Investigating Saudi Teachers' Opinions Regarding "The Future Gate (FG)," the New Learning Management System as Applied to E-learning

By
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Investigating Saudi Teachers' Opinions Regarding "The Future Gate (FG)," the New Learning Management System as Applied to E-learning

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ABSTRACT

E-learning is one technology domain that has changed the culture of education, the role of teachers, students and the curriculum (Becker & Ravitz, 1999; Dede, 1996; Harasim, 2018; Kozma & Voogt 2003). It has transformed how teachers teach, how students learn and how knowledge is delivered and practiced (Boulton, 2008). In addition, Manmart (2001) and Dede (1996) reported that the internet has impacted almost all aspects of education, enabling students to acquire knowledge in many different forms. However, It must be noted that the tremendous learning information, data, materials and communications that have been facilitated as a result of applying e-learning are complicated to be tracked and managed (Kulshrestha & Kant, 2013). Therefore, there is a need to utilize a technology such as Learning Management System (LMS) that can help in managing and tracking learning materials and process (Piña, 2012). In response to the global demand for e-learning and its significant benefits which have been reported and confirmed by many scholars around the world such as (Dobre, 2015; Walker, Lindner, Murphrey, & Dooley, 2016; Han & Shin, 2016; Almarashdeh, 2016; Alshehri, Rutter, & Smith, 2019), the Ministry of Education in the Kingdom of Saudi Arabia has invested in several projects and initiatives and most current initiative, the Future Gate (FG) which began in a few Saudi Arabian cities in 2017, will expand to all Saudi schools by 2020. The The main goal of this study is to investigate the key factors that impact K-12 teachers' attitudes regarding using LMS platforms with their students. As previously mentioned, teachers in the Kingdom of Saudi Arabia will be exposed to new LMS, which have been designed for and distributed to all K-12 schools by the Ministry of Education. Four main factors (teachers' perception of its usefulness, teachers' self-efficacy, ease of use and amount of training) will be examined to explore whether or not these aspects have an impact on teachers' opinions. The study found that K12 Saudi teachers'

hold moderate to high positive attitude attitudes toward the Future Gate (M = 2.81, SD = .89). Also, the study reported that perceived usefulness, ease of use, self-efficacy were good predictors of K12 Saudi teachers' attitudes toward the Future Gate.

DEDICATION

I dedicate this dissertation to:

My beloved Mother and Father:
Thank you for your prayers, endless inspiration, encouragement, and continuous support that enabled me to complete this study.
May Allah bless you with faith.

My beloved Wife Sabah.
Thank you for your encouragement, patience, sacrifices, and understanding. Sharing with me the risks during the long journey made this endeavor possible.

My beautiful and amazing Children, Lana and Diala.
Being with and around me during this journey pushed me to do my best.

My Brother and Sisters
Thank you for your endless encouragement and support

May Allah save you and support you with faith and success

ACKNOWLEDGMENTS

In the Name of Allah, the Beneficent, the Merciful

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CHAPTER I

INTRODUCTION

Introduction

The evolution of technology affects every aspect of our lives, and the field of education is no exception. E-learning is one technology domain that has changed the culture of education, the role of teachers, students and the curriculum (Becker & Ravitz, 1999; Dede, 1996; Harasim, 2018; Kozma & Voogt 2003). It has transformed how teachers teach, how students learn and how knowledge is delivered and practiced (Boulton, 2008). In addition, Manmart (2001) and Dede (1996) reported that the internet has impacted almost all aspects of education, enabling students to acquire knowledge in many different forms.

E-learning has been defined in many ways (Moore,Dickson-Deane, & Galyen, 2011). In other words, it is a very broad term that may include a variety of technologies, which can provide learning opportunities without the need for an internet connection. Many lessons can be delivered via CD-ROMs, desktop software, audio/videos, and TV shows that are all components of e-learning. Ellis (2004) believes that many types of technology are merely tools that could be used to expose learners to new knowledge or information; however, it is difficult to determine whether or not these digital materials actually provide an authentic learning experience. He believes that tools such as web-based learning and LMS that are accessible via the internet have many features such as interactivity that have the potential to enhance the learning process; however, it is what the learners can do with these tools that can truly be called the learning experience. The internet gives teachers and researchers access to more sophisticated and complex dimensions of learning (Becker & Ravitz, 1999).

It is obvious that the internet has changed the way educators and researchers perceive e-learning in that most of the literature focuses on circumstances that requires an internet connection because of the variety of tools and features that help students have valuable experiences where they can access knowledge and have more control over the learning process (Manochehr, 2006).

Over the last fifty years, e-learning has been defined differently in education, business training and military sectors (Nicholson, 2007). Therefore, in K-12 schools, the focus is on using online and software-based learning, while in the other sectors, it refers only to online learning. Thus, the detention of e-learning is impacted by the context of utilizing it (Campbell, 2004). Relan & Gillani (1997) argue that e-learning is the application of educational strategies that utilize constructive and collaborative learning via the internet. This definition encompasses the entire process that includes instructional strategies as well as the delivery method. It also links it with the one-way delivery system of the internet. Nichols (2003) supports the view that the internet is "the soul of e-learning."

Other studies take into consideration all information and communication technologies (ICTs). Rossiter (2002) reports that e-learning includes any ICT tools that can help increase learners' knowledge and skills. E-learning occurs when students interact with the tools, activities, content and people associated with this technology.

Ellis & Allen (2004) also agree that it covers any electronic tool such as the internet, intranet, interactive TV and CD-ROM etc. Arshavskiy (2013) also defines this technology in this way. Thus, e-learning can be defined as any educational effort to enhance teaching and learning strategies using ICTs whether they occur online or offline. I personally prefer this broad

definition because it is still being using by researchers to refer to learning that occurs offline or does not require an internet connection.

In order to clarify the definition of e-learning and due to its many applications, several strategies have been established. Online learning, blended learning, flipped classroom, distance learning, synchronous and asynchronous methods are much more well defined (Moore, Dickson-Deane, & Galyen, 2011), (Arkorful & Abaidoo, 2015). (Algahtani, 2011) reported that these forms of e-learning have been classified based on their contributions in education or the timing of interaction.

E-learning Forms

Various forms of e-learning have been introduced that take into consideration the content required by both students and teachers. It explains how it is delivered or how communication among the learning components occurs.

- *Synchronous learning* is a method of teaching where learners and instructors are engaged in real-time communication. Students have the opportunity to study wherever they are as long as they have an internet connection.
- *Asynchronous learning* is a form of e-learning in which students and instructors are not required to communicate in real-time. To combat some of the difficulties presented by real-time communication, asynchronous learning allows students to access study materials wherever and whenever they want, providing more flexibility in terms of time and location (Arshavskiy, 2013).
- *Online learning, blended, distance and virtual learning* have often been used interchangeably in the literature. Blended and distance learning usually refer to online

education via the internet during which students and instructors communicate separately (Keegan, 1996), and the learning contents are delivered via the internet (Winograd, and Kalmon,2004).

- *Flipped classroom* is an inverted approach that involves a learning strategy in which instructors present the lecture or lesson online and save class time for activities and engagement (Milman, 2012).
- *Computer-based learning* fosters individual study by presenting content in different forms such as text, images, graphs, audio, videos, links, and games that take into consideration the differences and abilities of learners (Winters, Greene and Costich, 2008).

These are the most common concepts associated with the diverse forms of e-learning. There are other terms and concepts that I did not mention because I believe that these are the most useful and comprehensive, meaning that they could include other terms. For example, computer-based and online learning could also include web-based learning.

Learning Management Systems (LMS)

With the evolution of the internet, knowledge is no longer restricted by space or time. According to ŠUmak, HeričKo and PušNik (2011), e-learning provides opportunities for everyone no matter where they are. Thus, modern teaching and learning do not only occur in classrooms. This phenomenon allows for more communication between teachers and students and opens more resources for all (Altameem, 2013). However, It must be noted that the tremendous learning information, data, materials and communications that have been facilitated as a result of applying e-learning are complicated to be tracked and managed (Kulshrestha &

Kant, 2013). Therefore, there is a need to utilize a technology such as Learning Management System (LMS) that can help in managing and tracking learning materials and process (Piña, 2012).

Learning Management Systems (LMS) are online tools that can help to manage and organize e-learning. McGill and Klobas (2009), who define them as "information systems that facilitate learning," report that they are also known as virtual learning systems (Piña, 2012). Teachers and students are able to utilize them to achieve and complete various types of instructional tasks, such as exchanging massive amounts of digital resources that they create or that are already available on the internet. In addition, assignments, quizzes, exams, presentations and others aspects are supported by most LMS and are easy to access from smartphones or tablets.

E-learning in Saudi Arabia

The internet came to the Kingdom of Saudi Arabia (KSA) in 1994; however, it was not available for public use until 1999 (CITC, 2017). According to the Communication and Information Technology Commission (CITC) (2017), more than twenty-six million people or 82% of population now use the internet in KSA. Although the vast majority of Saudi citizens already have access to the internet, both K-12 and college administrators and teachers still struggle to integrate technology and e-learning into the curriculum. The report (2014) shows that only 40% of the 329 K-12 schools and colleges and universities use it. Only 25% of these schools allow the students to have access, and only 39% use the internet for learning and training purposes. In general, only about 13% of the 337 schools utilize e- learning.

There have been few studies on the integration of technology in K-12 schools in KSA and even fewer on e-learning practices. Alwani and Soomro (2010) report that science teachers in Saudi Arabia encounter multiple factors that prevent them from integrating IT into their classrooms, including a lack of training and teachers' negative attitudes toward this technology. Although Alfuraydi (2013) reports that ESL teachers are more than willing to embrace e-learning, he mentions that they also struggle with many factors that prevent them from implementing this technology, such as lack of time and school policies preventing its use. In addition, Alahmari and Kyei-Blankson (2016) echo Alfuraydi's (2013) findings in terms of the positive attitude of Saudi teachers toward e-learning. They mentioned that teachers were satisfied about their adoption and implementation of e learning system in their schools.

The New Project for Enhancing E-learning in Saudi Arabia

In response to the global demand for e-learning and its significant benefits which have been reported and confirmed by many scholars around the world such as (Dobre, 2015; Walker, Lindner, Murphrey, & Dooley, 2016; Han & Shin, 2016; Almarashdeh, 2016; Alshehri, Rutter, & Smith, 2019), the Ministry of Education in the Kingdom of Saudi Arabia has invested in several projects and initiatives to improve access to technology and e-learning in Saudi schools and universities (Oyaid, 2009; Aldiab, Chowdhury, Kootsookos& Alam, 2017). The largest and most current initiative, the Future Gate (FG) project, costs approximately four hundred and twenty-six million dollars. This initiative, which began in a few Saudi Arabian cities in 2017, will expand to all Saudi schools by 2020.

According to its website (2019), Future Gate is a web-based learning platform that functions as a Learning Management System (LMS) to promote interaction between teachers,

students and parents. This platform also provides students with rich and interactive content to enhance learning. Specifically, through this system, teachers can post lessons plans, assignments and tests. Moreover, the administration will be able to track teacher and student progress.

The Need for the Study

Obviously, many countries have already realized the positive impact of technology on education, so they have made significant investments to integrate and keep pace with advances in these technologies. The internet and its tools and applications such as LMS are widely utilized and contribute to coordinating e-learning and facilitating communication between students, teachers and parents. Nagel (2008) in his study on teachers' attitudes toward using the internet has found that approximately 88% of Northern Virginia's teachers believe that utilizing the internet has had a significant impact on how they teach and how students learn.

LMS facilitate a blended learning which provides significant opportunities for both teachers and students. This system allows teachers to assign a variety of online activities and learning options (Ramsden, 2003). However, in spite of many decades of evidence supporting the use of the internet, some teachers are still resistant to adopting this technology in the classroom including applications such as e-learning and LMS. Allen, Seaman, Lederman and Jaschik (2012) report that from over 4,500 teachers who were initially interested in utilizing technology in their classrooms, approximately 65% showed resistance to using it later. In addition, Swaramarinda (2018) reported that one of the most reasons that lead to teachers' failure to utilize technology is teachers' resistance and attitudes toward technology. Therefore, I believe the attitudes of K-12 teachers toward integrating technology must be investigated carefully to uncover the factors that impact their reluctance or acceptance. It is a waste of time

and effort to invest large sums of money in a specific technology when teachers may avoid utilizing it.

The Purpose of the Study

The main goal of this study is to investigate the key factors that impact K-12 teachers' attitudes regarding using LMS platforms with their students. As previously mentioned, teachers in the Kingdom of Saudi Arabia will be exposed to new LMS, which have been designed for and distributed to all K-12 schools by the Ministry of Education. Four main factors (teachers' perception of its usefulness, teachers' self-efficacy, ease of use and amount of training) will be examined to explore whether or not these aspects have an impact on teachers' opinions.

