their role in the acceptance of Moodle process among faculty of GUST.
Chapter 5: Discussion

There was certainly in their stories a lesson for those of understanding.
Quran, Yusuf 111

In this chapter, I review the findings and provide both an interpretation of the findings and present the study conclusions. The purpose of this project was to explore the extent to which socio-cultural factors have influenced the acceptance of Moodle among faculty at GUST. In the initial step, I outlined the cultural factors and social influences that affect the individual’s decision to use the LMS. The identification of these socio-cultural factors served as a stepping-stone that connected participants with the shared ideas and experiences uncovered through the interviews. My goal was to show that rooted within participants’ experiences and diverse backgrounds are the socio-cultural constructs that have shaped their acceptance and adoption of Moodle.

This study used the main survey to discern broader trends in faculty’s acceptance of Moodle at GUST, while seeking to identify significant interactions between socio-cultural factors and technology adoption.
Dissection of the demographic data yields several distinguishing factors. The results of the survey showed that less than one third of the GUST faculty were of Arab origin, with a mere 13.33% being Kuwaiti. Meanwhile, nearly a third of the respondents came from highly developed countries such as the United States or the United Kingdom. 46.7% of the respondents were female and the other 53.3% were male. Concerning their academic affiliation, roughly 40% of the respondents were in Business, approximately 20% were in Science and Technology, and the remaining 40% were in the Humanities or other disciplines. Over 98% of the faculty who participated in the survey had either a Master’s or doctoral degree, with over 76% having a doctorate.

In analyzing the trends in how these diverse demographics affect faculty adoption of Moodle, there were several noteworthy observations. Over 90% of the faculty had experience with LMS in the past five years, while more than 70% believed in the importance of Moodle in their course management. For at least 58% of the participants, PEU was reported as the reason for their Moodle adoption, while over 41% reported PU as their reason for adopting Moodle. Data analysis shows that compliance was a factor in Moodle adoption for at least 50% of the faculty, while identification was a factor in at least 51%, and internalization for over 78%.

For many respondents, both the PEU and PU have been factors. Likewise, all drivers, such as, identification, internalization, and compliance were present in combinations for many respondents. In the next step, the semi-structured interview phase provides further interpretative gloss upon these broader trends to further solidify the understanding of how socio-cultural factors may have influenced the faculty’s acceptance of Moodle at GUST. In particular, it gives a more in-depth look at issues and more
definitive answers, seeking to uncover conclusions that are not immediately obvious in the quantitative analysis.

The qualitative analysis can offer insight into specific cases and fully illuminate relationships in these cases; these relationships might be lost due to aggregation in the quantitative data, or simply not indicative of the whole population. However, they still have value if they are not representative, because they allow for more complete analysis of possible influences. In addition, by comparing qualitative data, nuances can be determined. For example, the notion of what constitutes experience with technology can, as the analysis will show, include those with very different levels of technological experience, such as experience with technology in day-to-day use versus experience with highly specific technology used for specify industry purposes. These nuances can do much to explain why a factor that was predicted to have influence was quantitatively found not to. Thus, the qualitative analysis carefully examines the respondents’ perception to provide meaningful conclusions.

First, the analysis looks at each participant’s cultural and educational background, years of experience as a teacher, and their experience with technology. Second, it examines the effects of the cultural factors, such as, technology and tools that may have been assimilated with an individual’s construct and assessing how these were used by each participant. This particular strand of inquiry also looks at whether the use differs according to the cultural background. Third, the analysis investigates the personal values exhibited by each faculty member, and assessed how they may have influenced the use of Moodle. In addition to technology and tools, language was also examined as a cultural factor that may have affected the faculty’s adoption of Moodle. Fourth, I
examine the social influences that might have an impact on the user’s decision to accept Moodle.

The social influences I identified initially were internalization, identification, and compliance. Next, I tried to assess how the socio-cultural factors may have influenced, directly or indirectly, the two determinants of TAM, PU, and PEU. This is important as a motivation for the study as the transformation of ICT into practice is experiencing difficulties and sometimes a failure in many institutions in various countries. Although billions of dollars are spent on products and information, the transformation of ICT is a severe problem in developing countries (Atiyyah, 1989; Cuningham & Sarayrah, 1994; Knight, 1993). One of the main reasons behind this failure is that the technologies are designed and constructed in developed countries, which are culturally biased to fit the social and cultural framework of the developing nations. This inherent bias within technology may affect the performance of system users in the developing countries. This may be due to the inherent disconnect between the socio-cultural construct of a particular technology’s country of origin and the absorption difficulty a user residing in a different country may face when transferring the same technology into practice (Hill et al., 1998).

Therefore, recognize the fundamental disconnect between a technology’s origin and that of the eventual user that is being evaluated for the study is essential. This study’s questionnaire was based on the use of technologies that was originally developed for a different cultural paradigm than the culture with different socio-cultural values. Moodle is a tool used to facilitate e-learning that was created in Australia, a country with e-learning options that were already available through various universities. On the other hand, GUST, an institution located in Kuwait, where the Ministry of Education does not
officially approve e-learning as a mode of learning, adopted Moodle. This dilemma triggered the question of how will the faculty at GUST accept Moodle while teaching in Kuwait.

Following the results reported in the previous section, this section assesses the main themes uncovered to better understand the technology adoption process as it relates to GUST faculty’s adoption to Moodle. Although the data collection was done in two distinctly separate processes, their purpose was the same. Therefore, it was expected that the survey and the one-on-one interviews would augment the knowledge acquisition process to give a more nuanced understanding of the technology adoption process being studied. The data provided some distinct themes surrounding the Moodle adoption process. In this part of the analysis, I will begin by introducing the main focus of the theme analysis. This will be followed by the codes introduced to analyze the themes and relationships that connect the variables within a particular theme. The connections and relationships will then be analyzed to understand how the process of adoption unfolded for a particular person. This then will be followed by a discussion of the main themes and relationships followed by the discernible trends, contrasts, and significant exceptions.

This study has identified a significant association between participants’ national identities and their Moodle adoption. It is important however to interpret such association against a third construct – global mobility. Global mobility must be analyzed in this context as many GUST faculties have spent significant periods of their adult life in different parts of the world. A pertinent question may arise as to whether globalization may have decreased the value of nationality or may have attenuated the linkages between nationality and technology adoption. Whether global mobility of the participants may
have played any significant role in interpreting of the observed association needs to be recognized through two observations. First, the various GUST professors who have been international migrants are still either citizens of other countries or first generation immigrants in the country of Kuwait. The essence of their cognitive constructs has been colored by cultural nuances of their countries of origin. The origin of their cognitive developments has been rooted in the national constructs of their old countries. Second, despite international mobility being a growing phenomenon in the global workplace, it takes many generations to fully assimilate into an adopted country. Therefore, international migration and global mobility may provide a superficial adoption into a different national landscape. The core nationality does not change. Therefore, in this context, the presence of global mobility and GUST faculty members’ association with international migration is not a significant factor that can alter the conclusions of the study.

Theme 1: Faculty Members’ Background Information and Experience with Moodle

In this section, the focus is on the faculty members’ background information and their personal experience with Moodle. It looks at the similarities and differences between the users’ backgrounds and personal experiences, which may point out the strengths and weaknesses of the Moodle adoption at GUST. This theme was explored separately by both the survey instrument and the semi-structured interviews.

Survey questions shed some light on the general demographic distribution of the faculty and the extent of their technology usage. Wide dispersion across nationality, language spoken, and faculty rank coincided with almost equal gender distribution. On
the other hand, more than 75% showed proficiency in a LMS. The interview participants were also distributed equally, 4 males and 4 females representing different nationalities. Survey results neither indicated any significant association between faculty member’s demographic characteristics and their general tendency for technology usage nor any linkages between their demographic background and current proficiency with learning management systems. However, such first level exploratory analysis is not sufficient to identify whether there are individual nuances that may separate each faculty member from his or her peer group in terms of the factors and relationships that shaped each faculty member’s adoption of Moodle.

Results of chi-square test were presented in Chapter 4. Tests of association between demographic variables such as, nationality, department, degree, gender, and language and dimensions of Moodle adoption reveal interesting observations. In these tests of association, Moodle adoption was evaluated under three dimensions: Moodle’s use as administrative tool, Moodle’s use as communication tool, and personal belief toward Moodle adoption. The demographic variables, degree, gender, and language have shown to have no influence on aspects of Moodle adoption. This indicates that differences in academic specialization, gender variation and native language do not create different social constructions to influence Moodle use. It also corroborates the observation that linguistic divergence and academic specialties do not create newer cultural identities to influence certain technology adoption process.

In contrast, academic specialization, gender identities, native language, nationality, and department affiliation may influence LMS adoption. It is interesting to note that differences in department affiliation do not create separate individual identity to
develop newer personal belief systems about Moodle adoption. On the other hand, these differences in department affiliations may influence a divergence of perceptions related to various usage of Moodle. This may be due to the particularized differences among the academic departments, while the statistical tests did not provide directional measures to specifically identify one department over the other, the marginal shaping effect of departmental affiliation may reflect faculty members’ acculturization within a particular academic setup, which in turn may have created different social construction to influence their perceptions of utility of Moodle.

Of all the demographic variables measured, nationality seemed to have the strongest influence in shaping the Moodle adoption process among the faculty at GUST. A combination of descriptive statistical results and Chi-square test results corroborate such findings. However, of all the dimensions measured, ease of Moodle as a communication tool has the strongest association with faculty nationality. It is therefore, important to probe why nationality may influence positive Moodle adoption. Nationalities differ in developing unique cultural nuances, varied range of individualisms, and certain uncertainties and predilections regarding technology use. These varied nuances create different social constructions, which respond differently at the advent of new technological innovation. When different social constructions and new technologies collide, individuals respond differently at both the diffusions process and the adoption dynamics that new technology brings along. This process may have unfolded and revealed in GUST faculty’s varied responsiveness toward Moodle adoption as seen through their nationalities. This was explored in the semi-structured interview with 8
participants, which yielded beneficial insight into how demographic background may be linked with individual’s technology choices.

Michelle’s previous experience in teaching with technology may have contributed to her successful adoption of Moodle. While teaching at another institution, she built her course and designed the website that goes with it. The successful adoption of the technology by her students enhanced their performance, and that was a shining moment for her. That was evident in her remark “they did not have an online language lab [where I taught previously], so I made my own and they could log into this stuff and then we carried it. I had over seventy thousand hits at the time.”

She acknowledged that her implementation of technology previously helped students to “understand what they were reading.” She associated her students’ improved grades with technology:

Because I did a pilot study one summer, and the students that were getting D’s and F’s were getting B’s. Because, they could understand what they were reading. It actually cut the failure rate for the first year around thirty percent, because if you get F, if you fail one course you cannot be admitted to the college.

Michelle internalized the usefulness of adopting technology in her classroom, because she had a positive experience with it in the past, and this continues to be the case. So, she started to associate her adoption of technology with joy and excitement and wanted to learn more uses of technology because she can observe the outcomes of her effort. Michelle continued to search for more technology to use in her classroom and Moodle was a perfect platform for her to do so. She could link her website to Moodle and incorporate external tools to use with Moodle. She “strongly agreed”, in her survey
response, that using Moodle in her classroom helped improve students’ learning outcomes.

Dr. Sami’s experience with technology came natural to him and he did not have to think a lot about it when using it for educational purposes. Still, he had become more aware of the negative uses of technology in daily life and the harmful effects it projects on society. He described himself as “an addict” to technology, at the same time being aware of the need to “have a good control on it.” While his strong values and beliefs provided him with a sense of responsibility on when and how to use technology, especially in the social context, he said that he used Moodle “extensively. I use it for all my courses, uploading, grading, you name it. I just use it extensively.”

Dr. Jamal echoed similar sentiments to Dr. Sami, yet showed discernible contrast when compared with Michelle. When asked about his technology use, Sami said, “I set all my calendar, my appointments over my laptops, everything. I have all my work on it is part of my daily life.” He also agreed that there is a negative impact of technology, especially how it impacts user’s daily lives within family and society in general. He commented, “it is taking away from your family, from your friends.” Dr. Jamal has extensive use of technology as it is part of his job and he did report using Moodle frequently. “I consider myself as a Moodle fan. I use Moodle in every aspect in my teaching.” Dr. Jamal’s previous experience was with different LMS in graduate school and later as a faculty in a western university. This western academic exposure to technology influenced his adoption of Moodle. He compared his prior experience with LMS adopted by the previous institution with GUST by commenting on the lack of options offered by GUST and the limited freedom presented to faculty through the
system. He internalized the usefulness of Moodle through his past exposure and positive attitude towards the LMS he used.