In addition, I will investigate any correlation between teachers' self-efficacy and their computer skills. Moreover, an investigation will be conducted to determine if there is any correlation between teachers' technology training and their perception of the usefulness and ease of use regarding computers. Finally, I will examine the correlation between teachers' years of experience with technology and their perceptions of its usefulness.

Research Questions

I intend to answer the following questions in this study:

1. What are the K-12 Saudi teachers' attitudes regard utilizing the Future Gate for e-learning?
2. Is there any correlation between these teachers' number of workshops in technology integration and their self-efficacy?

3. Is there any relationship between K-12 Saudi teachers' perception of their computer's skills and their self-efficacy?
4. Is there any relationship between K-12 Saudi teachers' perception of their computer's skills and their perception of the Future Gate ease of use?
5. Is there any correlation between K-12 Saudi teachers' years of experience with technology integration and perceived usefulness of the Future Gate?
6. Is there any correlation between K-12 Saudi teachers' Number of training workshops in utilizing the Future Gate and perceived usefulness?
7. To what extent can perceived usefulness, perceived ease of use, self-efficacy and subjective norm predict K-12 Saudi teachers' attitudes (ATT) toward the Future Gate?

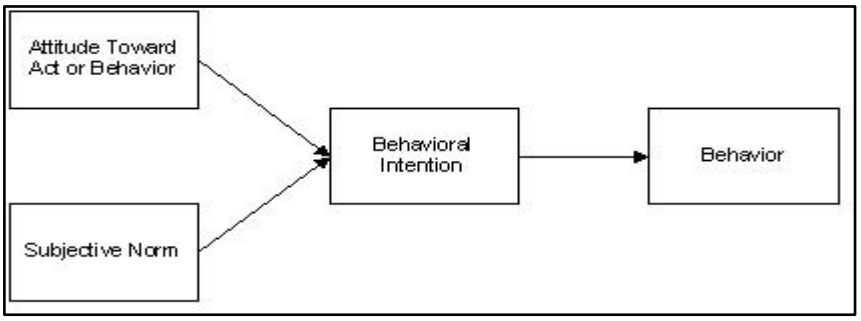
Theoretical Background and Framework

To describe this study's elements and reveal its logical structure and ideological background, the Technology Acceptance Model (TAM) and the Theory of Reasoned Action (TRA) will be used to clarify the relationships between the study's variables.

Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA), a model developed by Fishbein and Ajzen (1975), proposes that human behavior is driven by intention and attitude toward the behavior and that subjective norms are the main factors that affect human behavioral intention (See Figure 1).

Figure 1. Theory of Reasoned Action

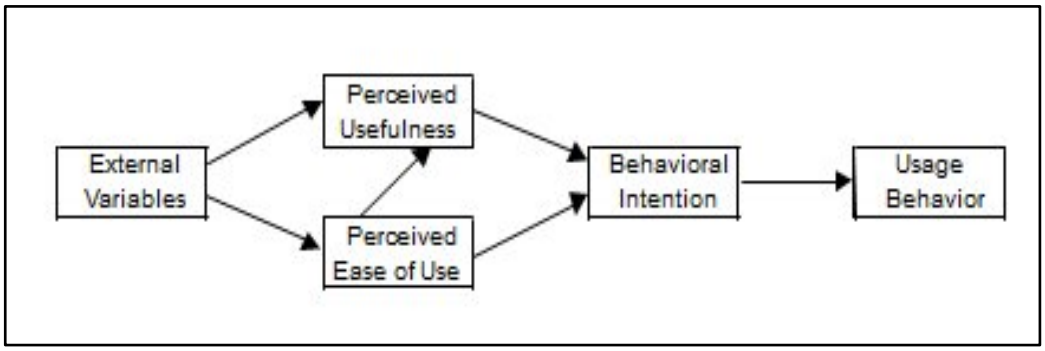


***Source**: Davis et al. (1989)*

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), created by Davis in 1989, is considered an extension of the TRA model. The TAM model states that acceptance of any technology depends on two main factors: its perceived usefulness and perceived ease of use (See Figure 2).

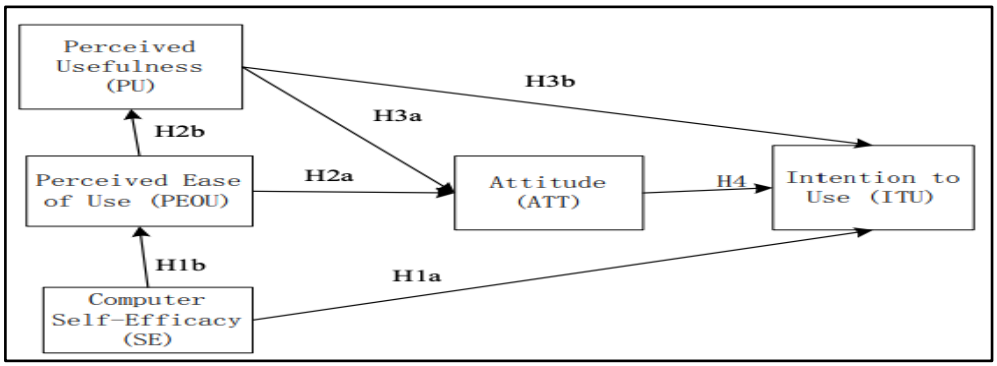
Figure 2. Technology Acceptance Model



***Source**: Davis (1989).*

Gong, Xu & Yu (2004) extended the TAM model by arguing that another factor that affects intention to use technology is the users' self-efficacy (See Figure 3).

Figure 3. Gong, Xu & Yu (2004) TAM Extension Model

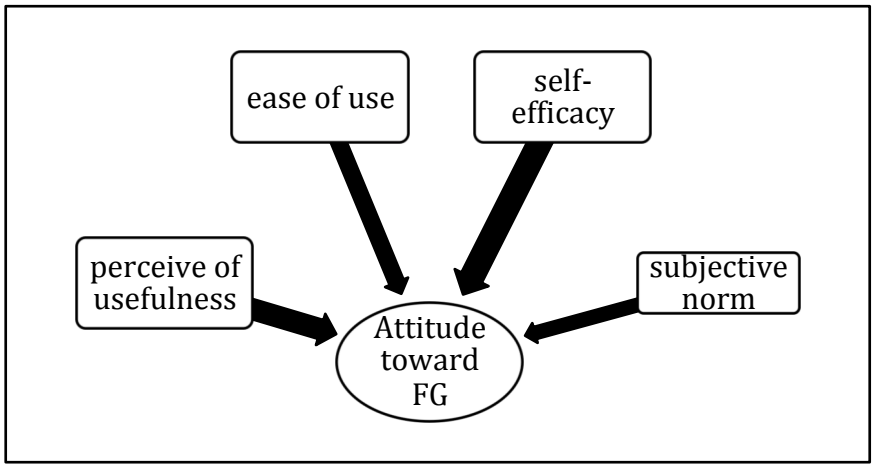


Source *Gong, Xu & Yu (2004).*

Research Framework

This study will be based on the Technology Acceptance Model (TAM) by (Davis, 1989), Theory of Reasoned Action (TRA) by (Fishbein and Ajzen, 1975) and the TAM model extension by Gong, Xu & Yu, 2004). It will also be founded on the theory that teachers' attitudes toward e-learning can be predicted by four main factors: its perceived usefulness, perceived ease of use, subjective norms and self-efficacy (See Figure 4).

Figure 4. The Study Model



Significance of the Study

The Kingdom of Saudi Arabia is making every effort to keep up with global changes in technology and its various applications (Oyaid, 2009; Aldiab, Chowdhury, Kootsookos& Alam, 2017). The rapid changes in Saudi people's lives due to technology is largely the result of the educational system's push to provide students with skills that allow them to become leaders by reaping the benefits of this change (CITC, 2017). Teachers should have the technological skills and capability to effectively integrate technology into their lesson plans and be able to communicate with students who are well versed in the language of technology.

The Ministry of Education in The Kingdom of Saudi Arabia has announced a massive project called The Digital Transformation to improve education by enhancing the use of technology in schools. One goal is to stop using printed textboxes, which were provided free of cost for each student by the Ministry of Education and have been the main resource of knowledge for both teachers and students in the classroom (MOE, 2017). Instead, it has launched a new LMS platform, The Future Gate, which allows access to electronic reading material. This means that there will be more digital communication between teachers and students for various instructional purposes such as exams, homework, grading, lessons, discussion, etc.

Coping with online LMS platforms is such a new experience for most Saudi teachers who were only responsible for minimal technology such as using PowerPoint and showing videos that didn't require an internet connection due to limited access in Saudi schools. Thus, it is essential to be aware of the teachers' perspectives on this new system and the critical factors that would affect acceptance of The Future Gate. The use of this technology has not been studied deeply and there are very limited published researches on this vital subject.

Any educational technology that aims to improve the learning experience in schools should be supported by teachers who are the leaders of the education field. Thus, the success of any technology depends on the extent to which teachers believe in its functionality and benefits. Unfortunately, their attitudes and beliefs are considered to be one of the main major obstacles that prevents them from integrating technology in schools (Hermans, Tondeur, Valcke, & Van Braak, 2006).

Therefore, it is my hope that this research will provide meaningful insights into teachers' opinions about The Future Gate which may lead to more improvements for that platform and increase its educational potential. Moreover, most e-learning literature has been conducted within the higher education context, whereas K-12 has received far less attention from Saudi researchers. As a result, this study targets this overlooked group to expand research in the Kingdom of Saudi Arabia.

Most importantly, that the finding of this study could be very inspiring for other countries or contexts that are similar to Saudi Arabia public education systems such as Arab Gulf countries, Yemen, Iraq, Jordan, Syria and North Africa countries. These countries have almost the same educational systems and also Almost same language and cultures. Saudi K12 teachers work under a highly centralized educational system where teachers only directed and restricted by the ministry of education of Saudi Arabia's instructions Alrashidi & Phan (2015). According to Alturki (2016), Saudi k12 teachers are restricted by curricula and teaching methods that are prescribed by the ministry of education. Moreover, students in k12 schools claim that Saudi teachers still depend on the traditional teaching method such as lecturing, and they focus more on the content quantity but not quality (Al-Abdulkareem & Hentschke, 2014). Teachers mentioned

that this issue related to the large numbers of students in each class and the long textbooks that they are required to finish in a short class period.

In addition to the education system and environment issues, integration technology still in unsatisfied stage (Alturki, 2016). There are several challenges that prevent Saudi teachers from integrating technologies such as lack of time, resources and competence. Thus, such a context needs to be investigated carefully, and understand the factors that impact the teacher's acceptance of new technologies, and the finding would also enhance the validation of the models of this study in such a context.

CHAPTER II

LITERATURE REVIEW

The purpose of this chapter is to carefully analyze the previous studies that focus on how e-learning is used and teachers' attitudes toward working with this technology. In addition, factors that impact instructors' attitudes and the theoretical framework of the research will also be discussed.

Teachers' Attitudes about E-learning

According to Liaw, Huang and Chen's study (2007), teachers show a high level of enthusiasm for implementing e-learning. All fifty of the instructors who responded to the survey agree that incorporating e-learning has improved their teaching. This study points to three main factors that affect teachers' attitudes regarding utilizing e-learning: self-efficacy, perceived usefulness and enjoinment.

However, Supporting Liaw, Huang and Chen (2007) finding, Panda and Mishra (2007) reported that they found that the teachers in their study presented moderateed positive willingness to adopt e-learning. also, teachers in the study claimed that the lack of technical support, training and internet access are the most critical barriers of adopting e-learning.

Okopi Odeyemi And Adesina's (2015) survey of teachers in Nigeria indicates high satisfaction rates with the implementation of e-learning in their schools. When the researchers examined the teachers' perceived effectiveness at utilizing computer-based instructional delivery, they found it to be a highly effective tool for teaching and assessing students. It is also very helpful for tracking and supporting students' academic performance.

In a study of Malaysian teachers, Cheok,Wong, Ayub, and Mahmud (2017) explore general attitudes toward FROG VLE. When the teachers were asked to show how it has benefited them, they point out that this online learning space is a vast improvement upon traditional teaching methods because it helps them to organize their course materials and saves them time when they are updating or searching for specific materials. FROG VLE also saves them money because they no longer have to print out the course materials.

However, in a study conducted by Bagci (2018), 236 Turkish teacher candidates reveal only a medium-level of satisfaction with regard to e-learning. Participants' satisfaction was rated based on media design, course content, materials, ease of communication, teaching methods, and attitude regarding e-learning.

Mahdizadeh, Biemans and Mulder (2008) also conducted a survey to which 178 teachers responded. Although approximately 59% of the participants disagree with the statement that e-learning adds no educational value to their courses, 52.9% report a preference for face-to-face teaching rather than for online courses. Lack of time, technical infrastructure and difficulty with the e-learning environment are the reasons given for some teachers' negative attitudes.

Surprisingly, according to Alodial (2016), most instructors at Albaha University in the Kingdom of Saudi Arabia do not believe that e-learning is an effective way to obtain knowledge and information. They also believe that it has significantly more disadvantages than advantages, and they prefer the traditional teaching methods. They also feel that e-learning makes teaching more difficult and complicated.

Factors Affecting Attitudes Toward E-learning

The literature reports a variety of factors that affect both teachers' and students' attitudes regarding e-learning. It must be noted that researchers approach this subject from many different perspectives. Some scholars take into consideration the factors related to the teachers' efficacy, and others highlight environmental, social and institutional elements.

Computer Self- efficacy

Teachers' confidence and skill level with regard to computers are important predictors often mentioned in the literature of acceptance of e-learning. Their computer self-efficacy is defined as the ability to assess their capacity to apply their computer skills to accomplish educational tasks (Compeau et al., 1995). Thus, having computer skills is essential for establishing e-learning in the classroom.

To show the impact of computer self-efficacy on teachers' attitudes about utilizing computer-supported education, Yeşilyurt, Ulaş and Akan (2016) conducted a study focusing on 323 prospective teachers in Turkey. The findings of this study show that computer self-efficacy associated with teachers' self-efficacy and academic self-efficacy were significantly explain the teachers' attitudes toward applying computer-supported education.

Celik and Yesilyurt's (2013) results support Yeşilyurt et al's (2016) findings that the opinions of pre-service teachers regarding computer-supported education are significantly affected by their attitudes about this technology, which also significantly affects and explains their perceptions of computer self-efficacy.

Moreover, according to Son, Robb, and Charismiadji's (2011) study of Indonesian teachers, those who master basic computer skills are more likely to have a positive attitude about

incorporating them into the classroom. However, this positive does not necessarily translate into efficacy. Although the study focuses on teachers with high levels of computer skills, their skills were basic, so they may not be able to benefit from the variety of educational tools that require high competency.

Teachers' Experience with Technology

There is no strong evidence of a consensus in the literature of a link between various aspects of teachers' technological experience, including exposure to and regular use of computers and other technology, and their attitudes about e-learning. Some scholars report a significant correlation between these factors; however, some have found opposite results.

Rhoden's (2014) study of 170 instructors in Jamaican tertiary schools supports a significant positive relationship between teachers' intentions to use e-learning systems and their experience. Other contributing factors include instructors' social influence, expectation of performance and expectancy of effort.

Similar to Rhoden's (2014) findings, Zalah (2018) argues for a positive correlation between teachers' attitudes regarding e-learning and their comfort level with technology. In the study teachers were very excited about incorporating e-leaning. In addition, most reported heavy use of computers in their teaching or lesson preparation, and very few of them said they never use a computer.

Kisanga's (2016) investigation of teachers in Tanzanian colleges reveals a high willingness to utilize e-learning in the classroom. After comparing teachers with exposure to computers to those with none, he found that 95% of those in the first group had access to computers at school and approximately 83% of the second group had access at home.

In a study of 74 in-service teachers Uzunboylu (2007) separated the participants into two groups based on their regularity of using e-mail. He found a significant difference between the two groups regarding their attitude toward online learning. Later, he grouped them according to how often they browsed the web. The study reveals a significant difference between the two groups regarding their attitudes toward online learning. Thus, teachers who use e-mail and the web regularly were shown to have a more positive attitude about online learning than those who don't.

Conversely, Alharbi and Drew (2014) argue that there is no link between prior usage of Learning Management Systems (LMS) and teachers' willingness to integrate them into lesson plans. Their study shows a strong correlation between the non-LMS users' group and their intention to use this technology. However, the correlation between the users' group surprisingly was not significant. Thus, faculty members with no LMS experience show more influence on intention to use LMS more than those who had previous experience with these systems.

Moreover Sadik (2007) claims that there is no relationship between a faculty member's e-learning experience and his or her attitude toward e-learning. Based on the descriptive data of the faculty members, only 7.3% have sufficient e-learning experience, and 5.8% say that they have utilized e-learning in their teaching. However, 94% of the faculty claim to have a positive attitude toward e-learning although they have very little experience with it.

Self-Efficacy

If teachers lack confidence in their capability to utilize technologies, these tools will be ignored and go unused Keramati, Afshari-Mofrad and Kamrani (2011). According to the literature, there is strong evidence supporting the link between teachers' confidence about

utilizing technology and their actual acceptance of it. In addition, teachers with high self-efficacy about technology are more likely to use it and have positive attitudes toward it.

Chen and Tseng's (2012) examination of teachers' willingness to utilize web-based learning technology to support in service education focuses on 450 junior high school teachers in Taiwan, and had 402 valid responses. Using Structural Equation Model (SEM), the researchers report a significant positive association between teachers' motivation and internet self-efficacy and their acceptance of web-based learning technology.

In addition, Kao, Wu and Tsai (2011) collected data from 484 elementary school teachers in Taiwan to analyze their beliefs and motivations for engaging in web-based professional development. Similar to many other findings, teachers with high self-efficacy regarding the internet and strong beliefs in web-based professional development were found to be more likely to have a high motivation to engage with this vital technology.

Kao and Tsai (2009) come to the same results as Kao, Wu and Tsai (2011) when they analyze teachers' attitudes regarding web-based professional development. After surveying 421 teachers from 20 elementary schools in Taiwan, they found that teachers who have high levels of confidence about web-based learning and high self-efficacy about the internet are more likely to engage in web-based professional development.

Highlighting the perspective of students, Park (2009), in a study focusing on 13,906 on-line learners from Konkuk University's Seoul, reports no significant association between their opinions about e-learning and their technological self-efficacy. According to this study, e-learning self-efficacy is a significantly good predictor of students' intention to use it. However, it is a poor predictor of students' attitude toward e-learning itself.

Training

Cheok and Wong (2014) argue that adequate training for teachers is essential so they will be able to be comfortable using new technology. Kafyulilo (2014) also recommends that in-service teachers should be exposed to professional development programs, so they can be trained to use smart phones for teaching and learning. Teachers' training refers to any professional development courses to which they have exposed whether pre-service or in-service. The literature provides many studies on the influence of training courses that focus on how to integrate technology and how they may increase teachers' confidence and give them ideas about how to best integrate LMS into their lesson plans.

Spencer's (2014) examination of the Technology with Educators Program (STEP) and the 269 K-12 teacher participants shows that approximately 95% were able to increase their use of technology, and most of them reported that they became more confident regarding following approaches for integrating technology in their classrooms. Moreover, some of them reported that these improvements will increase their student engagement as well.

In addition, a qualitative study conducted by Lai (2010) supports the idea that training teachers on how to best utilize technology helps them to foster a more positive view of it. Lai (2010) interviewed eight secondary school teachers from Taiwan who were attending Interactive Whiteboard (IWB) workshops designed to provide teachers with the knowledge and skills they need to adopt this technology in their classrooms. According to the participants, attending the workshops helped them to become aware of the benefits of integrating the Whiteboard into their classrooms.

Ouma and Awuor, Kyambo's (2013) descriptive study to examine teacher readiness to utilize e-learning in eight schools in Kenya shows that most teachers involved in this study

realize the value of it and are willing to learn more about it. Approximately 76% of the teachers had prior computer training and only 23% had never attended any such classes. Thus, these scholars reveal a possible connection between teacher training and a greater appreciation for integrating e-learning into their classrooms.

Martin's (2016) study of sixty-six administrators from southwestern Virginia shows a moderate significant positive correlation between the administrators' amount of training and a rise in confidence regarding technology. Approximately 16% of the attitude toward technology could be explained by the amount of training. Also, this study found that administrators with more training hours show more positive attitudes toward technology.

Subjective Norms

The literature shows an adequate number of studies that highlight the importance of teachers' subjective norms in terms of integrating technology, and how these norms could impact their perceptions on how to better utilize it. Subjective norms can be defined as the effects that the people who are around the teacher have on his or her professional decisions. According to Ajzen (1991), subjective norms are ''the perceived social pressure to perform or not to perform a particular behavior," and Fishbein and Ajzen (1975) argue that subjective norms are related to how the perception of important people may impact an individual's decision making process.

Altawallbeh, Thiam and Alshourah's (2015) study of 245 Jordanian university instructors who provided valid responses among the 360 surveys distributed shows that subjective norms mediate the relationship between instructors' normative beliefs and their intention to adopt e-learning with their students. The instructors' intention is directly impacted by their subjective norms which function as a mediation that is enhanced by the instructors' normative beliefs.

In addition, Bourgonjon, De Smet, Van Looy, Soetaert, and Valcke (2013) examine factors that affect secondary school teachers' acceptance of using commercial video games with their students for academic purposes. The data collected from 505 Bulgarian teachers indicate that various subjective norms play a strong role after learning opportunity variables are considered in terms of impacting perceived usefulness, which directly affects teachers' behavioral intentions to use commercial video games. In other words, subjective norms significantly affect teachers' views of what experts believe may be learning opportunities presented by commercial video games as well as their own beliefs regarding their perceived usefulness in this area.

Also, Heesen (2004) conducted a study on higher education instructors from Germany with the goal of exploring instructors' intentions to adopt e-learning in their teaching. Results reveal that subjective norms positively correlate with the instructors' intention to adopt e-learning and that they play a significant role in impacting instructors' decisions regarding this important topic.

However, according to Van Acker, Van Buuren, Kreijns and Vermeulen's (2013) study of 1,484 teachers in the Netherlands, subjective norms have a very limited impact on teachers' intention to use digitals materials in the classroom. They found the strongest factors related to this decision to be teachers' attitudes and self-efficacy, while subjective norms only show a weak impact on teachers' intention to use digitals materials.

Perceived Usefulness

Perceived usefulness has been widely discussed by technology researchers, and a huge number of scholars tout it as having a major impact on educators' decisions to use new

technology for a broad range of academic subjects. Basically, this concept has been used as a variable for measuring users' beliefs regarding the usefulness of technology. According to Davis, (1989) it is the degree to which teachers believe that using a specific technology will support their teaching performance.

According to Teo's 2011 study on 592 school teachers from 60 different schools, perceived usefulness is one of the strongest predictors of all the factors that influence intention to use technology. among other factors such as facilitating conditions, attitude and subjective norms. Also, perceived usefulness and perceived ease of use explain 54.8% of the variance of teachers' willingness to use technology.

Elkaseh, Wong and Fung (2016) examine vital factors that impact Libyan higher education instructors' attitudes and intention to utilize social media tools in the classroom. Based on responses from teachers from four universities who responded to the study survey, perceived usefulness was found to be a significant factor that perfectly predicts the instructors' attitudes and intentions to use social media tools in the classroom.

Similarly, De Smet, Bourgonjon, De Wever, Schellensand and Valcke's (2012) investigation of secondary school teachers' acceptance of learning management systems that incorporates collected data from 505 secondary school teachers in urban areas of Belgium confirms findings from most of the previous studies that made use of the TAM model as a theoretical frame work. Namely, perceived usefulness has a positive and significant impact on teachers' use of these systems.

Perceived Ease of Use

Similar to perceived usefulness, perceived ease of use also has been found to have a great impact on users' decisions to incorporate or accept new technology. For example, the TAM model by Davis (1989) was established based on two main factors: perceived usefulness and perceived ease of use. Users' intention to accept new technology is impacted directly by these two factors. The latter usually refers to the extent to which users feel that they can easily operate and interact with new technology. Davis (1989) argues that it measures the degree to which users believe that dealing with new technology requires no or very little effort.

A study featuring 475 pre-service teachers in Singapore conducted by Teo (2009) examines several factors that may impact teachers' intentions and attitudes about utilizing technology in the classroom. The goal was to have a perfect model for predicting acceptance of new technology. In this study, perceived ease of use for both teachers and students have a positive and significant impact on intent to use new technology. According to Teo, perceived ease of use could explain 24.4% of the variance of teachers' intention to use new technology and 45% of the variance of teachers' attitudes toward using technology in general.

Alharbi and Drew's (2014) investigation of Shaqra University instructors' attitudes and intentions about adopting the university learning management system, known as JUSOR, indicates that perceived ease of use has a positive and significant effect on both perceived usefulness and instructors' attitudes toward incorporating this system. These results align with many studies that use the TAM model to examine the relationships between teachers' attitudes toward technology, their intention to use it, and perceived usefulness and perceived ease of use variables.

Fathema, Shannon and Ross (2015) expand the TAM model to investigate factors that affect university instructors' attitudes toward utilizing learning management systems and their intention to use these systems to increase their academic performance. The results of this study also suggest that the TAM model is ideal for predicting users' attitudes about and intentions to use technology. This study also confirms Alharbi and Drew's (2014) results that perceived ease of use positively and significantly impacts university instructors' attitudes and intentions to use learning management systems to enhance their academic efforts.