In a sharp contrast to others, Dr. Rashid’s knowledge and experience with technology actually minimized his use of Moodle in his teaching. His experience with technology provided him with a rationale for not fully adopting Moodle. He did not believe that Moodle is a good fit for his needs, because, whenever he used it he felt limited. He gave an example about his technology needs, and why he was not adopting Moodle as expected:

For example, if I'm teaching a class … I need to teach people how to … produce media packages that frankly don't fit on Moodle. We teach courses that require large files that are not compatible with Moodle. Frankly, they are too slow. I mean when I'm doing something like a project, it is totally ineffectual for networking with people outside, integrating people outside of the classroom into the activities that you're doing. I can try and force it all they want, but if they're expecting to get 100% adoption rate, then it's wishful thinking.

Talking about the adoption at GUST, he said, “they expect that all faculty should use it, but I think it's a misguided expectation. Again, it is trying to force everybody to use the same thing.” He admits that he has used Moodle in compliance with GUST’s request to adopt Moodle.

In this example, Dr. Rashid’s experience with technology did not positively influence his adoption of Moodle. On the contrary, his knowledge and instructional needs caused him to internalize the lack of usefulness of the system, and by adopting Moodle, he felt limited to too few options and tools. So, he ended up using the system as an
administrative tool, although he complained about the inconsistency in the grade book and the time it consumes to post grades online.

Dr. Kathryn showed a positive attitude towards using technology in her daily life for personal and social purposes, but at the same time she was hesitant towards adopting Moodle, and she referred to herself as “not a very good user of Moodle.” Her lack of Moodle use could be triggered by her first encounter with the system. She disclosed that “to be honest when I first started using it I had no idea about what to do with it.” Here, Dr. Kathryn’s previous experiences with technology did not necessarily produce a positive influence. On the contrary, in this example, the first exposure to Moodle left the user with more questions than answers. She identified her limited use with her values of saving the environment by wanting to limit paper printing. She mainly posts the syllabus and announcements to her Moodle page.

Dr. Maryam identified herself as a good user of Moodle, but “not really obsessed with it.” The limited support she received from the e-learning department whenever she faced a problem could have triggered this reaction. Once the e-learning department was not able to solve her problems or offer an explanation for why they were not able to incorporate it, she quit using the system and opted to only use the basic tools. Maryam recalled an instance of difficulty with the technology’s adoption as she narrated her problem with the Moodle grade book, which miscalculated her student’s grades. “We have to be a little bit careful with it because sometimes it is not useful and sometimes it's time-consuming.” These negative experiences built up her frustrations and led to her hesitation and reluctance to use Moodle. Wettemann (2003) indicated that users in certain
institutions might feel threatened by new technology adoption that forces them to change their working styles and habits.

Dr. Olivia used Moodle for all her course work and she did not “think you can teach language without modern technology today.” Her experience with technology went back to 1997 when she was a graduate student. She learned to use technology as both a learning and teaching tool. She accepted Moodle as soon as she was introduced to it. Her adoption of the system was evident in the tools she incorporates, such as TurnItIn, links, grades, tests, handouts, samples, and discussion group options. The faculty’s internalization of the usefulness of Moodle to her courses triggered her adoption.

Just like Dr. Olivia, Dr. Ali was not an enthusiast of Moodle, although he reported using technology in his personal social life and to connect with several groups online where he frequently attended discussions. He preferred to adopt an easier tool that requires the least of his time. Although Dr. Ali used technology while he was in graduate school and in the college where he worked previously, it seems that it did not influence his adoption. In addition, he had frustration with Moodle which caused him to be slow in adopting its use. He talked about his expectation when GUST first introduced Moodle. He expected that GUST would offer different learning sessions for faculty, or at least give a manual that included problem-solving tips for Moodle. He said, “I have to learn everything. There’s no book to go back and refer to whenever you have a problem.”

It is evident that faculty members have narrated a varied range of experiences, attitudes, expectations, and challenges in recalling the trials, tribulations and rewards of their Moodle use. The adoption is different among faculty, whether Kuwaiti, Arab, European, African, or American. This inference was not quite apparent from the survey,
yet, it shined through the one-on-one discussions. It seems that previous experience with technology had an influence on the users, whether it led to adoption or not.

Although existing research do not directly connect the previous use of technology with technology adoption in the context of learning management system, the observation is consistent with the general framework of TAM. TAM is consistent with the premise that perceived ease of use is linked with technology adoption. Both from behavioral norm perspective and from cognitive association framework, prior use of technology may confer upon users a beneficial advantage in developing a perception of ease of use. It can be argued that technology adoption may be facilitated for those prior users via the perceived ease of use pathway.

Finally, in some cases, the adoption was influenced by the user’s personal values and beliefs; other times compliance influenced it. In all cases, the adoption rate was different among faculty, with some using it frequently, others using it moderately, and others using it minimally.

**Theme 2: Cultural factors**

Strite and Karahana (2006) wrote about the differences in perceptions in cultures, and how they contributed to the differences in adoption and acceptance of technology among users. It can mean that the users’ decision to adopt technology involves external factors such as cultural values and norms to which the users were exposed. Pai and Tu, (2011) reported that the users’ cultural values determine their perception of whether or not other people assume that they should perform a certain activity. When deciding to use new technology, individuals consider the opinion of family members, friends, and
relatives (Cho et. al., in Abu-Shanab & Ghaleb, 2012). The literature showed that a key influence in understanding technology adoption is socio-cultural factors (Venkatesh et al. 2003). Also, the adoption of technology is affected by the word-of-mouth reference groups that include friends, superiors, and IT experts (Di Pietro, Virgilio, & Pantano, 2012).

Here, the objective was to examine the role of culture in the adoption of Moodle. I will look at the acceptance through different cultural factors. The factors are technology and tools, personal values, and language. Based on the participants’ experience, several observations are made.

1) Adoption of Moodle influenced by previous experience with technology.

2) Adoption of Moodle based on personal values and beliefs.

3) Adoption of Moodle prompted by language.

Both the analysis of exploratory survey of 75 participant responses and results of chi-square data analysis of Table 11 above shows there may not be clear linkages between native language spoken or the nationality represented by the faculty and the degree of adoption of learning management system. Yet, when a smaller subset from those 75 participants were subjected to approximately 60-minute semi-structured, conversational style interviews, significant insight into the role of technology, values, and language in impacting behavioral changes was observed. These behavior changes are important, as these were the drivers of Moodle adoption that I wanted to explore in this study. For most participants, Moodle acceptance was influenced by their general pattern of behavior caused by their previous experience with technology.

- For some, their experience with technology influenced their adoption of Moodle.
• For some, they did not associate their current adoption with their previous use of technology.

It is evident that participants’ general use of technology allowed the easy transition to Moodle. The variables and relationships can be represented as follows in Table 15. After transcribing and coding the interviews, I summarized the interviewees’ responses towards each question represented by the relationships, or lack of relationships, between the variables. I mainly followed the participant’s thoughts and tried to represent it visually to make more sense of the responses and its relation to the question asked. Depending on each interviewee’s responses, some showed a relationship others did not. However, while reviewing the relationships, the following codebook should be followed. In Table 14 below, the codes used within the document are presented, and Table 15 below describes the cultural influences on each participant’s adoption of Moodle.
### Table 14

*Codebook*

<table>
<thead>
<tr>
<th>The Factor</th>
<th>The Code</th>
<th>The Original Term</th>
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<tbody>
<tr>
<td><strong>Cultural Factors</strong></td>
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<td><strong>Social Influences</strong></td>
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<td><strong>TAM Components</strong></td>
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<td>A</td>
<td>Adoption</td>
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Table 15

*Cultural Factors and Interviewees' Adoption of Moodle*

<table>
<thead>
<tr>
<th>The Interviewee</th>
<th>The Relationships</th>
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<tbody>
<tr>
<td>Michelle</td>
<td>V → In → U → A</td>
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<td>Sami</td>
<td>T → E → A</td>
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<tr>
<td>Rashid</td>
<td>T → Id → A</td>
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<tr>
<td></td>
<td>V → A</td>
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<tr>
<td>Maryam</td>
<td>T → A</td>
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<td>T → Id → U → A</td>
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<td>T → U → A</td>
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<td></td>
<td>L → A</td>
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<tr>
<td>Jamal</td>
<td>T → Id → E → A</td>
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<tr>
<td></td>
<td>V → A</td>
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<tr>
<td>Kathryn</td>
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<td>V → Id → U → A</td>
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<tr>
<td>Olivia</td>
<td>T → U → A</td>
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<tr>
<td>Ali</td>
<td>T → A</td>
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<td></td>
<td>L → A</td>
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</table>

The frequently repeated cultural influence is the user’s association with technology and his or her previous experience with it. Technology in this theme is the strongest influence, but this influence differs from one participant to another. While all participants share technology as a starting point, the majority presented a direct
relationship between the influence of technology and adoption. Dr. Ali provided a short and direct answer to the question by saying “the PeopleSoft prepared me for Moodle.”

Dr. Rashid talked about his technology exposure through his graduate study years and the influence on his adoption. “I come from a very technological background in terms of my education. [where I did my Masters … we used BlackBoard, so, I was used to classroom management systems anyway. I expected it.”

This theme of relating knowledge and familiarity of technology with Moodle adoption continued with Dr. Maryam. She described her experience as follows:

A few years ago, I got a stipend for a type of scholarship grant for training courses … about teaching methodologies. One of the modules was about the Web 2.0, and it also included how to use Moodle in a … class, so it was something I couldn't give up. But it was a little bit different because it was mainly targeting language classes, and how do you use Moodle in the language class

Other interviewees showed that they reached adoption via their technology experience while usefulness or easiness was the mediating factor behind their initiative to adopt Moodle. The faculty explained that their experience with technology led them to find the usefulness of adopting Moodle in their teaching. Dr. Olivia explained:

It’s a great platform for communication and for giving feedback. There is still no way you can teach in a modern classroom without technology. I can’t even imagine how that would be because from the very beginning … I have been using technology, and I can’t imagine any other way.

Some participants expressed that the adoption came easily to them because of their experience with technology, which made it easy for them to use Moodle. Dr. Sami
said, “Because I have a technology background it's easy to use it.” Also, Dr. Jamal explained, “when I came to GUST, I was so advance as I have a long experience from 2010, to now, using Moodle.”

The second recurring cultural factor was the personal values and belief of the interviewee. During the interviews, some faculty members expressed that their values of the system's usefulness influenced their adoption. They reached this conclusion either by internalization or identification.

For Michelle, her personal values changed her behavior via internalization of the importance of using technology, and eventually she adopted Moodle. Her values regarding the importance of offering the best learning tools to her students to help them learn better made her internalize and believe in the need to provide her own tools. She commented, “I think if technology is used judiciously in the classroom, it helps students so much.” Kamakura and Novak (1992) describe the importance of values in explaining and predicting consumption behavior:

A value refers to a single belief that transcends any particular object ... [Values are] more stable and occupy a more central position ... within a person's cognitive system. Therefore, they are determinants of attitudes and behavior and hence provide a more stable and inner-oriented understanding of consumers (p. 119).

Michelle’s previous teaching experience in another GCC country ignited her fascination with technology where she created her own blog, online tools, and provided online links. Her experience was evident in her use of Moodle in her new position at GUST. She was more comfortable with implementing technology that she incorporated in her previous work into Moodle for her students to access. She talked enthusiastically:
I always enjoy with the kids when they're doing their argumentative essays, showing them how to do surveys and stuff because you know I think that's very good and they did not have a lab, or an online lab, nor a language lab at the [college], so I made my own. They did the research, and they studied because they could understand what they were reading and learning.

Daghfous, Petrof, and Pons (1999) describe values as “permanent belief[s]” of a person. They explained that the way a person develops beliefs via being influenced by his own native culture or the current culture that he associated with.

Dr. Jamal and Dr. Rashid previously related their adoption to both, experience with technology and their values. They also remarked that their adoption was instigated by usefulness. Moodle and LMSs systems make sense of technology for the user. Dr. Jamal commented, “Moodle, for me is an amenable form for my course.”

Merchant (2007) argues that culture is the most useful variable to consider and that language is linked in a complex way to culture. Although it might be true, the Arabic language incorporation into Moodle did not weigh heavily on the acceptance side. When I asked faculty members about whether adding an Arabic interface into Moodle could enhance adoption, their responses were unanimous; they did not believe in adding it, and they did not think it would influence adoption.

Dr. Ali responded, “I don’t think it will help much. All our courses are in English. The students have the minimum required knowledge to communicate in English. I don’t think it will make much difference.” Dr. Jamal agrees with Dr. Ali as he commented, “I don't think so, because the medium of the University is English, so it doesn't make sense to add Arabic because no one will use it in GUST, student or faculty, unless they do not
have good English, so I don't think adding Arabic matters.” Dr. Kathryn agreed with both Dr. Ali and Dr. Jamal, and added more reasons to not include Arabic from the point of view as a language teacher:

We wouldn’t like to see our students use Arabic in class, and again, finding out what terminology on Moodle means in practicing English itself is a challenge. If there was an Arabic option, they would not try to learn the specific concepts and terms in English. For example, consider the basic phrase, ‘upload your assignment’. If there were an Arabic option of the phrase ‘upload your assignment’, the Arabic translation, then nobody would even bother to learn the English word upload. They student would automatically go to the Arabic. That is human nature.