Learning Management System and E-learning

Learning management system (LMS) is a platform that can help to organize educational content, determine individual and organizational goals, and track and provide reports on student progress and the performance of an organization (Szabo & Flesher, 2002). The World Wide Web (WWW) provides learners with a wide range of resources to help them enhance their knowledge and experience. In addition, it improves communication between learners and instructors because it allows them to exchange messages and resources both synchronously and asynchronously. These massive numbers of exchanges must be recorded and organized, so learners, teachers and even administrators can easily access them whenever needed. Moreover, this results in a huge amount of data such as grades, exams and course syllabi that must be saved and be made available for easy access by students and instructors.

Thus, learning management systems (LMS) have become a necessity, and with the development and increase of e-learning applications, K-12 and institutions of higher education have come to rely on LMS to organize and track the e-learning process. According to the 2011 Simba Report, approximately 88% of school districts in the US are implementing this system.

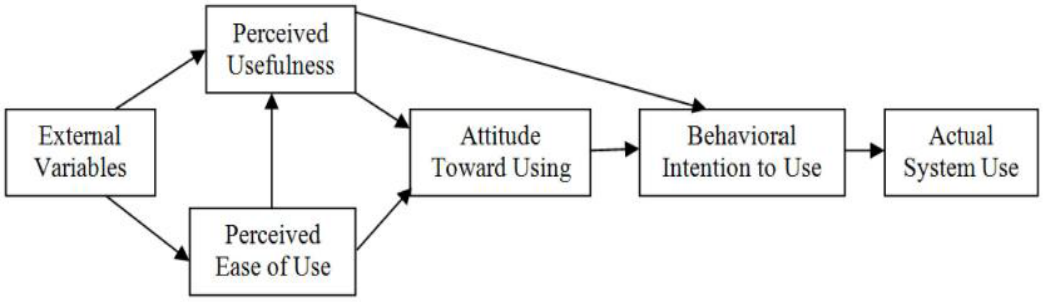
According to Green (2011), approximately 93% of the 500 colleges and universities in the US have adopted LMS. Moreover, the overcrowding of students, such as is occurring in the Kingdom of Saudi Arabia, increases the need for LMS to deal with lack of space in schools and teacher shortages (Asiri, 2012).

Technology Acceptance Model

The Technology Acceptance Model (TAM) has been used all over the world by researchers as a main theoretical framework in countless studies to explain factors that impact users' attitudes toward technology or intention to use it.

This model, which was created by Davis (1989), is considered to be an extension of the theory of reasoned action, which was developed by Fishbein and Ajzen (1975). According to the TAM, there are three main factors that impact users' intention to implement technology: users' attitudes toward it, perceived usefulness and perceived ease of use (see Figure 5).

Figure 5. Technology Acceptance Model (TAM)



***Source**: Davis (1989).*

Specifically, researchers interested in investigating K-12 teachers and college and university instructors' attitudes about using technology in general or specifically for educational purposes have used the TAM model extensively. It is the model cited most in relation to technology acceptance (Wu and May 2009), and it has been verified by a wide number of studies

(Taherdoost 2018). However, Taherdoost (2018) also discusses the its limitations, the most critical of which is social influence and that it only focuses on the users beliefs about technology rather than any real-world experiences.

According to Teo, Lee, Chai and Wong (2009), the TAM is an ideal model that is applicable to many diverse cultural contexts such as Western countries and some Arab and Asian countries. They conducted their study on teachers from Malaysia and Singapore and found all model paths to be significant.

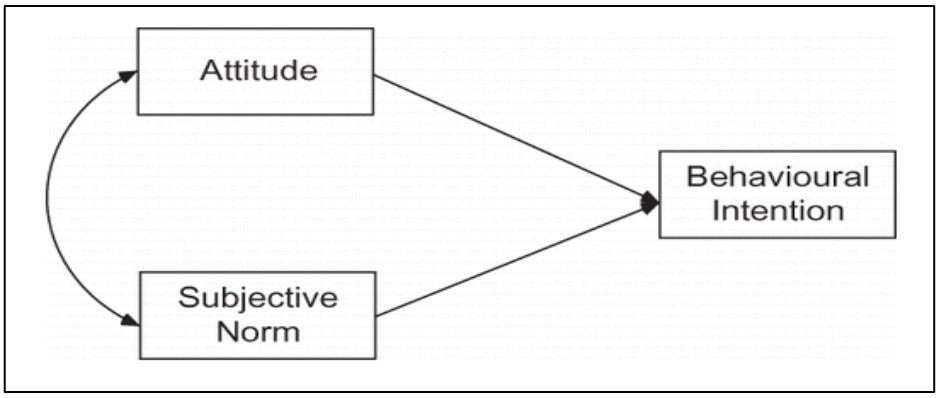
Furthermore, Wong (2013) has studied this model in terms of testing and validation. After collecting data, he (2013) found it to be the most effective for explaining the factors that impact pre-service teachers' and students' attitudes about and intention to use technology. Specifically, perceived usefulness and perceived ease of use could explain 35.8% of the variance in students' and pre-service teachers' attitudes toward technology use. However, surprisingly, he found perceived usefulness to be a weak predictor of attitudes toward technology.

Yuen and Ma's (2008) research uses the TAM model to predict teachers' attitudes about using a web-based platform and learning management system called the Interactive Learning Network (ILN). 150 teachers' responses were collected from the 280 that were distributed. The results confirm the significance of three direct and indirect factors: ease of use, subjective norms, and teachers' efficacy. However, perceived usefulness was not found to be significant. It must be noted that this result is not compatible with that of most researchers who view perceived usefulness as a strong predictor.

Theory of Reasoned Actions (TRA)

The Theory of Reasoned Actions (TRA), created by Fishbein and Ajzen (1975), has been widely used throughout the world to measure people's actual behavior. Fishbein and Ajzen argue that real-world behavior can be predicted and is affected by one's intention to follow through with that behavior. Intention can be predicted as well by one's attitudes about that behavior as well as subjective norms (see Figure 6).

Figure 6. Theory of Reasoned Action



***Source**: Teo & Van Schaik (2012).*

TRA also has been used widely to explain factors that affect instructors' adoption of new technology. In an attempt to understand factors that affect pre-service teachers' decisions about whether or not to adopt technology in the classroom, Teo and Van Schaik (2012) used TRA to analyze surveys from 429 pre-service instructors studying at a training institute in Singapore. Results show that both attitudes and subjective norms are significant and can explain 54.7% of the variance in teachers' intentions to utilize technology. Interestingly, attitude was found to have the strongest impact.

However, According to Teo, Zhou and Noyes (2016), subjective norms analyzed in the TRA model have negative impacts and are not significant enough to adequately explain teachers' adoption of a new technology. However, attitude in their study still strongly and positively

impacts this essential decision. The findings regarding subjective norms in this study are not compatible with those of most researchers who believe in the power and significance of subjective norms.

Chapter Summary:

In this chapter, the researcher has provided an overlooked on e-learning literature. The definitions and forms of e-learning have been discussed. Also, teachers attitude and satisfaction have been reviewed. Moreover, the researcher has reviewed the literature that discussed the direct and indirect factors that impact teachers' attitude toward e-learning. Also, the importance of LMS and its impact on enhanced e-learning has been reported in this chapter.

CHAPTER III

Methodology

The goal of this study is to investigate Saudi K-12 teachers' attitudes about using learning management systems to enhance e-learning in their classrooms. I will also determine the main factors that have an impact on these participants' opinions and study the correlations among these related variables. This chapter will provide an in-depth look at the surveying and sampling procedures and present a detailed description of the study population. In addition, I will discuss detailed descriptions of the study procedures and how they will be applied to collect and analyze the data. The survey validity, reliability and limitations will be examined as well. This statistical method along with the literature review will help readers to understand the study's focus and factors that affect teachers' attitudes in the context of Saudi Arabian K-12 schools, specifically at Jeddah City Schools.

The Research Questions

The purpose of this study is to answer the following questions:

1. What are the K-12 Saudi teachers' attitudes regard utilizing the Future Gate for e-learning?
2. Is there any correlation between these teachers' number of workshops in technology integration and their self-efficacy?
3. Is there any relationship between K-12 Saudi teachers' perception of their computer's skills and their self-efficacy?
4. Is there any relationship between K-12 Saudi teachers' perception of their computer's skills and their perception of the Future Gate ease of use?

5. Is there any correlation between K-12 Saudi teachers' years of experience with technology integration and perceived usefulness of the Future Gate?
6. Is there any correlation between K-12 Saudi teachers' Number of training workshops in utilizing the Future Gate and perceived usefulness?
7. To what extent can perceived of usefulness, perceived ease of use, self-efficacy and subjective norm predict K-12 Saudi teachers' attitudes (ATT) toward the Future Gate?

The Research Hypotheses

H1: Saudi K-12 teachers have a moderate to high positive attitude about applying FG to e-learning.

H2: There is a statistically significant correlation between the amount of technology integration training Saudi K-12 teachers receive and their self-efficacy.

H3: A statistically significant relationship exists between the level of Saudi K-12 teachers' computers skills and their self-efficacy.

H4: There is a statistically significant relationship between these teachers' computers skills and their perception of ease of use.

H5: A statistically significant relationship exists between Saudi K-12 teachers' years of experience with technology and their perception of ease of use.

H6: There is a statistically significant relationship between teachers' Number of workshops in utilizing the FG and their perception of its usefulness.

H7: Saudi K-12 teachers' attitudes about using FG are significantly affected by their subjective norms, self-efficacy and FG's perceived usefulness and perceived ease of use.

Study Participants

I chose to conduct my study on the K-12 schools of Jeddah City in the Kingdom of Saudi Arabia for many reasons. First, I was a teacher there, and I still have strong connections with a large number of teachers through the online communities from a wide range of grades and fields. Second, I have maintained connections with administrative friends such as supervisors who work directly with teachers and can help with the distribution of the study survey. Third, there has been no research on teachers' attitudes about using learning management systems to facilitate e-learning in schools, let alone on the newly established system known as Future Gate, which is the only such system available in Saudi Arabia. Also, I believe that the elements which impact teachers' attitudes have not been researched sufficiently. Finally, Jeddah City is the second largest in the Kingdom of Saudi Arabia with a population of more than 4,000,000. Also, it has a huge number of teachers, more than 29,000 K12 teachers, which will hopefully enhance the validity of this study's statistical findings. It is my hope that the results of this study could be generalized to K-12 teachers throughout Saudi Arabia who share similar school cultures and policies.

Data Sources and Sampling

This study will focus on all Saudi K-12 teachers who work under the General Administration of Education in Jeddah City. According to MOE (2019) The Kingdome of Saudi Arabia has 47 general administrations of education that include more than 500,000 k12 teachers and share similar school cultures and policies. However, they are hard to be reached; therefore, I chose Saudi K-12 teachers who work only under one of these 47 general administrations of education which is the General Administration of Education in Jeddah City due to the convenience of the

sample which will allow me to easily collect data and have an accessible population as I mentioned in the previous part (Coladarci & Cobb, 2013).

Data Collection

The data will be collected via an electronic survey that was designed based on previous studies, interviews with teachers and input from educational technology graduate students. The items of this study have been modified from published scales that have been used in many published and peer-reviewed studies. Also, I have had several online meetings with teachers from Saudi Arabia who have participated in developing the survey. Moreover, I conducted a focus group with some graduate students in educational technology from the University of Kansas who also provided me with valuable feedback and helped me to modify the study's scales. Also, a professor for education technology department has been consulted to ensure the validity of the instrument.

The electronic survey begins with a brief description of the study and how the collected data will be used. Also, the potential participants will be informed that participation in this study is totally voluntary and they will be able to withdraw at any time. They will also be assured that their responses and the data collected from them will be kept confidential and will be used for study purposes only.

Instruments

As previously mentioned, the survey was developed according to the literature review, interviews with teachers, the feedback from EdTech graduate students and an EdTech professor. These elements contributed to developing 22 items for measuring factors that impact K-12

teachers' attitudes about using Future Gate in Saudi schools. The 22 items are divided into five scales: teachers' attitudes, perceived usefulness, perceived ease of use, teachers' self-efficacy and subjective norms.

Scale to Measure Attitudes Regarding Technology

The attitudes regarding technology scale, developed by Venkatesh, Morris, Davis and Davis (2003), aims to measure the extent to which teachers enjoy working with new technology. The scale's items were developed based on different attitude scales. A factor analysis was conducted on the 15 items that came from these various scales. Four of the 15 items seemed to be loaded perfectly into the attitude construct. After conducting three tests to validate the scale, Venkatesh, Morris, Davis and Davis (2003) found it to have high reliability. The Cronbach Alpha was 0.80 in the first test, 0.84 in the second and 0.83 in the third test. Thus, the following six items will be adapted to fit the context of my study:

- I believe it is a good idea to use FG to enhance e-learning.
- Teaching with FG is fun.
- I believe that FG makes teaching more interesting.
- I like teaching with FG.

These four items will be measured on a four-point Likert scale (where 1: strongly agree, 2: agree, 3: disagree, 4: strongly disagree.)