We can agree that culture has an influence on the individual’s adoption process, but we cannot agree on what cultural factor will have the strongest influence on the user, or what process it will go through to produce adoption. The cultural influence is a strong influence, but the individuals’ differences create a different adoption for a different reason.

To sum up the findings in this section, there were three main observations: Adoption of Moodle was influenced by prior experience with technology, Adoption of Moodle was influenced by personal beliefs and values, and that adoption of Moodle was likely not influenced by language. Prior experience with technology could play a positive role in adoption of Moodle, as demonstrated by the responses of the participants, although it did not always. Some faculty members reported that they were more comfortable adopting the use of Moodle because of their prior experiences with
technology, while others had prior experiences that contributed to a generally more positive outlook toward the role of technological solutions such as Moodle in teaching. All interviewees responded “3-4 semesters”, “5-6”, and “7 semesters or more” on the question of their past experience with LMS, and that showed all interviewees experience with technology, specifically LMS. However, as noted in the analysis of the first theme, others had prior experience with technology that made Moodle less appealing; taken together, these observations demonstrate a nuance not captured by the quantitative notion of experience with technology that might explain the lack of a strong quantitative link between experience with technology and Moodle adoption.

Personal beliefs were also shown to play a significant role in Moodle adoption. Values determined what the faculty members thought of Moodle and how they understood its value as a tool. All interviewees marked either “strongly agree” or “agree” when asked about their belief regarding the importance of using Moodle in their courses. The values noted as playing a role in influencing adoption included those relevant to technology as a whole, but also the importance placed upon the specific technical capacities afforded by a LMS like Moodle. At least one professor valued the demonstrated effectiveness of e-learning solutions and thought that Moodle was a good LMS solution because it allowed her to easily integrate her existing web-based course content. However, if these values could influence adoption in a positive way, it is not hard to understand how faculty members who did not share these values might instead have values that diminished their opinion of Moodle and led to a lack of adoption.

Language, however, was not found to play a significant role. Responses from faculty concerning the question of whether the addition of an Arabic version of Moodle
would increase adoption were unanimously negative. Not only is English the official language for GUST programs, but faculty who taught language noted that an Arabic version of the LMS could prove counterproductive and diminish students’ fluency in English by decreasing their immersion in the language. Thus, either the qualitative nor quantitative data supported language as a determining factor in the GUST adoption of Moodle among faculty.

**Theme 3: Social influences**

In this section, the focus is on adoption of Moodle, but it looks at the adoption through the social influences introduced by Kelman. The social influences are internalization, identification, and compliance. Kelman (1958) wrote that:

> Changes in attitudes and actions produced by social influence may occur at different “levels” … [and] differences in the nature or level of changes that take place correspond to differences in the process whereby the individual accepts influence (or “conforms”) (p. 52-53).

This indicates that even though an apparent behavior that the individual undertakes can be observed, there may be a different underlying process that impacts the individual’s adoption of that influenced behavior. The three different influential processes introduced by Kelman (1958) can identified as (i) internalization, (ii) identification, and (iii) compliance. Based on the participants’ experiences, several observations related to Moodle adoption were made. These observations can be categorized according to how the adoption process was engineered. These are listed as follows:
1. Adoption of Moodle prompted by compliance.

2. Adoption of Moodle based on identification.

3. Adoption of Moodle via internalization.

Many of the participants fall in the first category - Moodle adoption was prompted by Compliance. For these participants, compliance was achieved by the GUST administrations’ mandate to adopt Moodle. Results from the survey instrument corroborate this. Interviewees’ responses ranged from “strongly agree” and “agree” on the question regarding whether they feel pressure from either their superiors or eers to adopt Moodle. When it comes to adoption of Moodle based on identification, the number of participants reporting identification is much less than those reporting compliance. Survey responses to questions 4 through 7 are focused on exploring the identification dimension. Less than half reported Moodle being easy to use, less than one-third felt the system satisfied their administrative needs, whereas less than one-third felt communicating via Moodle was easier. Finally, when it comes to adoption via internalization, similar response pattern as category 2 has been observed. When probed for both Moodle’s grading capability and communication effectiveness within a classroom setting, much less than half reported being in agreement. To better assess the dynamics between identification, internalization, and Moodle adoption, survey question 13 drilled into Moodle’s effectiveness through a multilayer examination. Under all dimensions of Moodle effectiveness related to grade reporting and course management, the responses were almost equally divided. These responses fell into two camps, each with roughly 50% of the population, with one giving positive feedback and other not reporting positive experiences. An even lower percentage of participants agreed to
Moodle’s usefulness as critical learning tool for students. Clearly, survey results can rule out identification as the primary driver for its adoption. This would indicate that, either internalization or compliance would have influenced such widespread use of Moodle use among the GUST faculty. Analysis of the last segment of the survey questions provided me with some indication.

While survey questions could not positively establish identification as a driver of Moodle adoption based on perceiving usefulness in various aspects of student instruction management, over 65% felt Moodle is important in teaching courses. This apparent inconsistency may have been born out of GUST faculty’s adoption via a combination of compliance and internalization. The process of internalization could have come via two main pathways. First, the internalization that, the learning management system in question does have some redeeming value that can assist in a positive teaching experience in the long run and opens up more time for other value added activities like research and publication. Second, the faculty may have internalized the reality of professional survival that, when the winds of change are indicating a shift towards technology adoption, it’s probably best to be among the pack than be left out and be isolated. In that sense, adoption could be based on some combination of internalization and compliance.

Further drilling down into the anatomy of Moodle adoption, over 50% of the participants reported feeling pressure from superiors to use Moodle. While their response to feeling pressure from superiors was more decisive, they are largely non-committal in response to feeling peer pressure. Over 45% were neutral on the question of whether peer pressure influenced their Moodle adoption, while more than 35% admitted the existence
of such peer pressure. It is debatable as to what proportion out of the 45% actually did not admit to being pressured by other colleagues and fellow faculty members, but a small minority of 15% reporting not having felt any peer pressure may provide a more enlightening perspective on the association between peer pressure and adoption. Therefore, it will be instructive to assess associations among internalization, compliance, and adoption within the more focused framework of one-on-one interviews. However, I would like to take another look at compliance as discussed in the literature.

Compliance occurs “when an individual accepts influence because he hopes to achieve a favorable reaction from another person or group” (Kelman, 1958, p. 53). The individual assumes the behavior to obtain a certain reward or approval and to avoid certain punishments or disapproval, not because he believes in performing the action itself. Consequently, the person derives satisfaction from compliance due to “the social effect of accepting influence” (p.53). Therefore, before beginning to analyze some of the narrative dimensions uncovered in the semi-structured phase, let me first capture the set of relationships that animated various interviewee’s adoption process as told by them, presented in Table 16.
For Dr. Maryam, Dr. Kathryn, and Dr. Ali, compliance influenced their Moodle adoption without being affected by a cultural factor. That is to say, their explanations for adoption Moodle emphasized compliance rather than the use of any reasoning, such as PU or PEU. The adoption under compliance was the strongest among the social influences.
Dr. Rashid talked about his use and said “we are supposedly mandated to use it. It's a requirement.” He explained his decision to adopt Moodle when I asked whether he had a choice in using it. He replied, “not really, I just see it as a tool that I was trained to use, and this is the one that we have to, so, I adopted it.” Dr. Rashid has experienced technology, and it showed through his experience with technology when he was a student, and his implementation of technology with his students to achieve their graduation project, and it also showed in his criticism of Moodle. Still, Dr. Rashid felt that he had to align with GUST’s request to adopt Moodle. “Had it been something else, I would have adopted something else. I'm not a particular fan of Moodle. I find it too chunky.” Dr. Rashid uses Moodle because it is the LMS offered by GUST, but he acknowledged that he is not fond of it.

Similarly, Dr. Kathryn adopted Moodle because she had to use it, as per the requirements of her department. She talked about her adoption and disclosed that, “When I first started using it I had no idea about what to do with it. In the foundation, I had to use it, because we were strongly recommended to use it.” When she first started to teach at GUST, she did not know how to use Moodle, nor what it was used for. She only knew she had to use it. “Until a colleague of mine offered to help me learn about how to use Moodle in student assignment submissions, in the grade book, and with course related things like that.”

Dr. Jamal introduced a different view on compliance. As a seasoned user of Moodle, he thought that the best way to influence adoption of Moodle among faculty members was through forcing them to use it.
A strong recommendation from the Dean or from the department, to put all single material in your course to Moodle site. Because when you see there are questions in the survey, evaluations, about using technology and the Moodle site, this is the pressure to use Moodle. Also, in general, when they calculate the merits for teaching for staff, they have to put some high weight for using technology in your course. In this sense, the pressure is felt by the higher weight on a course receives for using technology like Moodle.

Although Dr. Jamal adopted Moodle without any compliance, “my adoption comes from when I used to teach previously.” This past exposure provides an important insight into the relationship between smoothness of adoption and prior exposure. He believed that the compliance influence works best with faculty who are not adopting the system. Dr. Olivia supported Dr. Jamal’s view regarding GUST requiring compliance from faculty to use Moodle. She explained that:

We require that people use Moodle. I don’t think incentive would work, I don’t think carrots work in this case, only the stick. Because everyone has a PhD and they don’t want to be told how they’re supposed to teach their course. How do you encourage someone who simply doesn’t feel the need for it?

Participants’ shared experiences indicate that internalization is an important influencing factor that come after compliance followed by identification. Social influences derived from the interviewees’ responses showed different variation that lead to adoption.

Internalization was also an influencer of adoption. Internalization occurs “when an individual accepts influence because the content of the induced behavior—the ideas
and actions of which it is composed—is intrinsically rewarding” (Kelman, 1958, p. 53). The individual accepts the behavior based on its alignment with his or her value system. The individual may deem the behavior to be useful as a solution to a problem, or it could align with the individual’s needs. The adoption of the behavior under this influence tends to assimilate with the individual’s values. Therefore, the satisfaction that is derived from internalization is “due to the content of the new behavior” (p. 53).

Some faculty members’ confidence in their Moodle adoption was an outgrowth of their internalization process. For example, Dr. Jamal was confident with his adoption of Moodle as was evident during the interview. His internalization of the adoption showed through his strong reaction when he was asked about whether he would recommend it to others or not. When asked, Dr. Jamal replied, “surely, I recommend it to faculty member to use Moodle.” He continued by sharing his opinion regarding how to facilitate a better adoption process. “I also want the Learning Department to facilitate and improve the using of Moodle to give more flexibility, more workshops, more seminars as a lot of jobs can be done over Moodle.” He internalized the usefulness of Moodle in that he would strongly recommend it to others, but with the caveat that the administration should allow more access to more tools and to offer training workshops.

Dr. Kathryn shared Dr. Jamal’s view about recommending Moodle to other faculty members. Her internalization was that the systems usefulness influenced her adoption.

I would definitely recommend, and I would tell them that it offers great access and ease collecting assignments and grading assignments and also submitting them on TurnItIn. It is great if you are teaching, reading, and writing skills than
Moodle has to be a part of your course for a writing professor, Moodle must be used in class, yes, I would strongly recommend it.

Dr. Maryam showed a low enthusiasm when asked about whether she would recommend Moodle to her colleagues; she replied, “I guess I would recommend it. Well, I don't know because, again, it depends on the subject, I cannot tell.” Her response did not present a strong internalization of the adoption of Moodle. If she had a strong internalization, that would be present in her strong response to whether she would recommend or would not recommend Moodle. If she internalized that Moodle is worth adopting, she would have provided a response that would reflect her internalization, and if she internalized that Moodle is not worth adopting, she would have provided a response that would reflect her internalization of not adopting.

Many faculty members who recognized identification as a social influence mainly identified with either a faculty member or a professional group they associate themselves with. Identification occurs “when an individual accepts influence because he wants to establish or maintain a satisfying self-defining relationship to another person or a group” (Kelman, 1958, p. 53). This relationship may be a classical one, where the individual “takes over the role of the other” (p.53). The other form of this relationship is reciprocal, where the individual believes in the adopted behavior, which he accepted through identification although the content may not be relevant to the individual’s beliefs. The person adopts such behavior because he or she desires to associate with the other person in the relationship, and this satisfaction derived by identification is “due to the act of conforming as such” (p.53).
Members of the same society and community influence each other when considering using new technology and it contributed to shape their attitude toward the usage of new systems (Al-Somali, Gholami, & Clegg, 2009; Du, Washington, Lu, & Liu, 2010). Dr. Ali agreed that, “This adoption of Moodle needs encouragement from friends. When your friend, your colleagues are using it, they tell you that it makes your life easier. You can easily put your grades on it. My colleagues encouraged me very much to adopt Moodle.” Dr. Ali’s adoption was influenced by his association with other colleagues in the institution, and it seems that he valued their opinions.

Dr. Olivia talked about her department faculty’s association with each other in their cooperative learning of Moodle. Her identification with this group of faculty members helped her to find out more about the system, and what to do when she encountered problems. When Dr. Olivia identified with this group, she became part of the learning group. She learned valuable tips and ways of approaching Moodle, which she may not have been able to accomplish without being part of this group. She talked about the “group” of faculty by saying, “we are sort of a group of people that just encourage each other. Try this, or do it this way. This is the whole point of people in education. They help each other and we sometimes exchange information.”

Rashotte (2007) wrote that social influence is a “change in an individual’s thoughts, feelings, attitudes, or behaviors that results from interaction with another individual or a group” (p. 562). It is when people undergo “real” changes to how they feel and behave as an outcome of interacting with others who they identify as “similar, desirable, or expert” (p. 562). Individuals associate their change in beliefs according to others with whom they identify, or who find value in their expertise. The majority also
has an influence on individuals. It is when the individual adopts certain views because the majority of his or her preferred social group which holds a similar attitude. In addition, a person may modify his or her views when influenced by an individual who he or she may identify as an expert in the field of discussion.

Further expanding on this theme of identification, Dr. Kathryn talked about her identification with a professional group in her field. She said “As a member of TESOL, TESOL Kuwait, which is affiliated with TESOL International, I attend some workshops for teachers and for training teachers. In these workshops there is an ICT interest group which organizes how to integrate Moodle in your classes.” So, she identified herself with TESOL and provided information about some of the group’s goals for teachers.

I can observe that social influences played a role in changing the behavior to generate adoption, and it differs from one user to another. In the majority of cases, the user was influenced by compliance to use Moodle. This may indicate that the faculty did not either identify with others, regardless if it was an individual or a group that influenced his adoption, nor the faculty internalized the importance of adopting Moodle.

Concerning social factors in the adoption of Moodle, the following observations were made: Adoption of Moodle was strongly prompted by compliance, adoption of Moodle was contributed to by internalization, and adoption of Moodle was weakly prompted by identification. With respect to compliance, both the qualitative and quantitative data supported the strong link. In the quantitative data, evidence suggested that over 50% had felt pressure from their superiors to adopt the use of Moodle, a notion that found strong support in the qualitative data. Several faculty members reported their use of Moodle was prompted primarily by the need to comply with department and
university policies, while others expressed the belief that such policies were the only real
way to effectively motivate the use of Moodle.

With respect to internalization, both quantitative and qualitative data
demonstrated support for this concept as an important part of driving Moodle adoption. In
particular, 65% of the faculty felt that Moodle adoption was important—though the
possibility of this evincing internalization in the wake of compliance, rather than
internalization as a driver of adoption, must be considered. Qualitatively, while many
faculty member’s strong responses that they would indeed recommend Moodle use to a
colleague, others exhibited weaker responses that indicated a lack of internalization of
either positive or negative views of Moodle. Thus, while internalization may be an
important part of Moodle adoption, it was not necessarily a cause of adoption.

Identification found no meaningful support as a driver for adoption in the
quantitative data, where respondents were split nearly 50-50 on the utility of Moodle for
various functions. Qualitative data, however, did identify cases in which identification led
to adoption. These cases included identification with groups within their department
where other faculty members assisted with their adoption of Moodle and identification
with group memberships outside GUST in which the groups promoted the use of LMS
such as Moodle. Overall, however, identification was at most a minor driver of adoption,
with effects much weaker than those of compliance or internalization.

**Theme 4: TAM Components**

In this section, the focus is on the role of PU and PEU on the adoption of Moodle.
I will look at the adoption through the two previous determinants, and which one has the
strongest influence on adoption. TAM components are PU, and PEU. Based on the participants’ experience, several observations are made.

Adoption of Moodle was stronger when influenced by usefulness to the user.

A study conducted by Rose and Straub (1998) attempted to validate TAM in five Arabic countries. Their research was able to validate that TAM transferred successfully to the Arab world. All faculty members expressed that their Moodle acceptance behavior was influenced first, by their perception of the usefulness towards the system, and five of the faculty members expressed that their perception of the ease of use of the system influenced their adoption. This was amply reflected in the survey results. Out of the 75 faculty, who returned their completed survey results, approximately 70% indicated that their continued usage was influenced by the platform’s built-in features and tools. Now, it would be interesting to see whether a similar sentiments within the one-on-one interviews can be identified. I begin by describing the relationships and variables leading to eventual adoption of Moodle as the process have unfolded for each of the 8 participants displayed in Table 17.
Table 17

*TAM Components and Interviewees' Adoption of Moodle*

<table>
<thead>
<tr>
<th>The Interviewee</th>
<th>The Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michelle</td>
<td>U+E → A</td>
</tr>
<tr>
<td></td>
<td>E = U</td>
</tr>
<tr>
<td>Sami</td>
<td>U → A</td>
</tr>
<tr>
<td></td>
<td>U → A</td>
</tr>
<tr>
<td></td>
<td>E → A</td>
</tr>
<tr>
<td>Rashid</td>
<td>U+E → A</td>
</tr>
<tr>
<td></td>
<td>U = E</td>
</tr>
<tr>
<td></td>
<td>E → A</td>
</tr>
<tr>
<td></td>
<td>U → A</td>
</tr>
<tr>
<td>Maryam</td>
<td>U &gt; E</td>
</tr>
<tr>
<td></td>
<td>E → A</td>
</tr>
<tr>
<td></td>
<td>U → A</td>
</tr>
<tr>
<td>Jamal</td>
<td>U+E → A</td>
</tr>
<tr>
<td></td>
<td>U &gt; E</td>
</tr>
<tr>
<td></td>
<td>U → A</td>
</tr>
<tr>
<td>Kathryn</td>
<td>E → A</td>
</tr>
<tr>
<td></td>
<td>E &gt; U</td>
</tr>
<tr>
<td>Olivia</td>
<td>U → A</td>
</tr>
<tr>
<td>Ali</td>
<td>E → A</td>
</tr>
</tbody>
</table>
Since the usefulness of the system was the major component that influenced adoption, the faculty members shared their ideas about the usefulness of the system, and the different ways it served their needs. For Dr. Jamal, Moodle tended to “make things easier, quicker, and convenient.” He explained his reasoning for considering useful as the main influence by saying, “If something is useful, or easier you will use it. As ease may increase, you are encouraged to use Moodle. But, if it is useless or it does not make sense to use it, also if it is more difficult.”

While, Dr. Rashid adopted Moodle for its usefulness there were some strings attached to his use of Moodle. “I use it, it serves a purpose, and as long as there is utility, I will keep using it, and when it doesn't have a utility I won't use it, and I would expect the same from other faculty.” Dr. Rashid adopted Moodle as long as it remained useful to his teaching, and he does not take the usefulness of the system for granted. It seems that his adoption is under an ongoing process of modification and evaluation, and it could be influenced by his experience with different types of technologies currently and in the past.

On the other hand, Dr. Ali identified his minimum use of Moodle due to the difficulty to use the tools he perceived as potentially useful. He described his use by saying, “Once I tried to use Moodle, I go through the students’ mobile, and they see the active letters or announcement, but you have to change every time, every semester change, or when the class ends. It is very cumbersome.”

Kathryn, also, had a similar experience difficult and inefficient experience using Moodle and other LMS systems.
Let me give you an example. Moodle is supposed to make it easier to generate quizzes and to grade quizzes, and create multiple choice quizzes, and I’ve tried to do it myself. I’ve tried to upload a document written in Word on Hot Potato, and I couldn’t do it. I didn’t have time to ask anyone for help. I tried a couple of times, various methods, but somehow I couldn’t figure it out. What happened? I just gave the quiz in the traditional method. I gave up on Hot Potato for example. This shows if the program is not easy to figure out, or if I can’t just do it on my own, of course it discourages me from using it in my teaching sessions. If I had figured it out when I first tried Hot Potato, I would still be using it, I’m sure.

From the analysis above, I can infer that there exists a clear absence of PEU, which may have driven some potential users away from adoption. So, once the users find the system easy to use, they will be more inclined to use it. Although the faculty talked about the difficulty as a deterrent for their adoption, this is an indication that ease of use will promote acceptance.

It is observed that the usefulness and ease of use of the LMS generate acceptance, still adoption is significantly dependent on each user’s distinctive experience and needs. In the majority of the interviews, PU was the stronger influence to promote adoption of Moodle, but the fact that not everyone is proficient in using the technology should not be ignored.

Analyses of the previous themes yielded several observations. In assessing how prior LMS experience may have shaped current Moodle adoption, 7 out of 8 interviewees reported having LMS experience in the past 5 years. This high proportion of participants having prior LMS experience as identified in Table 18 is consistent with over 93% of
survey participants having previous technology experience. On the other hand, language preference has not been identified as a strong determinant of the faculty’s Moodle adoption. This was corroborated by the convergence of two data sources. Only about 20% of the survey respondents and about 25% of the interviewees felt that introduction of a new interface language into Moodle would encourage incremental adoption.

Reviewing theme three in analyzing the impact of social influences on Moodle adoption, a convergence on agreement between survey participants and interviewees have been observed. While 78% of the survey participants found agreement in some form that social influences can influence Moodle adoption, 75% of the interviewees were in agreement on the influence of the individual’s internalization of adopting the technology as shown in Table 18. On the issue of compliance as a driver for adoption, 42% survey respondents and 25% of the interviewees felt pressure from either the administration or their colleagues to adopt Moodle. The analysis of the survey showed that the usefulness of Moodle as a driver of its adoption represented 52.8% of the survey respondents’ views. On the other hand, 100% of the interviewees’ responses concurred on the survey findings. The ease of using Moodle was supported by 45% of the survey responses and 87.5% of the interviewees’ responses.

It is important to address the divergence between survey participants and interviewee responses when it comes to assessing the shaping effect of perceived usefulness of Moodle and perceived ease of use of Moodle. The gap may have arisen from various factors. This could come from survey respondents not fully comprehending the intent of some questions, or confounding between the two factors – perceived ease of use and perceived usefulness. On the other hand, the longer format of the semi-structured
interviews allowed participants to flesh out their thoughts and ensured they were able to provide logical analysis of their choices. However, that the responses of survey participants were subsumed in the response from semi-structured interviewees indicate that data from the two different sources are in agreement and results consistent.

Therefore, the semi structured interviews themes are in concurrence with the survey responses that the individual’s exposure to technology and the previous use of LMS was the strongest influence on individual’s use of Moodle. The individual’s need for internalization for Moodle adoption was the second influencing factor into the faculty’s adoption. Also, the faculty’s belief of the usefulness of Moodle had a stronger influence on Moodle’s use than the system’s ease of use.
Table 18

Factors Adopted by Survey Participants and Interviewees

<table>
<thead>
<tr>
<th>Factors</th>
<th>How Many survey participants in Agreement with the Central Theme of the Question</th>
<th>How Many interview participants in Agreement with the Central Theme of the Question</th>
<th>Average of participants in agreement with the Central Theme of the Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Ease of Use (PEU)</td>
<td>45.66%</td>
<td>87.5%</td>
<td>66.58%</td>
</tr>
<tr>
<td>Perceived Usefulness (PU)</td>
<td>52.84%</td>
<td>100%</td>
<td>76.42%</td>
</tr>
<tr>
<td>Internalization (IN)</td>
<td>78.26%</td>
<td>75%</td>
<td>76.63%</td>
</tr>
<tr>
<td>Identification (ID)</td>
<td>51.22%</td>
<td>62.5%</td>
<td>56.86%</td>
</tr>
<tr>
<td>Compliance (C)</td>
<td>42.16%</td>
<td>25%</td>
<td>33.58%</td>
</tr>
<tr>
<td>Values (V)</td>
<td>70.15%</td>
<td>50%</td>
<td>60.07%</td>
</tr>
<tr>
<td>Language (L)</td>
<td>19.67%</td>
<td>25%</td>
<td>22.33%</td>
</tr>
<tr>
<td>Technology (T)</td>
<td>93.9%</td>
<td>87.5%</td>
<td>90.7%</td>
</tr>
</tbody>
</table>

In this chapter, I interpreted the identified influences by following the framework of TAM, while incorporating cultural factors and social influences to understand how they influenced adoption. Triangulating the results of the survey with the interviewees’ responses, I was able to draw a connection between the strongest socio-cultural
determinants on adoption. In the case of participants in this study, it can be inferred that the strongest determinant on faculty’s adoption was the level of internalization of the usefulness of Moodle in their classroom interaction. This internalization was influenced by their experience, exposure, and risk taking when using technology. This relationship is represented as $T \rightarrow \text{In} \rightarrow \text{U} \rightarrow A$.