Perceived Usefulness Scale

This scale, developed by Davis (1989), is used to measure beliefs about the benefits and usefulness of technology. This scale initially included 14 factors that were loaded into the

perceived usefulness construct. However, after conducting a factor analysis, Davis (1989) developed the current six-point scale that was again loaded into the perceived usefulness construct. (Table1). These six items measure the extent to which technology can help to ease the workload and reduce the time it takes to complete. Also, it measures the extent to which technology improves job performance and increases productivity and effectiveness. In addition, it measures employees overall confidence in the usefulness of technology. Davis (1989) reported that the scale had high reliability with a Cronbach's alpha of 0.98. Thus, the following six items will be adapted to fit the study context:

- Using FG in my job enables me to accomplish tasks more quickly.
- FG improves my job performance.
- Using FG in my job increases my productivity.
- Using FG enhances my effectiveness on the job.
- FG makes it easier to do my job.
- I believe that FG is useful in my job.

These four items will be measured on a four-point Likert scale (where 1: strongly agree, 2: agree, 3: disagree, 4: strongly disagree.)

Scale to Measure Perceived Ease of Use

This scale was also developed by Davis (1989) to measure the user's beliefs about ease of use. This scale initially included 14 factors that were loaded into the perceived ease of use construct. However, after conducting a factor analysis, Davis (1989) developed the current six-item scale to again load into this construct (See Table1). These six items measure the extent to which technology can be easy to learn and use. Also, it measures if technology is manageable,

flexible, clear and easy to understand. Davis (1989) reported that the scale has high reliability, with a Cronbach's alpha of 0.94. Thus, I will adapt the following six items for my study:

- I believe that using FG is easy for me.
- I believe that it is easy to become skillful at using FG.
- I believe that using FG is.flexible to interact with.
- Learning to operate FG is easy for me.
- It is easy for me to get FG to do what I want it to do.
- I believe that my interaction with FG is clear and easy to understand

These four items will be measured on a four-point Likert scale (where 1: strongly agree, 2: agree, 3: disagree, 4: strongly disagree.)

Table 1. Perceived Ease of Use Factor analysis

Scale Items		Factor 1 (Usefulness)	Factor 2 (Ease of Use)
Usefulness			
1	Work More Quickly	.91	.01
2	Job Performance	.98	−.03
3	Increase Productivity	.98	−.03
4	Effectiveness	.94	.04
5	Makes Job Easier	.95	−.01
6	Useful	.88	.11
Ease of Use			
1	Easy to Learn	−.20	.97
2	Controllable	.19	.83
3	Clear & Understandable	−.04	.89
4	Flexible	.13	.63
5	Easy to Become Skillful	.07	.91
6	Easy to Use	.09	.91

Self-Efficacy Scale

The self-efficacy scale, also created by Venkatesh, Morris, Davis and Davis (2003), aims to measure the level of participants' confidence regarding using a new technology. The items on this scale also have been developed from various other self-efficacy scales. A factor analysis was conducted on nine items that were originally developed by Venkatesh (2000). Four out of ten

loaded perfectly into the self-efficacy construct. After conducting three validity tests, Venkatesh, Morris, Davis and Davis (2003) found the scale to have high reliability, with a Cronbach's alpha of 0.85 in the first test, 0.87 in the second and 0.87 in the third. Thus, the following four items will be adapted to fit the study context:

I can complete a job or task using FG:

- If there is no one around to tell me what to do as I go.
- If I can call someone for help if I get stuck.
- If I have a lot of time to complete the job for which the software was provided.
- If I have just the built-in help facility for assistance.

These four items will be measured on a four-point Likert scale (where 1: strongly agree, 2: agree, 3: disagree, 4: strongly disagree.)

Subjective Norms Scale

The subjective norms scale, developed by Venkatesh, Morris, Davis and Davis (2003), aims to measure the impact of the surrounding people on participants' decisions to utilize new technology. A factor analysis was conducted on the nine items that came from three different social influence scales. Four of the nine loaded perfectly into the subjective norms construct. This scale measures the extent to which participants' decisions are influenced by the people around them, particularly by respected colleagues. It also measures how the work culture could impact their decisions to use new technology. Venkatesh, Morris, Davis and Davis (2003) reported that the scale had high reliability after conducting three tests to validate the scale. Cronbach's alpha was 0.91 in the first test, 0.92 in the second and 0.92 in the third.

Thus, the following items will be adapted to fit the context of this study:

- My colleagues think I should use FG.
- In my school, teachers are expected to use FG.
- The people who influence my behavior think I should use FG.
- The school administrators are helpful in the use of FG.

These four items will be measured on a six-point Likert scale (where 1: strongly agree, 2: agree, 3: somewhat agree, 4: somewhat disagree, 5: disagree, 6: strongly disagree.)

Translation of the Instrument

The participants of this study are native Arabic speakers, and the majority of them speak only Arabic. Therefore, a forward and backward translation method was used to ensure the validity of the instrument after the translation. To do this, TESOL and linguistic bilingual faculty members have been consulted to translate the instrument from English to Arabic and then from Arabic to English. The researcher has revised the two versions of the instrument to ensure that there is no significant difference between them.

Data Analysis

Descriptive statistical methods will not only be used to analyze the demographic data but also the teachers' attitudes regarding the first question. I will use SPSS software and Pearson's correlation coefficient to analyze the relationship between variables in questions two through six. Finally, a multiple linear regression model will be conducted to determine how the independent variables can predict the dependent variable. The alpha level of significance used in this study will be $p < .05$.

The Study's Variables Description

This study includes several dependent and independent variables.

Dependent Variables

1. Saudi K-12 teachers' attitudes regarding FG.

Independent Variables

1. Perceived usefulness.
2. Perceived ease of use.
3. Self-efficacy.
4. Subjective norms.
5. Number of workshops in technology integration.
6. Level of computer skills.
7. Teachers' years of experience with technology integration.
8. Number of workshops in utilizing the FG.

CHAPER IV: RESULTS

Introduction

Chapter IV describes and discusses the data analysis that were collected to find out (a) the K-12 Saudi teachers' attitudes towards utilizing Future Gate for e-learning, (b) the correlation between these teachers' number of workshops in technology integration and their self-efficacy, (c) the correlation between their level of computer skills and their self-efficacy, (d) the relationship between their computer skills and their perception of ease of use, (e) the correlation between teachers' years of experience with technology integration and perceived usefulness of Future Gate, (f) the correlation between K-12 Saudi teachers' number of workshops in utilizing the Future Gate and perceived usefulness, and (g) to what extent can the perceived usefulness, ease of use, self-efficacy and subjective norm predict K-12 Saudi teachers' attitudes (ATT) towards Future Gate. In addition, this chapter will provide an overview of the context of the study in terms of descriptive statistics for the demographics of the study sample.

Population and Sampling Description

The Participants of this study are K12 teachers who work under the General Administration of Education in Jeddah City in the Kingdom of Saudi Arabia. It included both males and females from public schools only, and the data were collected within the first two weeks of October 2019. An electronic email including the survey link was sent to the teachers, and a total of 530 responses were received. The sample consisted of 530 participants, 51.1% of them were female (n=271), and 48.9% were male (n=259) (See Table 2).

Table 2. Number of Participant Based on Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	271	51.1	51.1	51.1
	Male	259	48.9	48.9	100.0
	Total	530	100.0	100.0	

The Research Questions:

The purpose of this study is to answer the following questions:

1. What are the K-12 Saudi teachers' attitudes about utilizing FG for e-learning?
2. Is there any correlation between these teachers' Number of workshops in technology integration and their self-efficacy?
3. Is there any relationship between their level of computers skills and their self-efficacy?
4. Is there any relationship between their computer's skills and their perception of ease of use?
5. Is there any correlation between teachers' years of experience with technology integration and perceived usefulness of FG?
6. Is there any correlation between K-12 Saudi teachers' Number of workshops in utilizing the FG and perceived usefulness?
7. To what extent can perceive of usefulness, ease of use, self-efficacy and subjective norm predict K-12 Saudi teachers' attitudes (ATT) toward (FG)?

Demographic Description

This section describes the characteristics of the participants of this study. Descriptive results explain the participants' demographic information, including: gender, school levels, subject of teaching and year of experience.

Participants' Gender

The sample consisted of 530 male and female participants, where 51.1% of them were female (n=271), and 48.9% were male (n=259) (See Table 2).

School levels

As shown in Table 3, the public schools in the Kingdom of Saudi Arabic are classified into three categorizes as the following: elementary schools, intermediate schools, and high schools. The descriptive results indicated that most of the participants, i.e. 44.9%, were high schools teachers, and the least participants, i.e. 20.8%, were elementary schools teachers while 34.3% were intermediate schools teachers.

Table 3. Number of Participants Based on School Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Elementry	110	20.8	20.8	20.8
	High	238	44.9	44.9	65.7
	Middle	182	34.3	34.3	100.0
	Total	530	100.0	100.0	

Participants' Teaching subjects

The participants of the study were categorized into nine categorizes as the following: Islamic studies, Science, Math, Computer Science, Social studies, Athletic Education, Art Education, Arabic studies, and English studies. These categorizes were built based on the subjects that the participants teach in K12 public school in Jeddah City. The largest category was Islamic studies teachers, while the smallest group was the athletic education teachers (See Table 4).

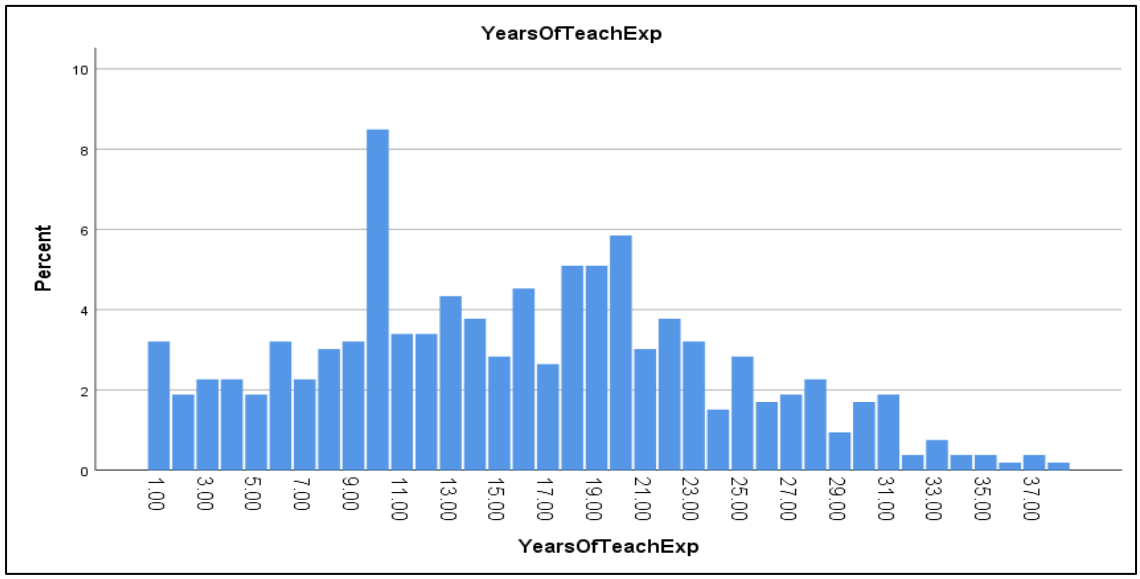
Table 4. Number of Participant Based on Teaching Subjects

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ArabicStudies	76	14.3	14.3	14.3
	Art	18	3.4	3.4	17.7
	AthleticEdu	6	1.1	1.1	18.9
	ComputerScience	47	8.9	8.9	27.7
	EnglishStudies	51	9.6	9.6	37.4
	IslamicStudies	101	19.1	19.1	56.4
	Math	68	12.8	12.8	69.2
	Science	100	18.9	18.9	88.1
	SocialScience	63	11.9	11.9	100.0
	Total	530	100.0	100.0	

Participants' Years of Experience

The derivative results indicated that 61 participants had from 1-5 years of teaching experience, which represented 11.5% of the total number of the participants. Also, 107 participants had from 6-10 years of teaching experience, which represented 20.2% of the total number of the participants. Also, 94 participants had from 11-15 years of teaching experience, which represented 17.7% of the total number of the participants. Also, 123 participants had from 16-20 years of teaching experience, which represented 23.2% of the total number of the participants, and the rest were 145 who had more than 20 years of teaching experience, which represented 27.4% of the total number of the participants (See Chart 1).

Chart 1. Number of Participant Based on Years of Teaching Experience



Reliability Analysis

To measure the survey items' reliability, Cronbach's Alpha (α) was used to calculate the internal consistency across the items as groups of scale items. The first group included four items that measured the teachers' attitude toward the Future Gate. The second group included six items that measured the teachers' perceptions of the Future Gate ease of use. The third group included

six items that measured the teachers' perceptions of the Future Gate usefulness. The fourth group included four items that measured the teachers' subjective norm. Finally, the fifth group included four items that measured the teachers' self-efficacy. Cronbach's Alpha coefficients for the teachers' Attitude toward the Future Gate scale was .94, .94 for the teachers' perceptions of the Future Gate Ease of Use scale,.97 the teachers' perceptions of the Future Gate Usefulness scale, .84 for the teachers' Subjective Norm scale, and .88 for the teachers' Self-Efficacy scale (See Table 5).