In drawing the above inference, I used the most repeated connections among themes the faculty narrated to me in their conversations during the interviews while explaining the anatomy of their adoption. I decided to focus on the relationships that all faculty members asserted in an attempt to construct the cognitive framework through which to understand the general Moodle adoption in the target population of my study. On the other hand, I deliberately bypassed some of the weak connections the faculty may have alluded to for reasons such as not being common among the participating faculty members. Although some relationships appeared more than the others, the following five were the common, and most cited relationships among the eight interview participants.

Firstly, concerning cultural factors, the most pronounced relationship was that between previous experience with technology and adoption. In this case, previous experience with technology led to either identification with Moodle-using groups, a perception of Moodle’s ease of use, and/or a perception of Moodle’s usefulness. One or more of these factors then drove their adoption of Moodle.

Secondly, also with respect to cultural factors, was the relationship between values and cultural factors. Values led to identification with Moodle-using groups, internalization of the benefits of Moodle, a perception of Moodle’s ease of use, and/or a
perception of Moodle’s usefulness. One or more of these factors then drove their adoption of Moodle.

Thirdly and fourthly, with respect to social influences, identification with a Moodle-using group or internalization of the benefits of Moodle could lead to perception of Moodle’s usefulness. Regardless of which initial factor led to that perception, however, this perceived ease of use then led to adoption of Moodle. These relationships might further underlie the first two, in the cases where the cultural factors led to internalization or identification.

Finally, with regard to TAM components, the relationship between perception of Moodle’s usefulness and adoption was observed. This relationship might further underlay both the social and cultural relationships identified, as relationships in both categories were noted to include a relationship chain in which perceptions of Moodle’s usefulness led to its adoption.
Table 19

*The Most Repeated Relationships Among Interviewees Including Cultural and Social Factors and TAM Components*

<table>
<thead>
<tr>
<th>Most Cited Factor</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural factors</td>
<td>T → (Id, U, E) → A</td>
</tr>
<tr>
<td>V → (In, Id, U) → A</td>
<td>The second cited factor was the influence of the user’s own values on the adoption whether it is a straight forward adoption influenced by pure belief of adoption or the user’s belief going through steps before adopting the system, whether though identification or internalization</td>
</tr>
</tbody>
</table>

Continued
<table>
<thead>
<tr>
<th>Social influences</th>
<th>In → (U) → A</th>
<th>Internalization was the most cited social influence among faculty. Six interviewees emphasized the need to somehow pressure the faculty to adopt Moodle. Identification and Compliance followed Internalization. Most cited Internalization was represented by In → U → A, [Jamal, Kathryn, Olivia], and Identification relation was represented as Id → A [Kathryn, Olivia, and Ali]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id → (U) → A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TAM components</th>
<th>U → A</th>
<th>The most cited reason influencing adoption among all 8 interviewees was the usefulness of LMS, and two interviewees believed that the usefulness of the LMS is more important than its ease of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>U &gt; E</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Importantly, the interviewees were critical of their adoption and drew those connections based on their experience with Moodle at GUST, their personal experiences outside the academic institution, and their personal preferences. The user’s internalization of the usefulness of Moodle was a critical motivator to adopt the technology, even if it was not associated with ease of use. Also, the user’s attitude towards the usefulness of using Moodle for their course work impacted their adoption. Since “culture is a key concept to the sociological perspective” (Culture and the Sociological Perspective, para. 2).
Accordingly, based on Barkan’s guidance (2013), this led me to look at the most influential cultural and social factors common among faculty and I was able to see the connection visible through the faculty members’ responses. Thus, I inferred by connecting the factors with each other to come up with the previous understanding that positive attitude towards technology contributed to the faculty’s internalization of its usefulness, which ended in the adoption of Moodle.

In addition to what I highlighted above, there were, however, other relationships I deduced from the participant’s responses. Some of those relationships included three interesting combinations that led to adoption. The significance of this relationship is that seven different faculty members shared it. These are represented in Table 20.

<table>
<thead>
<tr>
<th>Table 20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factors Related to Immediate Adoption</strong></td>
</tr>
<tr>
<td>C $\rightarrow$ A</td>
</tr>
<tr>
<td>E $\rightarrow$ A</td>
</tr>
<tr>
<td>T $\rightarrow$ A</td>
</tr>
</tbody>
</table>

Combining these relationships together to present one coherent relationship does not make sense, but analyzing them separately provides the most detailed assessment. These relationships indicate that the user does not have to go through a multi-layered process to adopt the technology, on the contrary, it could stem from a personal influence,
belief, or experience. Some faculty adopted Moodle just to comply with the administration requirements to use Moodle, without having an experience with it previously, or a personal belief towards using it. Some of them even mentioned that if they were not asked to use it, they would not. In this situation, they use it because the adoption was in compliance with the higher authority whether an institution or a superior. Also, some users may adopt a technology just because it is easy without being pressured to do so, or thinking about its usefulness. They may decide to use it first, as a testing out process to gauge what the platform does, and then determine whether it is useful or not. Others may choose to adopt the technology just because they are proficient at using technology, and it is the status quo driving their adoption process.

Finally, the main themes of the research were present in the study through the survey questions and the semi-structured interviews. At the same time, there were other themes that rose from the survey’s open-ended questions and the interviews. Although the response on the open-ended questions was only 13%, it still worth noting even if it does not lead to a conclusion.

I present compiled responses from the survey’s open-ended questions to have an idea of the respondents’ views towards the different aspects of technology and Moodle at GUST.

1- Some complained about the services and LMS at GUST, and they are grouped as follows,

- General dissatisfaction with Moodle: “Moodle does not help” and “I am not very happy with the design”.


• Dissatisfaction with online services: “The online service is unsatisfactory because the Internet is too slow”; “The Internet at GUST is not reliable”; “the wifi on campus is never good enough”.

• Dissatisfaction with the tools and functions: “the processes are cumbersome with numerous signing required, sometimes the functions do not work”; "The quizzes are cumbersome to create, so it is difficult to use quiz feature”; “Survey function does not allow for simple modification of the questions”; “Using language interfaces might block your access”; “turnitin interface is poor and creates many problems”; “Using Moodle to create a grade book is problematic, as it is not always accurate”; “I need an easy way to exports grades from LMS to other GUST systems such as SIS”.

2- Others enjoyed the functions of Moodle because it’s useful and easy, and they are grouped as follows,

• Easy to use: “The drag and drop function works well”; “Easy access to all information and course materials”; “news and announcements easy to use with the portal by sending forum to the class”;

• Useful functions: “posting course material save time and effort to me”; “it is rich in powerful features”. “I use it because it has many benefits”;

3- Some suggested ideas that would help the user while using Moodle, and they are grouped as follows,

• Suggestions towards improving the easiness of using the system: “I suggest that you make uploading documents more user friendly than it is
now. I think all of us use Microsoft Word documents, which makes it very likely to upload Word documents on the portal; however, one finds that it is not the case; the Word Document format is not acceptable. I think this is a serious flaw that needs to be rectified”; “I suggest that you further simplify the process”;

- Suggestions towards development: “the professional development does not exist”; “Department-wide and University-wide professional development is required to be able to fully embrace and implement any LMS, particularly Moodle”; “try to conduct some effective workshops to encourage faculty members to use Moodle much more effectively”; “The present LMS, Moodle, requires a lot of professional development and training to learn just the basics”; “I would like to have a web-conferencing session with my students, but I did not receive the training for it. I would like to learn more about it and if there is a training session you can provide for faculty members”; “I would like to learn more about how to use electronic portfolio or maybe have a training session on it”; “I would like to know more about Moodle, so I can have group discussions with my students and make maximum use of it”; “Most important is to develop a team to help professors to develop effective teaching materials beyond the power point”.

- Suggestions towards a better design: “a better designed interface”; “A more user friendly gradebook”; “Better interface design. Textbook website
provides almost everything”; “Moodle interface needs a profound make over to match textbook websites capabilities”.

• Suggestions towards the tools and functions: “To add more interactive tools. Currently, it works as a file depository or to backup documents”; “I would suggest better area for folders for whole-semester materials, separate area for assignments”; “Ability to print a quiz that matches the online version”; “integration with www.dropbox.com would be an excellent feature for file sharing and collaboration through Moodle”; “I would like the ability to share and collaborate assessments, assignments, and portfolios with colleagues via the LMS, rather than being forced to do it via the Network Drive”.

4- Also, there are comments offered by respondents, and they are presented as follows,

“In my experience, all of these features are much more seamless and functional through Google Classroom”; “On a further note, using Moodle to introduce my learning outcomes for eventual evaluation needs to be further simplified. The process itself is a daunting one and necessitates a lot of time and effort”; “I supplement Moodle with programs provided by Google; this is the only reason LMS is even remotely successful in my classes”; “It is important to use blended learning with my students especially for the foundation year students”; “I have been using People Soft for the last ten years, and I do think it is a very effective and user-friendly tool too.”
“I choose to not utilize all features of Moodle due to a) lack of knowledge and professional development and b) ease of implementation and functionality of alternative programs available for free from Google”; “I don’t think technology helps that much”; “I am not convinced that technology is the best way to go for all courses - look at Harvard, MIT, Oxford, Cambridge - the best universities in the world use chalk and blackboard for many courses. I don't think it is because they are too poor to use technology. In fact I think in some cases technology is negatively affecting the students”; “Please don't waste a lot of money here. Use open source as much as possible. Recent research points to diminished returns on tech spending and even worse results when more money is spent”; “Instructional technology is all very good but it is distracting students from learning the real subject matter. These students already have short attention spans and when there is a password/wifi problem (which occur too frequently) it steal a lot from the precious learning time”; “Somehow students seem to think that they need to know how to use the media and not the subject content which defeats the purpose of our attempts to enhance student learning”; “The less complicated the better. The less changes, the better”; “Web conferencing tools are now available through Skype and others”; “The more education is build around technology, the more effective it will be”

5- Participants shared their views on what makes a successful LMS implementation, and what other technologies they used in and their classrooms, their ideas are represented here,
“I got a training course before”; “Websites, Youtube”; “You Tube clips for writing prompts, gifs with Kahoots”; “Google, You Tube”; “I use blogs and YouTube”; “Kahoot for gamification of assessment. Google docs for live, collaborative peer-editing. Youtube for displaying digital artifacts”; “YouTube, Blogs and Google+”; “I do not use any internet based technologies”

“blogs, Google docs, YouTube”; “ Youtube, Cambridge website (ENGL 098/100 Course), MyELT website (ENGL 098/100 Course), Achieve3000 (ENGL 100), Goodreads”; “You Tube is used to illustrate principles taught in lectures or provide material discussed further in the lecture. I don't use others currently”; “I utilize games, such as Kahoot for quizzing and engagement. I also use TedTalks, YouTube for listening practice/comprehension/authentic material. We have also used Google Docs for quizzing and in class work”; “Turnitin, Google Sheets, docs, forms, drive (we really should have Google-ED!!). YouTube, PearDeck (We should have the paid version available to us for CAT (Classroom Assessment Technique) and for interacting with video)”; “skype, youtube, dropbox, coursera”; “You Tube to provide learning material. Google Docs to communicate and monitor students' work “; “Wix.com and wikis”; “I used these free tech (not longer free). It would be great to have them on campus. https://voicethread.com/.

www.Socrative.com. youtube, dropbox”; “With the exception of Publisher Content, all of these features are available for free through Google Apps for Education”; “youtube, Quizlet, Kahoot”; “The Prestigio smart board”; “Turnitin; Google Drive/Docs/Sheets/Forms; PearDeck, PowToon, TED-ed”; “I am using Academic Writing Wizard, www.aw-wizard.com, in teaching all my writing
courses”; “dropbox, MyU, MOOC intergrations”; “Wix.com”; “Google Apps for Education (Drive, Docs, Sheets, Slides, etc); I would love to implement Google Classroom”; “Apps through mobile technology”.

Also, the interviews yielded some themes that weren’t among the center themes of the study, but still they are worthy of mentioning. Some of the recurring themes are presented here,

- Interviewees shared their interest in using other technologies to support their teaching. Some of the additions the faculty members talked about: “I like to use Zaption”; “I use Facebook”; “I do collaborative group projects, most of the time”; “I offer access to off or online materials... including MOOC”; “we collaborate with, uh, with DropBox”; “I use mobile push phone notification app called My University and we use that for communication”.