Table 5. Survey Scales' Reliability

Scales	N of Items	Cronbach's Alpha
Attitude	4	α =.94
Ease of Use	6	α =.94
Usefulness	6	α =.97
Subjective Norms	4	α =.84
Self-Efficacy	4	α =.88

The Research Questions Results

Under this section, the results for the seven research questions will be discussed. Descriptive statistical methods were used to answer question number one. Also, Pearson correlation coefficient method was used to answer questions two, five and six. Moreover, a one-way analysis of variance (ANOVA) was used to answer questions three and four. Last of All, multiple linear regression method was used to answer question number seven (See Table 6).

Table 6. Methods of Analysis

Research Question	Method of analysis
RQ1*	Descriptive Statistics
RQ2, RQ5, & RQ6	Pearson Correlation
RQ3 & RQ4	ANOVA
RQ7	Multiple Linear Regression

*Research Question (RQ)

Question One: What are the K-12 Saudi teachers' attitudes about utilizing the Future Gate for e-learning?

To answer this question, descriptive statistics method was used to measure the K-12 Saudi teachers' attitudes towards the Future Gate. The participants were asked to rate their agreement on the attitude scale items. The scale included four items as the following; (1)I believe it is a good idea to use FG to enhance e-learning; (2)Teaching with FG is fun; (3)I believe that FG makes teaching more interesting; and (4)I like teaching with FG.

Descriptive statistics were conducted to analyze the four items in this question by calculating the mean and standard deviation of each item. As shown in Table 7, the most frequently mentioned attitudes were items number 1, 2, 3 and 4 respectively. "I believe it is a good idea to use FG to enhance e-learning" (M= 2.99, SD= .91), "Teaching with FG is fun" (M=2.77, SD= .95), "I believe that FG makes teaching more interesting" (M= 2.76, SD= .98) and "I like teaching with FG" (M= 2.70, SD= 1.00).

Table 7. Descriptive Analysis for the Attitude's Items

	N	Mean	Std. Deviation
Att1	530	2.9943	.90888
Att2	530	2.7717	.95392
Att3	530	2.7585	.98100
Att4	530	2.7000	1.00406
Valid N (listwise)	530		

In addition, these four items were computed to one variable and were measured on a four-point Likert scale (where 1: strongly disagree, 2: disagree, 3: agree, 4: strongly agree.). A higher score means that teachers have a strong and positive attitude toward the Future Gate, and a lower score means that teachers have a poor and negative attitude toward the Future Gate. The mean and standard deviation were calculated and reported in Table 8. As shown in Table 8, K-12 Saudi teachers' moderately have a positive attitude toward their utilizing of the Future Gate as applied for e-learning (M = 2.81, SD = .89).

Table 8. Attitude Toward the Future Gate

	N	Mean	Std.Deviation
TotAtt	530	2.8061	.89119
Valid N	530		

Question Two: Is there any correlation between K-12 Saudi teachers' Number of training workshops in technology integration and their self-efficacy?

This question intended to examine whether there is a relationship between the number of training K-12 Saudi teachers received and their self-efficacy. A Pearson Correlation Coefficient method was conducted to measure the relationship between the overall self-efficacy of the K-12 Saudi teachers and number of training workshops they received. As shown in Table 9, the correlation between the number of training K-12 Saudi teachers received (M = 4.26, SD =4.83) and their self-efficacy (M = 2,82 SD = .75) was significant, r(530)= .14, p= .001. Thus, there was a significant relationship between the overall self-efficacy of the K-12 Saudi teachers and number of training workshops they received. The results revealed that there was a positive relationship between K-12 Saudi teachers' number of training workshops in technology integration and their self-efficacy. Teachers who received more workshops in technology integration demonstrated higher self-efficacy in using the Future Gate.

Table 9. Pearson Correlation Coefficient - Question - 2

		TrainingTech	TotSE
TrainingTech	Pearson Correlation	1	.144**
	Sig. (2-tailed)		.001
	N	530	530
TotSE	Pearson Correlation	.144**	1
	Sig. (2-tailed)	.001	

N	530	530

Question Three: Is there any correlation between K12 Saudi teachers' perception of their computer skills and their self-efficacy?

A one-way analysis of variance (ANOVA) was conducted to examine the relationship between the teachers' perception of their computer skills and their self-efficacy. Teachers were grouped into three different categories based on their perception of their computer skills: beginner, moderate and advanced. There was a significant relationship between the teachers' perception of their computer skills and their self-efficacy, $F(2, 527) = 11.641$, $p = 0.000]$, at the $p<.05$ level (See Table 9).

Table 10. ANOVA Summary- Question - 3

	Sum of Squares	**df**	**Mean Square**	**F**
Between Groups	12.575	2	11.641	.000
Within Groups	284.633	527	.540	
Total	297.208	529		

Post hoc comparisons using the Dunnett's T3 test indicated that the advanced skills group ($M = 2.99$, $SD = .72$) was significantly different from the beginner skills group ($M = 2.45$, $SD = 0.69$) and the moderate skills group ($M = 2.75$, $SD = 0.75$). In addition, the moderate skills group ($M = 2.75$, $SD = 0.75$) was significantly different from the beginner skills group ($M = 2.45$, $SD = 0.69$). Taken together, these results suggest that the level of teachers' computer skills really do

have an effect on their self-efficacy in using the Future Gate. Specifically, teachers with higher computer skills were more confident in their abilities to utilize the Future Gate to enhance e-learning (See Table 11).

Table 11. Post hoc Test Summery Question - 3

					95% Confidence Interval	
(I) ComputerSkillsCode	(J) ComputerSkillsCode	Mean Diff (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Beginner	Moderate	-.30263*	.11946	.043	-.5975	-.0077
	Advanced	-.54502*	.12259	.000	-.8467	-.2433
Moderate	Beginner	.30263*	.11946	.043	.0077	.5975
	Advanced	-.24239*	.06750	.001	-.4042	-.0806
Advanced	Beginner	.54502*	.12259	.000	.2433	.8467
	Moderate	.24239*	.06750	.001	.8467	.4042

Question Four: Is there any correlation between K12 Saudi teachers' perception of their computer skills and their ease of use?

A one-way analysis of variance (ANOVA) was conducted to examine the relationship between the teachers' perception of their computer skills and their ease of use. Teachers were grouped into three different categories based on their perception of their computer skills: beginner, moderate, and advanced. There was a significant relationship between the teachers' perception of their computer skills and their ease of use, $F(2, 527) = 13.423$, $p = 0.000$, at the $p<.05$ level (See Table 12).

Table 12. ANOVA Summary- Question - 4

	Sum of Squares	df	Mean Square	F
Between Groups	26.846	2	13.423	.000
Within Groups	301.992	527	.573	
Total	328.838	529		

Post hoc comparisons using the Dunnett's T3 test indicated that the advanced skills group ($M = 3.03$, $SD = .74$) was significantly different from the beginner skills group ($M = 2.25$, $SD = 0.67$) and the moderate skills group ($M = 2.66$, $SD = 0.78$). In addition, the moderate skills group ($M = 2.66$, $SD = 0.78$) was significantly different from the beginner skills group ($M = 2.25$, $SD = 0.67$). Taken together, these results suggest that the level of teachers' computer skills really do have an effect on their ease of use of the Future Gate. Specifically, teachers with higher

computer skills were more comfortable with utilizing the Future Gate to enhance e-learning (See Table 13)

Table 13. Post hoc Test Summery Question - 4

					95% Confidence Interval	
(I) ComputerSkillsCode	(J) ComputerSkillsCode	Mean Diff (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Beginner	Moderate	-.41158*	.11711	.003	-.7003	-.1229
	Advanced	-.77792*	.12000	.000	-1.0729	-.4829
Moderate	Beginner	.41158*	.11711	.003	.1229	.7003
	Advanced	-.36634*	.06943	.000	-.5327	-.1999
Advanced	Beginner	.77792*	.12000	.000	.4829	1.0729
	Moderate	.36634*	.06943	.000	.1999	.5327

Question Five: Is there any correlation between teachers' years of experience with technology integration and perceived usefulness of the Future Gate?

This question examined whether there is a relationship between teachers' years of experience in utilizing technology and their perceived usefulness. Pearson Correlation Coefficient was utilized to measure the relationship between the overall perceived usefulness and the years of experience of utilizing technology. As shown in Table 14, the correlation between the years of experience of utilizing technology of K-12 Saudi teachers (M = 8.52, SD =5.55) and their perceived usefulness (M = 2.69, SD = .90) was not a significant, r(530)= .047, p= .285. Thus, there was not a significant relationship between the years of experience of utilizing technology of K-12 Saudi teachers and their perceived usefulness.

Table 14. Pearson Correlation Coefficient – Question - 5

		TotUseful	YearsOfTeachExpWithTech
TotUseful	Pearson Correlation	1	.047
	Sig. (2-tailed)		.285
	N	530	530
YearsOfTeachExpWithTech	Pearson Correlation	.047	1
	Sig. (2-tailed)	.285	
	N	530	530

Question Six: Is there any correlation between K-12 Saudi teachers' number of training workshops in utilizing the Future Gate and perceived usefulness?

This question examined whether there is a relationship between the numbers of training K-12 Saudi teachers received in utilizing the Future Gate and their perceived usefulness. A Pearson Correlation Coefficient to measure the relationship between the overall of the perceived usefulness of the K-12 Saudi teachers and number of training they received in utilizing the Future Gate. As shown in Table15, the correlation between the number of training K-12 Saudi teachers received in utilizing the Future Gate (M = 1.58, SD =1.66) and their perceived usefulness (M = 2.69, SD =.90) was significant, r(530)= .89, p= .041. Thus, there was a significant relationship between the number of training K-12 Saudi teachers received in utilizing the Future Gate and their perceived usefulness. This positive relationship revealed that teachers who received more Ed-tech training were more likely to have higher beliefs on the Future Gate benefits.

Table 15. Pearson Correlation Coefficient – Question - 6

		TrainingFG	TotUseful
TrainingFG	Pearson Correlation	1	.089
	Sig. (2-tailed)		.041
	N	530	530
TotUseful	Pearson Correlation	. 089	1
	Sig. (2-tailed)	. 041	
	N	530	530

Question Seven: To what extent can the perceived usefulness, ease of use, self-efficacy and subjective norm predict K-12 Saudi teachers' attitudes toward the Future Gate?

To answer this question, a multiple linear regression method was conducted to determine the significance of the four predictors - perception of usefulness, perception of ease of use, self-efficacy, and subjective norm - in predicting the K12 Saudi teachers toward utilizing the Future Gate System as applied for e-learning. The multicollinearity test was conducted to make sure that predictors were not highly correlated with each other and thus reduce the unique shared variance with the criterion variable, and the result confirmed that there was no issue with multicollinearity.

As shown in Table 16, the linear combination of the four predictors was significantly predictive of the overall attitudes of K12 Saudi teachers toward the Future Gate, with $F(4,526) = 396.37$, $p < .05$. The sample multiple correlation coefficient was $R = .87$, and the R^2 for the overall multiple regression analysis was .75, reporting that about 75% of the variance in attitudes of K12 Saudi teachers toward using the Future Gate to support e-learning can be accounted for by the linear combination of the four variables entered into the model, which are: perception of usefulness, perception ease of use, self-efficacy and subjective norm.

Table 16. Regression Model - Question 7

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.867[a]	.751	.749	.44618	.751	396.366	4

As shown in Table 17, three out of four predictors were significant predictors in the model. These predictors include perception of usefulness (TotUseful) with a standardized beta coefficient of .62, (p=. 000), perception of ease of use (TotEU) with a standardized beta coefficient of .20, (p=. 000), and self-efficacy (TotSE) with a standardized beta coefficient of .12, (p= .001). However, subjective norm (TotSN) was not a significant with a standardized beta coefficient of -.001, (p= .972).

Table 17. Regression Coefficients – Question 7(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.164	.082		1.990	.047
	TotEU	.222	.045	.196	4.965	.000
	TotUseful	.612	.036	.618	16.932	.000
	TotSE	.137	.042	.115	3.220	.001
	TotSN	-.001	.039	-.001	-.035	.972

The results indicated that perceived usefulness of the Future Gate (β= .62, p= .00) was the strongest predictor of the overall attitudes of K12 Saudi teachers toward the future Gate among all the other predictors in the model. Perceived usefulness contributes in predicting the overall attitudes of K12 Saudi teachers toward the future Gate two times as much as any other predictors in the model.

However, the researcher conducted the multiple regression analysis (parsimony) again with the significant predictors only. As shown in Table 18, results of the parsimony indicated that all three

predictors are significant predictors of the participants' attitudes toward the Future Gate; perceived ease of use (β=.20, p=.00), perceived usefulness (β=.62, p=.000) and self-efficacy (β=.12, p=.000). However, Table 18, also shows that perceived usefulness (β= .62, p= .000) is still the strongest predictor of attitudes of K12 Saudi teachers toward using the Future Gate even after excluding the unpredictable variable, i.e. subjective norm.

Table 18. Regression Coefficients – Question 7(b)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.163	.078		2.085	.038
	TotEU	.221	.044	.196	5.032	.000
	TotUseful	.612	.035	.618	17.502	.000
	TotSE	.136	.041	.115	3.337	.001

Chapter Summary

The goals of this study were to measure K-12 Saudi teachers' attitudes toward the Future Gate and the factors that impact those attitudes. In additions, this study investigated the relationship between the factors that impact K-12 Saudi teachers' attitudes towards the Future Gate and their prior experiences about technology integration. The findings of the study confirmed the following:

1. K-12 Saudi teachers' maintain moderate to high positive attitude towards the Future Gate (M = 2.81, SD = .89).

2. The relationship between K-12 Saudi teachers' training workshops in technology integration and their self-efficacy was significant r(530)= .14, p= .001. However, it was not a meaningful relationship due to its poor effect size.
3. There was a statistical difference between K-12 Saudi teachers' self-efficacy based on their computer skills proficiency so that teachers who have higher computer skills have higher self-efficacy, and vice versa.
4. There was a statistical difference between K-12 Saudi teachers' perceived ease of use based on their computer skills proficiency so that teachers who have higher computer skills are more likely to easily use the Future Gate, and vice versa.
5. The relationship between the prior teaching experiences using technology of K-12 Saudi teachers and their self-efficacy was not significant r(530)= .047, p= .285.
6. The relationship between K-12 Saudi teachers' training workshops in utilizing the Future Gate and perceived usefulness was significant r(530)= .09, p= .041. However, it was not a meaningful relationship due to its poor effect size.
7. The study found that perceive of usefulness, ease of use, self-efficacy were good predictors of K-12 Saudi teachers' attitudes toward the Future Gate.

CHAPTER V

Discussion, Conclusion, and Recommendations

Introduction

The main goal of this study was to investigate the key factors that impact K-12 teachers' attitudes towards utilizing LMS platforms with their students. As stated in the former sections, teachers in the Kingdom of Saudi Arabia will be presented with a new LMS, which was originally designed for and distributed to all K-12 schools across the country by the Ministry of Education. This chapter also includes description of the study participants, and it presents the research hypothesis, findings, and discussion. Lastly, this chapter reports the study limitations, implications, recommendations, and conclusion.

Four main factors (teachers' perception of its usefulness, teachers' self-efficacy, ease of use and amount of training) were examined to explore whether these aspects have a significant impact on teachers' opinions. In addition, the researcher investigated the correlation between teachers' self-efficacy and their computer skills. Another investigation was conducted to determine if there was any correlation between teachers' technology training and their perception of the usefulness and ease of use of the Future Gate. Finally, the researcher examined the correlation between teachers' years of experience with technology and their perceptions of the Future Gate usefulness.

The Research Questions

The purpose of this study is to answer the following questions:

1. What are the K-12 Saudi teachers' attitudes regarding utilizing the Future Gate for e-learning?

2. Is there any correlation between these teachers' number of workshops in technology integration and their self-efficacy?
3. Is there any relationship between K-12 Saudi teachers' perception of their computer skills and their self-efficacy?
4. Is there any relationship between K-12 Saudi teachers' perception of their computer skills and their perception of the Future Gate ease of use?
5. Is there any correlation between K-12 Saudi teachers' years of experience with technology integration and perceived usefulness of the Future Gate?
6. Is there any correlation between K-12 Saudi teachers' number of training workshops in utilizing the Future Gate and perceived usefulness?
7. To what extent can the perceived usefulness, ease of use, self-efficacy and subjective norm predict K-12 Saudi teachers' attitudes (ATT) toward the Future Gate?

Findings Interpretation

This study mainly focused on investigating and measuring the K-12 Saudi teachers' attitudes toward the new learning management system; the Future Gate. In other words, do they like working on the system and to what extent? Moreover, the researcher explored the relationship between the K-12 Saudi teachers' attitudes toward the Future Gate and the following factors: perceived usefulness, perceived ease of use, subjective norms, and self-efficacy. That means that the researcher examined how well can these factors predict the K-12 Saudi teachers' attitudes towards the Future Gate. These factors represented the teachers' beliefs of the benefits of the Future Gate by measuring perceived usefulness. Also, it represented how comfortable they are while working on the Future Gate by measuring perceived ease of use. Also, the subjective

norm factor represented the teachers' perception of the impact of the people around on attitudes towards the Future Gate. Lastly, the self-efficacy factor represented how well K-12 Saudi teachers are confident in their ability to use the Future Gate.

After conducting the necessary statistical analyses and in view of the findings of this study, we can safely say that K-12 Saudi teachers hold a moderate to high attitude towards the Future Gate. Moreover, the data analyses revealed that only three out of four predictors were statistically significant in determining the K-12 Saudi teachers' attitudes towards the Future Gate. The following is a detailed discussion of each of the research questions.

Question one

What are the K-12 Saudi teachers' attitudes regarding utilizing the Future Gate for e-learning? After computing the overall mean of the attitude scale items, results revealed that K-12 Saudi teachers' attitude towards utilizing the Future Gate for e-learning was moderate to high positive attitude (M = 2.81, SD = .89) (See Table 7).

This finding echoes with Okopi Odeyemi and Adesina's (2015) findings where they examined teachers' attitude towards utilizing computer-based instructional delivery system. They reported that teachers demonstrate positive attitude towards utilizing the instructional system and that it is very helpful for tracking and supporting students' academic performance. In addition, the study's findings are also consistent with the findings from Cheok,Wong, Ayub, and Mahmud (2017) who explored general attitudes towards FROG VLE system. They reported that teachers maintain a positive attitude towards FROG VLE system meanwhile the system was a vast improvement upon traditional teaching methods because it helped them organize their course materials and save them time when they were updating or searching for specific materials.

The mean of each item in the attitude scale was conducted, and it was reported in Chapter 4 (see Table 6). The most frequently mentioned attitudes were items number 1, 2, 3 and 4, respectively. Responses on Item 1, "I believe it is a good idea to use FG to enhance e-learning", reported the highest mean in the scale (M= 2.99, SD= .91). That means K-12 Saudi teachers maintain a positive belief regarding the idea of using the Future Gate to enhance e-learning in K-12 Saudi schools. Also, responses on Item 2, "Teaching with Future Gate is fun", rendered a mean of (M=2.77, SD= .95). This indicated that the utilization of Future Gate by K-12 Saudi teachers was quite positive. Put differently, the teachers, to some extent, enjoy their teaching with the Future Gate. Moreover, Responses on Item 3, "I believe that Future Gate makes teaching more interesting", rendered a mean of (M= 2.76, SD= .98). This demonstrated that the Future Gate makes teaching more interesting for K-12 Saudi teachers. This may refer to the fact that Future Gate provides K-12 Saudi teachers with features that allow them to implement different teaching methods (Future Gate,2019).

Finally, Responses on Item 4, "I like teaching with FG", reported the lowest mean in the scale (M= 2.70, SD= 1.00). The mean explains how much K-12 Saudi teachers like teaching with the Future Gate, i.e. teachers moderately like teaching with the Future Gate even though they hold higher belief in the idea behind utilizing the Future Gate. Panda and Mishra (2007) and Alfuraydi (2013) reported some reasons that prevent teachers from implementing e-learning, such as the lack of technical support, training, and internet access.

Question Two

Is there any correlation between K-12 Saudi teachers' number of training workshops in technology integration and their self-efficacy? As shown in Table 8 in chapter 4, the correlation between K-12 Saudi teachers' number of training workshops in technology integration they

received (M = 4.26, SD =4.83) and their self-efficacy (M = 2,82 SD = .75) was significant, r(530)= .14, p= .001. Thus, the relationship between the overall self-efficacy of the teachers and the number of training workshops in technology integration they received was positive at p<.05. K-12 Saudi teachers who attended workshops pertaining to technology integration were more likely to have higher self-efficacy and believe in their ability to utilize the Future Gate than those who received less training workshops in technology integration, and vice versa.

This result is consistent with Spencer's (2014) finding that the 269 K-12 teacher participants in his study shows that approximately 95% teachers were able to increase their use of technology, and most of them reported that they became more confident regarding following approaches for integrating technology in their classrooms. It also echoes with Pan and Franklin (2011) study where they reported that the increase of teachers' professional development lead to increase in teachers' self-efficacy.

However, because of the poor effect size r(530)= .14, the correlation between K-12 Saudi teachers' number of training workshops in technology integration they received and their self-efficacy were not meaningful. This could be accrued to differences between the training content and the use of the Future Gate. Therefore, it does not matter how much teachers know about general technology integration when it comes to the use of a specific technology. Also, Saudi teachers are not expose to technology integration training sufficiently, and the training is also insufficient in terms of the workshop length. Therefore, the workshops show very limited impact on teachers' self-efficacy. Also, the Future Gate is a new experience for Saudi teachers and require more sophisticated requirement than the traditional technology integration Saudi teachers are used to. Working on a learning management system for sure requires more technological skills than merely projecting PowerPoint slides on a projector.

Question Three

Is there any correlation between K-12 Saudi teachers' perception of their computer skills and their self-efficacy?

A one-way analysis of variance (ANOVA) method was used to determine the relationship between the teachers' perception of their computers' skills and their self-efficacy. As shown in Table 9, The relationship between the teachers' perception of their computer skills and their self-efficacy was statistically significant, $F(2, 527) = 11.641$, $p = 0.000]$, at the $p<.05$ level. Table 10 in chapter 4 reported that teachers' self-efficacy in the advanced group, ($M = 2.99$, $SD = .72$), was statistically different than both the moderate group, ($M = 2.75$, $SD = 0.75$), and the beginner group, ($M = 2.45$, $SD = 0.69$). Also, teachers' self-efficacy in the moderate group was statistically different than the beginner group.

This finding emphasized that teachers who have higher computer skills are more confident in their ability to accomplish what they intend to accomplish than those who have lower computer skills. In this study, this means that K-12 Saudi teachers who reported higher computer skills were more confident in their ability in utilizing the Future Gate than those with lower computer skills.

This finding is consistent with Demiralay and Karadeniz's (2010) finding where they surveyed 1801 student-teachers' ICT self-efficacy. They reported that teachers in the study showed frequent use of ICT. There was a significant effect of computer experience and skills on their ICT self-efficacy. Demiralay and Karadeniz's (2010) pointed out that teachers with higher computer skills are more confident in their ability of using ICT. Also, Bozdogan and Özen (2014) is in agreement with Demiralay and Karadeniz (2010) that computer skills play a significant role in ELT teachers' ICT self-efficacy.

Question Four

Is there any correlation between K-12 Saudi teachers' perception of their computer skills and their ease of use?

a one-way analysis of variance (ANOVA) method was used to determine the relationship between the teachers' perception of their computer skills and perceived ease of use. As shown in Table 11, the relationship between the teachers' perception of their computer skills and perceived ease of use was statistically significant, $F(2, 527) = 13.423$, $p = 0.000$, at the $p<.05$ level. Table 12 in chapter 4 reported that teachers' perceived ease of use in the advanced group, ($M = 3.03$, $SD = .74$), was statistically different from both the moderate group, ($M = 2.66$, $SD = 0.78$), and the beginner group, ($M = 2.25$, $SD = 0.67$). Also, teachers' self-efficacy in the moderate group was statistically different than the beginner group.

This finding stresses the idea that teachers who have higher computer skills are comfortably able to use technology more than those who have lower computer skills. This means that K-12 Saudi teachers who reported higher computer skills were more comfortable using the Future Gate than K-12 Saudi teachers who have lower computer skills.

This finding is consistent with Tubaishat's (2018) results where nurses were exposed to electronic health record system. Perceived ease of use was a significant predictor of nurses' attitudes towards the electronic health record system, and perceived ease of use was significantly affected by nurses' computer skills, and computer skills was a significant predictor of nurses' perceived ease of use. Also, it is in agreement with Binyamin, Rutter and Smith (2017) who reported that students' ease of use of learning management system at King Abdu Aziz University was significantly influenced by computer self-efficacy. John (2015) also pointed to the

importance of computer skills and experience and its power to predict technology ease of use and acceptance.

Question Five

Is there any correlation between K-12 Saudi teachers' years of experience with technology integration and perceived usefulness of the Future Gate?

As shown in Table 13 in chapter 4, the correlation between K-12 Saudi teachers' years of experience with technology integration (M = 8.52, SD =5.55) and perceived usefulness (M = 2.69, SD = .90) was not significant, r(530)= .047, p= .285. Thus, the relationship between the overall perceived usefulness of the teachers and the teachers' years of experience with technology integration could not be established.