- Attitude towards using Moodle and or other technology was expressed by the faculty members as follows,

  Positive attitude: “I enjoy the kids when they're doing their essays, showing them how to do surveys and stuff because you know I think that's very good”; “I’m eager to use Moodle, personally. I like to use it, I always liked to ... So, I love using it”; “I have a very positive outlook on technology, in general in education in particular”; “Very positive experience with Moodle. I think it’s a very flexible tool”;

  Negative attitude: “I'm still not convinced that everybody needs to use it. I don't believe in a universal approach to pedagogy”; “I'm not a particular
fan of Moodle - although the new update is much better, I find it too chunky”; “I'm not really obsessed with it”; “I’m beginning to develop some negative attitudes to technology, especially because of the emphasis of using too much technology in class these days”; “I have started seeing the dark face, the dark side of this, and I have seen how easier it makes cheating, just manipulating the system”.

- The interviewees shared their frustration with technology in general, and Moodle specifically: “we don't even use the grade book anymore because it doesn't weight the stuff”; “for me in an administrative position the amount of different systems I need to learn how to use, is almost overwhelming. We have ones for teaching, we have ones for recruitment, we have different ones for work processes, we have ones for IT requests, and we have them for literally everything. For event management, everything is being automated, and each system is different. And at some point you reach almost a saturation level, I find it difficult to keep up at times”; “I went to the E-Learning Department; I asked them about the problem I'm facing with incorporating HotPotatoes with Moodle- they had never heard of it. So I explained to them what was it, and they tried to figure out how to make it work, but at the end, you know, it didn't work, so I just dropped it”.

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Recommendations for GUST

Analysis of the survey and in-depth interviews uncovered some trends among participants. Despite Moodle’s high adoption rate among GUST faculty, there remain some areas of concern with the use of this LMS. Thus, the study suggests recommendations, which will serve to address these concerns and in turn boost Moodle usage among the faculty. Following set of recommendations will also help to ensure that faculty not only become more committed to Moodle adoption, but that such commitment arises more from internalizing of Moodle’s benefits rather than from simple compliance with regulations. These recommendations are as follows:

1. GUST should provide a more in-depth training for all Moodle modules. The study has uncovered that many participants are either not fully aware of Moodle’s full capabilities or uncertain of how to make use of them. In
addition, some faculty reported poor first experience with Moodle because of the lack of training; they did not understand what it was or how to use it, and therefore they thought less of its value. Therefore, as a first step, administration should test, examine, and listen to the users’ and understand their concerns regarding the LMS needed to facilitate their teaching. When introducing a new technology, the administration should look at the target population and their knowledge of using technology and their needs to the technology.

2. GUST should provide clearer demonstration of Moodle’s utility as a learning tool. In the most significant relationships identified by the study, faculty perception of usefulness played a strong role in their adoption of Moodle; this suggests that understanding the benefits is essential to promoting adoption. In addition, internalizing these benefits required being aware of them.

3. The administration at GUST should develop a comprehensive policy to assess faculty perception and mitigate situations in which faculty members feel pressure from superiors to adopt Moodle. Over 50% of the surveyed faculty members reported having felt such pressure, and this pressure naturally leads to adoption out of compliance with pressure and policy. Adoption via compliance is never a good thing and this would go against the broader objective of faculty’s adoption into this newer learning management system.

4. GUST must develop a policy to ensure faculty belonging to certain identifiable nationality or ethnicity receive adequate technology training to be on par with other faculty members. GUST faculty comes from many different
national backgrounds, and in the results of the survey there was a link between certain national and ethnic factors—primarily those which resulted in a higher degree of experience and familiar with technology—and adoption of Moodle. Ensuring that a comparable level of technical competence exists in those from other contexts would alleviate the digital divide in faculty background that may be hindering some faculty members’ full appreciation of Moodle. Socio-cultural construction shapes technology adoption rate. This study reveals significant association between national origin of participants and their Moodle adoption. Because national origins create varied socio-cultural constructions, which in turn influence individual predilections and uncertainties, rate of new technology adoption is shaped by national origins. Thus, GUST administration must recognize the difference between technology adoption between a developed country and its developing counterpart. Therefore, the administration must make room for individualized training and technology immersion for faculties belonging to different national origins.

5. GUST should seek to gain a stronger understanding of faculty members’ values in order to better understand how to demonstrate the value of Moodle to them. When introducing a new technology, the administration should look into its population and their knowledge of using technology and their needs to the technology.

6. In conjunction with 5, GUST should explore the avenues available for modifying Moodle implementation to better align with the faculty values and
needs, as well as the specific needs of the context of Kuwait as a developing country. Some faculty expressed dissatisfaction with specific aspects of the system, but others felt that the overall options afforded by the use of Moodle are lacking, and ways in which to expand the system’s offerings to faculty members could only serve to improve adoption of and appreciation for the system.

7. Finally, GUST administration should form a separate committee—including faculty members, to provide appropriate perspective—with the long-term goal of achieving total faculty member integration into this learning management system without resorting to compliance-driven adoption. Instead, this committee would focus on long-term strategies to encourage increasing Moodle use rather than forcing it.

8. The main theme of this research is to establish that, socio-cultural constructions in target population influences technology adoption. Divergence in such socio-cultural constructions creates individual uncertainties. This in turn affects widespread technology adoption. This is indeed the prevailing narrative at GUST. Manifested in many faculties’ uncertainties and struggles to adopt Moodle is the GUST administrations’ lack of recognition of the socio-cultural influence of technology adoption. My study intends to change that course and ends in a hopeful note I hope that the administration at GUST will pay attention to incorporate specialized training for affected faculty to overcome their socio-culturally induced impediment towards technology adoption.
9. The higher education institution needs to find a way to encourage faculty’s acceptance of the technology. It can accomplish this through managing and incentive plan that could include awards, recognition, incentives, and training opportunities.

**Further Research**

I cannot conclude the study without discussing how I can navigate the limitations of the study and expand on its core findings and promise. First, this study was conducted based on perceptions of survey participants who were recruited from the GUST faculty. Their role can be more aptly described as stakeholders, not experts. Thus, observations and inferences drawn as a result of data analysis may suffer from external validity and may not be recognized as a prescribed solution. Moreover, demographic distribution of participants of this study reveals predominance of Assistant Professors over Associate and full Professors. This higher than average concentration of Assistant Professors does not negatively impact the study’s findings, however, it is important to recognize the contextual relevance of such distribution. GUST is a relatively younger institution, which is in full fledge operation for less than 15 years at the time of conducting this research. As the institution is being built from the ground up, the administration has focused on developing both the character and culture of the university organically, rather than bringing a large number of senior faculty with different allegiance and settle views from other institutions. Therefore, an argument can be made that despite a preponderance of Assistant Professors participating in the survey the results indicate a more objective relationship between socio-cultural factors and technology adoption.
Therefore, a more expanded research design should be based on collected data from few campuses that are geographically scattered and controlling for the effects of both nationality and ethnic language of the participants involved.

Second, there may be some disconnect arising from detailed constructs of the questionnaire and the Likert-type data that came from survey results. The construct developed in the 35 survey questions were composed of participant response in a set of ordered alternatives. Therefore, the available data is a discrete approximation of continuous latent variable that depends on the adequacy of the sample size. There were several open questions which did not provide meaningful responses and as such, the opportunity for nuanced inference drawing was lost. Further research must be done to convert those open questions into meaningful ordered alternatives based closed questions to induce participants to become active survey responders.

Third, due to the way the survey questionnaire was designed, the possibility of variables being confounded may exist. Variable confounding happens when the research design cannot separate the effects of two or more variables upon the treatment variable. This current study is focused on understanding the variable: effect of socio-cultural factors on Moodle adoption. I also have other variables, such as technology background, identification, internalization, compliance, perceived ease of use and perceived ease of usefulness, etc. However, the objective of this study was never to identify the impact of any one of these variables on Moodle adoption. I recognize that Moodle adoption may have arisen from a composite made of many dimensions. The objective was to isolate the right set of composites that may provide connection to Moodle adoption, regardless of how the components of such composite impact adoption. The design of this study was
simply not conducive to decomposing the components that may individually impact the variable of interest. A more effective framework will consist of separating some of the variables to identify their impacts on Moodle adoption, which in turn would provide for a more meaningful linkage between the adoption of a learning management system and its drivers. Finally, once the set of variables are identified, more advanced statistical analysis can be performed to analyze the relationships and associations among variables to better identify socio-cultural factors’ impact on technology adoption.

There are other themes that prevailed during the interviews and the survey open-ended question that may serve as a beneficial research topic and their exploration may shed a light on other factors that contribute to LMS adoption. The faculty members expressed their interest in the ability to incorporate other technologies into Moodle, such as quiz creating tools, presentation tools, social media, and the ability to collaborate on projects with other students and institutions. Also, four out of eight faculty members relied on their use of Moodle to their enjoyment in using it, so, it might be a good opportunity to investigate the enjoyment of using technology in education as an influence on adoption. In addition, many faculty members stated that they are using Moodle because they believed it contributed to their students’ academic performance. The faculty’s intention to use the technology was influenced by the students’ learning outcome. To better understand whether those themes make a different in the adoption process, a research could focus on one or more of these factors.
Modification to TAM

The TAM framework has seen criticism for its cultural biases (Abbasi, Irani, & Chandino, 2010; Bagozzi, 2007; Rose & Straub, 1998; Straub, Keil, & Brenner, 1997), which somewhat limit its applicability in non-western contexts. This study includes a modification of TAM, which includes some of the theoretical constructs of TAM and relates them to cultural and social constructs in a non-western context. In particular, the study found that previous experience with technology and values were cultural factors of particular importance in understanding the acceptance of Moodle at GUST. The demonstrated importance of these factors in the results confirms the need to include considerations for culture when applying TAM to ICTs such as a LMS in a non-western context.

These cultural factors showed strong and well-demonstrated to the essential TAM constructs of perceived ease of use and perceived usefulness, which in turn were shown to lead to adoption. However, including these cultural factors alone was not enough. To create the fully expanded model, the social factors of compliance, identification, and internalization were required. These social factors emerged as both directly influencing adoption and as factors that contributed to perceived usefulness in the TAM model. Overall, the modification considering both social and cultural factors served as an effective tool for understanding the issues facing adoption of an LMS in a non-western context, although a better understanding of whether internalization is a cause of adoption or a result of adoption might have been desirable.

To further develop this modification of TAM, further mixed methods research should be conducted to understand this relationship between internalization of benefits
and adoption—specifically, understanding under what conditions internalization drives adoption, and under what conditions it is driven by adoption. Additionally, fully qualitative case studies might be carried out at other institutions in different but still developing non-western contexts to determine if the expanded model is appropriate to a wide variety of such contexts. Provided the modifications hold up in these contexts, then further quantitative research might use these descriptive studies to create a more nuanced model and determine which specific subcategories of cultural issues such as values hold the greatest weight across a variety of cultural contexts.

Finally, this study utilized a modified TAM that exhibited the linkages from PU and PEU into Moodle adoption. However, when a technology user either recognizes learning management systems’ usefulness or, appreciates its ease of use, or, understands both a conversion process gets initiated, the end result of such conversion is the ultimate adoption of the LMS. This research has only shown the connection from PU/PEU into Moodle adoption. However, adoption is neither a linear process nor an immediate conversion step from perception regarding technologies positive aspects. Driven out of a multitude of external factors and various internal processes, a favorable attitude towards technology must be instilled by technology users prior to eventual adoption. As shown in Figure 6 (Chapter 2, pg. 85), both PU and PEU connects into an intention to use prior to connecting with adoption. Due to the restricted scope of this study, intention to use was not linked with adoption. Therefore, future studies can develop a set of questions that can measure participants’ responses towards an intention to use technology. The survey responses can then be used to measure the association between the intention to use technology and technology adoption. In addition, open-ended, semi-structured interview
questions can be constructed to delve into technology users’ cognitive construct to better understand how participants go from intention to adoption.

**Conclusion**

Successful adoption process of technology in an institution must go through individuals that utilize technology in their daily lives within the confines of such institutions. Forced adoption or technology conversion via compulsion never works in the long term. Thus, technology adoption is doomed to fail when the users do not accept it. This analysis of GUST’s faculty survey related to their Moodle adoption corroborated this. Clearly, a lack of widespread acceptance of technology by its intended users can be a hindrance to its successful adoption. This is because widespread acceptance is a macro process that requires adoption at a micro level by individuals. This individual adoption is influenced by socio-cultural factors. This research examined the impact of these factors on the technology adoption process as it relates to Moodle at GUST.

Individuals in the study represented a broad cultural and social background in such a small institution. They are all users of Moodle implemented by GUST, but they possess different adopting styles, reasons, uses, and acceptance of the system. Analysis of these participants’ responses showed that they have formed a wide range of individualisms, uncertainties, social and cultural constructions through their prior professional and academic experiences. Their personal explorations through their socio-cultural constructions served as moderators and influencers for their current technology adoptions. Among the tendencies uncovered in the study, the GUST faculty showed an
interest in adopting Moodle more aggressively in their teaching if training sessions and informative meetings were to accompany it.
References


Bousbahi, F., & Alrazgan, M. S. (2015). Investigating IT faculty resistance to learning management system adoption using latent variables in an acceptance technology


Dabbah Information Technology Group (1998). Dubai, UAE.


Faculty of GUST and Moodle. (2016). Skype.


Information and Management, 40(3), 221–232. doi: 10.1016/s0378-7206(02)00006-x.


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Levels_of_Culture_and_Individual_Behavior_An_Integrative_Perspective


Kuwait educational system overview: Students, gulf, schools, and school,


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Appendix A: Informed Consent Form for Interview

My name is Reham Aljeeran. I am a graduate student at Ohio State University in the College of Education and Human Ecology, Department of Educational Studies. I am studying the social and cultural factors influencing GUST faculty members’ adoption and acceptance of Moodle.

Some examples of the interview questions:

- During this interview, I would like to ask you a series of questions about how your cultural background affects your technology use.
- Given your role as a faculty in an institution that encourages technology adoption, I am very interested in your opinion on the role of social influences on your decision to adopt technology.

The information you share with me will be part of the data collected on faculty’s external factors that influence their decision on adopting technology. The understanding of the socio-cultural factors on user’s intention to adopt technology can help higher education institutions to re-examine their technology implementation criterion for a better adoption, especially in developing countries. This interview will take about 45-60 minutes of your time.

There is no risk of a breach of confidentiality. I will not ask for identifying information during the interview (e.g., name, identifying role or position etc.) or link your name to anything you say, either in the transcript of this interview or in the text of my
dissertation or any other publications. Also, there is no risk of a breach of anonymity. The interview records (although include no identifiers) will be transcribed by the interviewer personally, then will be kept safe with me, and will be destroyed as soon as the researcher is allowed to do so in accordance with IRB rules. There are no more than the minimum expected risk of participation.

Participation is voluntary. If you decide not to participate, there will be no penalty for doing so. You can, of course, decline to discuss any issue or answer any question, as well as to stop participating at any time, without any penalty for doing so.

If you have any additional questions concerning this research or your participation in it, please feel free to contact me, my dissertation supervisor or our university research office at any time.

I would like to make a recording of our discussion, so that I can have an accurate record of the information that you provide to me. Before the recording starts, you will decide on how you would like to be addressed throughout the interview (eg. pseudonym, initial, role etc.). I will transcribe that recording by hand, and will keep the transcripts confidential and securely in my possession.

Do you have any questions about this research? Do you agree to participate? May I record our discussion?
Contact Information

Reham Aljeeran
College of Education and Human Ecology
Department of Educational Studies
The Ohio State University
Columbus, OH 43210
USA
Phone: 1-614-600-6805
Email: aljeeran.1@buckeyemail.osu.edu

Local contact Information:
Address: Mishref, Block 5, St. # 13, H. # 27
Phone: +965-9782-1217

The faculty supervisor for this research project is:
Dr. Richard Voithofer
College of Education and Human Ecology
Department of Educational Studies
The Ohio State University
Columbus, OH 43210
USA
Phone: 1(614) 247-7945
Fax: 1-614-292-8052

Email: voithofer.2@osu.edu 292-8052

You may contact him with questions or if you feel you have been harmed as a result of your participation.

For questions about your rights as someone taking part in this study, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-614-688-4792 or 1-800-678-6251. You may call this number to discuss concerns or complaints about the study with someone who is not part of the research team.
Appendix B: Informed Consent Form for Survey

Reham Aljeeran

The Ohio State University

College of Education and Human Ecology

Department of Educational Studies

+1 (614) 688-4007

aljeeran.1@buckeyemail.osu.edu

Study Title: The Role of the Socio-Cultural Factors that Impact Faculty Acceptance of e-learning at GUST

OSU IRB Protocol: #2016E0085

You are invited to take part in a survey study about your use of technology, and Moodle specifically. The purpose of the study is to better understand the factors that influence your decisions to use technology in your teaching. The survey should take about 15 minutes to complete. At the end of the survey, you will be asked if you would be willing to participate in an optional follow-up interview.
There are no known risks or discomforts associated with this survey. On the other hand, your participation helps better understand the use of educational technologies in developing countries like Kuwait.

Taking part in this study is completely voluntary. If you choose not to be in the study you can withdraw at any time without adversely affecting your relationship with anyone at GUST or the Ohio State University. Your responses will be kept strictly confidential, and digital data will be stored in secure computer files. Any report of this research that is made available to the public will not include your name or any other individual information by which you could be identified.

If you have questions or want a copy or summary of this study’s results, you can contact the researcher at the email address above.

If you have any questions about whether you have been treated in an illegal or unethical way, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at +1 (614) 688-4792 or +1 (800) 678-6251. You may call this number to discuss concerns or complaints about the study with someone who is not part of the research team.

Please feel free to print a copy of this consent page to keep for your records.

Clicking the “I agree” button below indicates that you are 18 years of age or older, and indicates your consent to participate in this survey.

- I agree
- I disagree
Appendix C: Survey Questions (from Qualtrics)

Section 1: Demographics

Q1. What is your nationality of origin?

☐ Kuwaiti
☐ Non-Kuwaiti ___________

Q2. What is your gender?

☐ Female
☐ Male

Q3. How old are you?

☐ 25-34 years old
☐ 35-44 years old
☐ 45-54 years old
☐ 55 years or older

Q4. What is the highest degree or level of education that you have completed?

☐ Bachelor’s degree
☐ Master’s degree
☐ Doctorate degree
☐ Other, specify ______

Q5. What is your first language?

____________

Q6. What other languages do you speak?

____________
Q7. What is your classification?

☐ Professor
☐ Associate Professor
☐ Assistant Professor
☐ Staff
☐ Part Time Adjunct Instructor
☐ Teaching Assistant
☐ Other, please specify ____________

Q8. In what College do you teach?

☐ College of Arts & Science
☐ College of Business Administration

Q9. In what department(s) do you teach?

☐ Computer Science
☐ English
☐ Humanities & Social Sciences
☐ Mass Communications
☐ Mathematics & Natural Sciences
☐ Accounting & MIS
☐ Business Administration
☐ Economics & Finance
☐ Other, please specify ________________

Q10. How long have you been teaching in higher education?

☐ 1-5 years
☐ 6-10 years
☐ 11-15 years
☐ 16 years or more

Section 2: Use of Learning Management Systems

Q11. Please select all the Learning Management Systems (LMS) that you have used in the past 5 years.

☐ Skillsoft
☐ Moodle
☐ Blackboard
☐ None – I have never used a LMS
☐ Other, please specify ________________
Q12. Over the past 5 academic years, how many courses have you taught in the following formats?

<table>
<thead>
<tr>
<th>Format</th>
<th>0</th>
<th>1-5</th>
<th>6-10</th>
<th>11-15</th>
<th>+16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully online</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Blended/Hybrid</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Fully face-to-face not using LMS</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Q13. For how many semesters have you used a LMS in the past?

- ● 1-2 semesters
- ● 3-4 semesters
- ● 5-6 semesters
- ● 7 semesters or more
- ● None

Section 3: Please tell us about your experience with various functionalities of your Learning Management System

Q14. Please indicate how easy you find the Administration Functions of Moodle (e.g. providing access to the course site, creating a personal profile, using the course calendar, etc.) and how well these functions meet your instructional needs.

<table>
<thead>
<tr>
<th>Difficulty to Use</th>
<th>Easy to Use</th>
<th>Does not meet my needs</th>
<th>Exceeds My Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Difficulty to Use</th>
<th>Easy to Use</th>
<th>Does not meet my needs</th>
<th>Exceeds My Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Q15. If you have strong reactions to any of the Administration functions, please indicate why and if possible, provide specific examples.

__________________________________________________________________
__________________________________________________________________

261
Q16. Please indicate how easy you find the Communication Tools of Moodle (e.g. online surveys, discussion forums (asynchronous), text chat (synchronous), email to students, web conferencing (online rooms), news/announcements, manage student groups (e.g. in discussion or team projects), language interfaces (Arabic) to use, and how well these tools meet your instructional needs.

<table>
<thead>
<tr>
<th>Difficult to Use</th>
<th>Easy to Use</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Does not meet my needs</th>
<th>Exceeds My needs</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
</tbody>
</table>

Q17. If you have strong reactions to any of these Communication Tools, please indicate why and if possible, provide specific examples.

Q18. Please indicate how easy you find the Assessment & Grading features for Moodle (eg. administering online quizzes/exams, managing student assignments and submission (dropbox, activities, etc.), providing feedback to students on assignments, managing grades, etc.) and whether these features meet your instructional needs.

<table>
<thead>
<tr>
<th>Difficult to Use</th>
<th>Easy to Use</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Does not meet my needs</th>
<th>Exceeds My needs</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
</tbody>
</table>
Q19. If you have strong reactions to any of the Assessment & Grading features, please indicate why and if possible, provide specific examples.

________________________________________________________________________

Q20. Your campus offers a customized feature that enables the submission of final grades from MyGust to your campus Student Information System. Please react to the following statements regarding your experience with this feature.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is easy to submit final grades using this feature</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>This feature meets my needs</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Q21. If you have strong reactions to whether submitting final grades from MyGust is easy to use or meets your needs, please tell us why and if possible provide specific examples.

________________________________________________________________________

Q22. What other functions, tools, or features would you like to see added to Moodle?

________________________________________________________________________

Section 4: Overall Experience with the LMS You Use

Q23. Please respond to the following statement based on your overall experience with Moodle, using the scale displayed below. Select N/A (not applicable) if the statement does not apply to your situation.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. My overall experience using Moodle has been positive</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>b. I would recommend Moodle to my colleagues</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

263
c. Using Moodle has made managing my courses easier.  

d. Using Moodle in a face-to-face course has improved student learning.  

e. Using Moodle to teach hybrid or blended courses has improved students’ learning.  

f. Using Moodle in an online course is critical to students’ learning  

Q24. How satisfied are you with each source of support in helping you effectively use Moodle in your teaching?  

<table>
<thead>
<tr>
<th>Source of Support</th>
<th>Very Satisfied</th>
<th>Satisfied</th>
<th>Neutral</th>
<th>Dissatisfied</th>
<th>Very Dissatisfied</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local campus resource (i.e., help desk, Learning Technology Center, etc.)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Local department/college resource</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Colleagues and peers</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Teaching Assistants &amp; Students</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Other, please specify</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Q25. Describe the process that you go through when you need support in using Moodle to teach. Please provide specific examples.  

________________________________________________________________________

Q26. What are the reasons you choose to use or not to use an LMS in your courses?  

________________________________________________________________________

Section 5: Other Technologies You Currently Use or Plan to Use in Your Instruction.
Q27. Please indicate whether you use any of the following features of Moodle in your instruction

<table>
<thead>
<tr>
<th>Feature</th>
<th>Currently using</th>
<th>Planning to use</th>
<th>Not planning to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio conferencing</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Video conferencing</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Web conferencing (eg. Adobe Connect)</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lecture capture</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Original Checking (e.g. Turnitin)</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Peer review tools (e.g. Turnitin)</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Podcasts (e.g. iTunesU)</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Screen capture (e.g. Captivate)</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Student response systems (e.g. iClicker)</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Testing and assessment</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Text Chats – e.g. Instant messaging</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Q28. Please respond to the following statements based on your attitude toward adopting Moodle, using the scale displayed below. Select N/A (not applicable) if the question does not apply to your situation

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have strong personal belief in the importance of using Moodle in my courses.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel pressure from my superiors to adopt Moodle</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I am influenced by my peers’ adoption of Moodle</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The features and tools of Moodle encouraged me to use it in my courses</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Q29. What, if any, other technologies besides Moodle do you currently use or plan to use in your instruction?
Q30. Do you use technologies available on the Internet to assist in your teaching? Please name free technologies and tools that you use frequently in your instruction and how you use them (e.g. Blogs, Google Docs, Skype, YouTube...etc.).

____________________________________________________________________

Q31. In looking to the future, how do you envision technology will be used to improve student-learning outcomes?

____________________________________________________________________

Q32. Please share any final comments related to your use of technology and Moodle in your teaching.

____________________________________________________________________

Q33. Are you willing to participate in a 60-minute interview that will explore your attitudes about Moodle in more depth?

☑ Yes
   If yes, please provide your preferred email address __________
☑ No
Appendix D: Interview Guide

Semi-structured Interview Questions

I am interested in receiving constructive feedback from you regarding your experiences using Moodle.

a. How many years you worked at GUST? ____________

b. Where did you complete your studies (Country)? ____________

c. Do you think that technology benefits people’s lives?

d. How does technology benefit your life?

e. How does technology detract from your life?

f. Is technology a big part of your life? If so, how? If not, why not?

1. How do you use technology in your personal life (e.g, do you have cell phone? How do you use it? What kinds of apps do you use regularly? do you use tech to check online all the time? do you carry and use a mobile device in the majority of your daily interaction?)) (more details: What technologies do you use in your personal life? What do you use them for? How often? What free technologies on the Internet that you use frequently in your instruction and how you use them (e.g. Blogs, Google Docs, Skype, YouTube...etc.).)

Follow up Q: Can you elaborate on some of the factors that may have contributed to the lack of your technology preference?
2. Tell me about your experience with Moodle at GUST?

3. Has your Moodle use at GUST been influenced by your past experiences with technology and your personal attitudes about technology?

4. What is more important to you when deciding to use a technology, it’s ease of use or its usefulness?

5. Can you comment why you feel that (factor X) is more important than the (factor Y)? OR why there is no difference between the factors in deciding whether to use or not?

6. (YES person) If you find Moodle helpful, what particular feature (e.g. tools, functions, macro, libraries, interface, download …) you find most helpful? OR: (NO person) if you do not find Moodle helpful, is there a particular feature you find unnecessary cumbersome for your purpose

7. Would you recommend to your colleagues to use Moodle? Any particular feature you would recommend?

8. A. (Kuwaiti faculty): would you say that your Moodle use or non-use has been in part influenced by broader Kuwaiti society’s cultural norms? (elaborate)

   Follow up Q: How do you deal with the Kuwaiti cultural standards when trying to adopt visual or audio technology in your classroom?

   Follow up Q: What do you think about including an Arabic interface to Moodle? How will it be helpful for you and your students to have the system in both languages Arabic & English? How?

B. (Non-Kuwaitis faculty): From your experience, would you say that your Moodle use (or non-use) is more influenced by the society you currently live or by the society you come from? (elaborate)
Follow up Q: Do you experience any language barriers when using Moodle in Kuwaiti culture? Why or How?

Follow up Q: What do you think about including an Arabic interface to Moodle? How will it be helpful for you and your students to have the system in both languages Arabic & English? How?

9. What personal practices and preferences influenced your adoption of Moodle? How do they influence your use of Moodle?

10. Are you part of any cultural/social or academic organization? And is your association to any of these organization have influenced your decision to (or not to) adopt Moodle?

11. Can you comment on the overall adoption rate of Moodle among the faculty in your department and at GUST, in general? (Would you say that almost all, moderately, very few use the LMS)

   Follow up Q: How have your adoption been influenced by 1- other faculty, 2- Administration?

12. Any final comments about technology implementation at GUST, and Moodle specifically.
## Appendix E: Analysis Codes, Questions Themes—Interviews

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Input Variables (Bv,n; Bt)</th>
<th>Control Variables (C; Id; In)</th>
<th>Output Variables (U; E)</th>
<th>Final Output Variable (A)</th>
<th>Comments</th>
<th>Observation</th>
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### Appendix F: Example of Combined Analysis—Interviews

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<th>Interviewee</th>
<th>Michel</th>
<th>Sami</th>
<th>Rashid</th>
<th>Maryam</th>
<th>Jamal</th>
<th>Kathryn</th>
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<tr>
<td>Theme 3: Cultural factors (Q: 3, 8)</td>
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The user had a previous experience in a different institution where she made her own blogs, online tools, and online links. The previous experience is evident in her use of Moodle in the new institution. She is more comfortable with implementation.

The faculty believe in many variables that may contribute to Moodle's adoption among faculty, such as education, personality type, risk taking, age and personal experiences. The faculty's temperament and perception of the usefulness of technology. He describes the many things and activities that Moodle is useful for, especially when dealing with online tools.

The user's adoption was influenced by his experience with technology, that he was able to identify with, and its ease of use. The faculty's adoption, also, was influenced by the familiarity with technology. The faculty's attendance to sessions with colleagues in the same field influenced her adoption of technology. She would ask more questions regarding the implementation of online tools.

The user's adoption was not influenced by any past experience or exposure to LMS. She did not have experience with Moodle or technology, but that did not stop her from adopting Moodle. She said, "I've been using Moodle since I came to GUST. I never used it in Turkey. I had heard."

The faculty was exposed to technology during her graduate school. She uses technology because it is useful to her. She uses it because it serves a purpose of being convenient, environmentally friendly, and anywhere anytime access. Her positive past experience with LMS prior to Moodle.

The faculty contributed his adoption of Moodle to his experienced with the previous LMS's introduction by GUST.

The faculty contributed his adoption to Moodle and the previous LMS's introduction by GUST.
this case, the adoption did not result in any change in behavior or adoption, but was associated with previous experience with technology that influenced the adoption.

1 adoption stemmed from his background in technology while being a student in a technology-rich institution and environment. He identifies with his technology experience and connecting his current adoption to his previous knowledge. The faculty's previous exposure to technology in language teaching made her identify with them and influenced her adoption. The faculty's previous exposure to technology in language classes (while using videos) influenced her into her classroom. So, the faculty's exposure to technology with others in the same field sharing the same interest of incorporating online tools in language teaching made her identify with them and influenced her adoption. The faculty's previous exposure to LMS, and technology in general to develop countries-Australia where he went for schooling and worked for few years-and unsuccessful adoption with developing countries-Kuwait where he is working at the moment. So, he believes that developing the faculty's adoption was influenced by the culture he went to school in-India because it included various technologies. He believes that the introduction of Arabic language will not enhance adoption, because she believes in saving trees, so, this is a motivating factor for her use. So, the faculty's adoption was influenced by her value system, of saving the environment with technology and her belief in its usefulness influenced her adoption. The faculty's previous exposure to technology in language classes (while using videos) influenced her into her classroom. So, the faculty's exposure to technology with others in the same field sharing the same interest of incorporating online tools in language teaching made her identify with them and influenced her adoption.
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Arab faculty, some umm, don't see a major cultural difference, just I think. I have Arab faculty, and part of it has to do with the system itself. Cultural and social background didn't influence the user's intention to adopt Moodle. So, adoption is not strongly influenced by the culture. Arabic is not the language of the department, although some of the faculty work in it. We have lots of people in [GUST's] departments - they are Arab, but their working language has always been English. In this case, the Arabic language will not lead to more adoption.
who use it and some who don't, I have American faculty, some who use it and some that don't - and it's not strictly a generational thing... I mean I'm sure culture does play a little bit of a role". The faculty’s personal values encouraged his adoption. He believes that technology is
not the goal, but the tool. He mentioned that he would use technology as long as it is useful to his courses, once it stops being useful, he will stop using it.

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<th>Theme 4: Social Influences (Q: 7, 9, 10, 11)</th>
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| Theme 4: Analysis | The user's internalization of the importance of using Moodle led her to introduce it to her colleagues in the department. Recommending Moodle could mean that the user believes in it whether for its usefulness or easiness. The interviewee does.

- The faculty's cognitive construct is already prone for both technology adoption as a result of continuous immersion - there is no "compulsion" here - he has already identified and internalized and in the process he has been fully committed to technology adoption. The faculty internalizes that using technology is a social process. So, he groups faculty together to help new comers to use Moodle. So, his belief in the role of social interaction in learning, he help faculty identify with each other in order to influence their adoption. The faculty internalizes the usefulness of the.

- The faculty was not sure about recommendin Moodle to other faculty members. So, this could signify that the faculty's adoption was not influenced by internalization. This could implement that this wasn't a full adoption. The faculty's use wasn't influenced by identification, since she explained that she is not part of any social or professional group that could've influenced her use of technology. This could indicate that the faculty adopts Moodle under the compliance influence, since she showed earlier that.

- The faculty's internalization of the system's usefulness influenced her to adopt it. It also made her to spread the word around for others to use it. Although the faculty believes in the system's usefulness, it still did not influence her full adoptio of Moodle. She still.

- The facultybelieves in the collaboration between faculty members to produc an effecti ve adoptio of Moodle. So, other faculty memb ers will adopt the system by identif ying with others who are from the same backgr ound (i.e. faculty ). The faculty believ |
not associate her use of Moodle with either faculty or administration. The user would appreciate if knowledge transfer or knowledge sharing takes place between a knowledgeable colleague so that she can get the best out of Moodle.

user contributed to his adoption. He clearly defined the reason for the adoption as "my eagerness to use it, personally. I like to use it... I love using it, so it's not really that GUST made me do that way- it's in me".

the system, which encouraged his recommendation to adoption. The recommendation stems from the faculty's internalization of the importance and usefulness of adoption. Moodle. So, the adoption is influenced by the faculty's internalization of its usefulness. The faculty doesn't struggle with questioning whether to use it for student's assignments and tests. The partial adoption in this situation was influenced by the faculty's own perceptions and preferences that were influenced by her own values regarding cheating. So, the faculty internalized that she has
ts at GUST perceived Moodle use; he described it as "extra work". This is a situation of adoption where faculty's personal values influence it when she share the problems she faces with Moodle with other faculty members who have the same or similar problems, this will help her better use the system. She believes that once faculty attend the training sessions and understand the usefulness of the system, they will be

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Here, both identification and internalization has allowed the user to adequately bound the parameters of her technology use and as such, her adoption has been impacted. She doesn't express she ever been influenced by another faculty or admin. 

| believe that there are certain preferences that influenced his adoption of Moodle, on the contrary, he adopts Moodle for no reason other than it is the system of choice by GUST, "I just see it as a tool that I was trained to use... and this is the one that we have, and so, uh, I adopted it, basically and that's it. To make the case- the case that, "we did it," and that's it". The faculty was satisfied by the training she received by one of her colleagues at GUST. The training made her realize the usefulness of the system, so, she associate her successful adoption to the faculty who contributed to her use of Moodle. "we had a training course when they started that... and the training course was quite good. Actually, it was done by the E-learning Department, and one of our colleagues who|
| and their perception towards the adoption. The faculty's concern with time spent on adopting Moodle could signify their perception of lack of use strong values that limited her adoption in certain situations, which minimized the usefulness of the system. The user is affiliated with professional organizations in her field, which she associates with, and uses technology as being part of those groups. Her identification with these local ences. So, a better adoption in this situations is influenced by identifying with others. The faculty's internalization of the easiness and usefulness of Moodle influenced her adoption, at the same influenced her adoption, at the higher education setting. He believe they play a role in influencing the adoption|
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... had it been something else, I would have adopted something else. I'm not a particular fan of Moodle... I find it too - too chunky. So, the faculty's adoption was influenced by compliance. The faculty believe s that the faculty who use Moodle success fully usually stick with it, the ones fuln ess of Moodle, which could be a reason for the faculty's identification with the profession al organi zations in his field. And international groups influence d her adoption of Moodle. She mentioned that "once you really get the hang of it... you know like it's easy. And if you do it once, you can always do it again and then if you teach multiple sections of the same course, it's very easy...

The faculty have a strong identification, e she believe s that they will benefit from it too. She said "And this needs encouragement from u... friends. When your friend see s that- or your colleague see s that you're using it, they tell you, you better using it, it makes your life easier... Yes, yes- yes...
who don't, will not stick with it. So, it is the faculty members’ identification with the successful use influences their continuous adoption.

influenced his adoption. He associates his use of technology as useful because it was encouraged by the professional he interacts with, and he incorporates with her colleagues (over the IT department or the E-learning personnel). She realizes that whenever she needs help learning new feature or fixing minor problem, she would ask help from colleagues. She talked about her identification by saying, "if there is a-feature easy to share, you know-between the sections. You know it’s very easy to set it up once, and then you import to other sections. And then you can also import from courses that you have taught in the past. So, there is an archival that is quite useful and colleagues encouraged me] Very much". Although the faculty implem ents few basic tools of the system, but still he find them very useful. The faculty's internalization of the usefulness of Moodle influen ced his adoption and recommending Moodle to other faculty members.
es the information he gets from the professional groups to his Moodle account for students to use. The faculty is convinced that using the Arabic inte

that I would like to find out more about, or if I’m experiencing some problems... you can access whatever the students submit... So it’s like yeah- I would definitely recommend it".. The faculty identifies with her previous exposure to technology which influenced her adoption of Moodle.. The inclusion of the Arabic language will not
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influence adoption among students.
So, the way he sees it is, the inclusion of Arabic will not influence adoption of the system.

The faculty believes that students that
den's adoption of Moodle relies on their instructor's adoption. If the faculty is adopting Moodle, then the students will use it, at least for the req
required parts of class such as submitting assignments, taking the tests online, and checking on course updates.
Appendix G: Qualitative Data Analysis Process and Emerging Codes
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| U+E     | A      |      | 2        |          |          |
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