This finding contrasts several studies that pointed to the significance of prior technology experience in affecting technology's perceived usefulness and acceptance (Ifinedo, 2017; Mohamed, Nazihah, Shaari, Ismail & Yusoff , 2018; Oh, Ahn & Kim, 2003; Rivera, Gregory & Cobos, 2015). These studies conditioned that prior experience should be in the same context of the new technology.

However, Burton-Jones and Hubona's (2006) conclusions are in accordance with the study findings and reported that prior experience has nothing to do with technology's perceived usefulness. It, however, could impact the users' frequency of use. These studies conditioned that prior experience should be in the same context of the new technology. In the case of K-12 Saudi teachers, the Future Gate is a new system they have never experienced beforehand. Therefore, they believe in the system's benefits regardless of any prior technology experiences. Therefore, this new experience may impact any new similar experiences in the future.

Question Six

Is there any correlation between K-12 Saudi teachers' number of training workshops in utilizing the Future Gate and perceived usefulness?

As shown in Table 14 in chapter 4, the correlation between K-12 Saudi teachers' number of training workshops in utilizing the Future Gate they received (M = 1.58, SD =1.66) and perceived usefulness (M = 2.69 SD, = .90) was significant, r(530)= .09, p= .041. Thus, K-12 Saudi teachers who attended workshops regarding how to use the Future Gate were more likely to have higher perceived usefulness and believe in the advantages of the system more than those who received less training workshops in utilizing the Future Gate, and vice versa.

This finding is compatible with several studies that emphasized the importance of teachers' professional development for their technology adoption and practices. Dana and Swain (2011) reported that teachers are more likely to adopt technology as they receive more technology training. This is also congruent with Cubukcuoglu (2013) who reported that sufficient training plays a significant role in teachers' adoption and beliefs in technology. However, teachers need to have an appropriate context to practice what they gain from their training workshops (Espino, 2012).

However, because of the poor effect size r(530)= .09, the correlation between K-12 Saudi teachers' number of training workshops in utilizing the Future Gate and perceived usefulness were not meaningful. This could be related to insufficient number of training workshops regarding utilizing the Future Gate, and the training might also be insufficient in terms of the workshop length. Therefore, the workshops show very limited impact on teachers' perceived usefulness. Also, the training usually focuses on the practical use regardless of the Future Gate benefits or its educational use or impact.

Question Seven

To what extent can teachers' perceived usefulness, ease of use, self-efficacy and subjective norm predict K-12 Saudi teachers' attitudes (ATT) towards the Future Gate?

This question aimed to understand factors that impact K-12 Saudi teachers' attitudes towards the new e-learning system (the Future Gate) which has been applied to enhance e-learning in K-12 Saudi schools. To answer this question, multiple linear regression was used to measure how will perceived usefulness (M = 2.77, SD = 0.79), perceived ease of use (M = 2.69, SD = 0.90), self-efficacy (M = 2.82, SD = 0.75) and subjective norms (M = 2.65, SD = 0.73) can predict K-12 Saudi teachers' attitudes towards the Future Gate (M = 2.81, SD = .89) (See Table 18).

Table 19. Regression model variables' means- Q7

	N	Minimum	Maximum	Mean	Std. Deviation
TotAtt	530	1.00	4.00	2.8061	.89119
TotEU	530	1.00	4.00	2.7682	.78843
TotUseful	530	1.00	4.00	2.6899	.89953
TotSN	530	1.00	4.00	2.6538	.72830
TotSE	530	1.00	4.00	2.8184	.74955
Valid N (listwise)	530				

Multiple regression analysis was conducted to determine the predictive power of the four predictor variables (usefulness, ease of use, self-efficacy and subjective norm) and the criterion variable K-12 Saudi teachers' attitudes towards the Future Gate. The predictor variables accounted for around 75% of the variance in the criterion variable. The results of the standardized coefficients showed that only three of the predictors (perceived usefulness, perceived ease of use and self-efficacy) are statistically significant predictors of K-12 Saudi teachers' attitudes towards the Future Gate. Subjective norm was not statistically significant in

predicting the K-12 Saudi teachers' attitudes toward the Future Gate, i.e. no significant unique correlation was found with the outcome variable.

The strongest predictor that contributed to the regression model was the independent variable perceived usefulness followed by the independent variables perceived ease of use and self-efficacy respectively, while the contribution of the independent variable subjective norm was not significant in all models.

The study findings confirmed the findings of several previous studies that perceived usefulness was reported as one of the strongest predictors to teachers' attitude towards technology by several researchers. Teo's (2011) surveyed 592 teachers' attitude towards social media tools as learning tools. He stated that perceived usefulness was a strong predictor to understand teachers' attitude towards social media tools.

Furthermore, De Smet, Bourgonjon, De Wever, Schellensand and Valcke's (2012) investigated secondary school teachers' acceptance of learning management systems that incorporates collected data from 505 secondary school teachers. They stated that perceived usefulness impacts teachers' attitude positively and significantly. Alos, Elkaseh, Wong and Fung (2016) concluded their study with similar findings that confirmed the power of perceived usefulness in predicting teachers' attitude towards technology.

Speaking of perceived ease of use, it is also consistent with many studies' finding from the literature. Fathema, Shannon and Ross (2015) used the TAM model to investigate factors that affect university instructors' attitudes towards utilizing learning management systems and their intention to use these systems to increase their academic performance. The findings suggested that ease of use impacts the instructors' attitudes towards utilizing learning management systems positively and significantly.

In addition, Alharbi and Drew's (2014) investigated Shaqra University instructors' attitudes and intentions about adopting the university learning management system, known as JUSOR. The study's findings pointed to the significant role of perceived ease of use in predicting instructors' attitudes towards JUSOR.

In addition, several previous studies conform to this study's findings in terms of the importance of self-efficacy in understanding teachers' acceptance of technology. Chen and Tseng's (2012) examination of teachers' willingness to utilize web-based learning technology to support in service education confirmed that self-efficacy affects teachers' willingness to utilize web-based learning technology positively.

Also, Kao, Wu and Tsai (2011) collected data from 484 elementary school teachers in Taiwan to analyze their beliefs and motivation for engaging in web-based professional development. They pointed to how self-efficacy affected teachers' adoption of web-based professional development system positively and significantly.

However, even though several studies confirmed the power of subjective norm in impacting teachers' attitude towards technology, the researcher found that subjective norm was not a significate factor statistically. This finding is consistent with Teo, T., Zhou, M., & Noyes, J. (2016) and Van Acker, Van Buuren, Kreijns and Vermeulen's (2013) who reported that subjective norm had very limited impact on teachers' acceptance of technology.

This research's findings stated that K-12 Saudi teachers' attitude towards the Future Gate were impacted more by their beliefs regarding the Future Gate's usefulness followed by their beliefs of how easy to use the Future Gate and then their confidence in their ability to utilize the Future Gate. Thus, K12 Saudi teachers who have higher beliefs in the Future Gate's usefulness are more likely to adopt and accept the Future Gate, and vice versa. Also, K-12 Saudi teachers

who feel more comfortable in working in the Future Gate are more likely to adopt and accept the Future Gate, and vice versa. In addition, K-12 Saudi teachers who feel confident in utilizing the Future Gate are more likely to adopt and accept the Future Gate, and vice versa.

Moreover, all these attitudinal factors might limit the power of subjective norm. Sheeran, P., Norman, P., & Orbell, S. (1999) purported that people who are more influenced by attitudes are less likely to be influenced by subjective norm. Also, Teo (2011) pointed out that the experienced decide to adopt technology relying on their attitude regardless of the institutional mandate.

Implications

The goals of this study were to investigate K-12 Saudi teachers' attitudes towards using a new learning management learning system "the Future Gate" as applied for e-learning. Also, this study aimed to understand the factors that impact K-12 Saudi teachers' attitudes towards the Future Gate. Moreover, this study intended to understand the relationships between some indirect factors of attitude and the direct factors of the attitude.

The research results revealed that K-12 Saudi teachers hold somewhat agreement with the idea of implementing a learning management system to enhance e-learning in Saudi's schools although it is a new experience for that K12 Saudi teachers who used to work with less complicated educational technology. However, holding positive attitude towards technology is not enough to guarantee the success of implementing a new technology in schools.

Jaschik (2012) reported that from over 4,500 teachers who were initially interested in utilizing technology in their classrooms, approximately 65% showed resistance to using it later. In addition, Swaramarinda (2018) reported that one of the most reasons that lead to teachers'

failure to utilize technology is teachers' resistance to technology. Therefore, the researcher suggests that this willingness and interests that teachers have, according to the research's results, should be invested and maximized in favor of enlarging the system uses and benefits.

According to the research's finding, three factors had direct impact on teachers' attitudes: perceived usefulness, perceived ease of use and self-efficacy. The findings reported a significant relationship between K-12 Saudi teachers' attitudes towards the Future Gate and these factors. Therefore, the researcher suggests that these factors be taken into consideration as a guidance to further develop professional development programs that aim to increase K-12 Saudi teachers' willingness and interest in order to maximize the uses and benefits of Future Gate.

Designing an appropriate training program that guide teachers to the educational way of using the Future Gate will increase their beliefs and interests. The training program should connect between the learning and teaching theories and the use of the Future Gate. If teachers feels that teaching with traditional ways have more impact in their teaching and students' performance, then it is very logic that they will resist the technology that do noting for them and for the students. The program should focus on how teachers would change their roles in classroom, and they should redesign their courses and figure out how the Future Gate can enhance the teaching and learning process.

In addition, besides the training, the school districts in Saudi Arabia also should put in the consideration that the technology integration barriers might affect teachers' attiudies as mentiond by Panda and Mishra (2007) and Alfuraydi (2013). They reported some reasons that prevent teachers from implementing e-learning, such as the lack of technical support, time, and internet access. Giving the teachers a sufficient time to complete their works, and providing a high

quality internet connection may contribute in comfort the teachers and increase their positive attitude toward the Future Gate, and vice versa.

Moreover, I believe that having teachers involved in face-to-face or online communities of practice will connect them with some experts and teachers with successful experiences. In such community, teachers can communicate and reflect on each other experiences and improve their practices. The communities of practice build self-learning teachers and guide the field practices by having teachers learning from each other. The online communities of practice provide more flexible time and fast responses which teachers need while working in a new system such as the Future Gate.

The findings indicated that teachers' beliefs regarding the Future Gate was the greatest factors that affected K-12 Saudi teachers' attitudes towards the Future Gate. Also, the findings pointed out that there was no meaningful relationship between teachers' beliefs and any prior experience whether it was teaching experiences or training experiences. Thus, I believe that refers to teachers' self-motivation to develop their personal practice, and it was not due to an outsource motivation or a strategic plan that structure their attitudes and beliefs. Therefore, I believe that there is a gap between the teachers' professional development programs real life daily practice. The training programs should be revised and evaluated in light of this study findings to understand the gap between teachers' professional development programs and their real life daily practice.

This study also indicated that there was a significant difference between teachers' attitudes based on their computer skills proficiency. Teachers who possess higher computer skills are more likely to use the Future Gate comfortably and confidently. Therefore, Saudi schools'

districts should take this result into consideration and put more efforts to develop teachers' computer skills that eases their use of the Future Gate and increase their self-efficacy.

Providing workshops that aim to improve the important computer skills that teachers need to have while working on the Future Gate. Also, a long-term plan should be made between the school districts and schools of education to improve pre-service teachers' computer skills by providing courses and put standers that determine which computer skills the future teachers may have. Also, the school districts may allow teachers to have a quick connection between teachers and experts to help them while working on the Future Gate.

According to the study results, subjective norm was not a significant factor toward K-12 Saudi teachers' attitudes towards the Future Gate. That means that people around K-12 Saudi teachers have a very limited impact on their attitude towards the Future Gate. That confirms what I mentioned previously about teachers' self-motivation to develop their personal practice and the absence of a strategic plan that guides the practice and clarify the vision of utilizing the Future Gate. I believe that integration technology should be a school culture, so everyone in the school knows the vision of integration technology including the school administration, teachers and students. The education reform efforts in Saudi Arabia should also deal with integration technology as a culture that everyone practices in all educational levels.

Limitations

1. One of this study limitations is that the study sample was only K-12 Saudi teachers who work under the General Administration of Education in Jeddah City. However, the similarity of schools' culture and policies in the Kingdom of Saudi Arabia support the researcher hope to generalize the study findings to include all K-12 Saudi teachers.

2. This study did not include K-12 private schools' teachers because K-12 private schools' in Saudi Arabia have sort of different environment and policies.
3. This study also did not include K-12 international schools' teachers because K-12 international schools' in Saudi Arabia have different environment and policies.
4. This study did not include non-Saudi teachers because the researcher had difficulty accessing them, and K-12 Saudi public schools include very few of them.

Suggestions for Future Research

1. This study investigated Saudi K-12 teachers' opinions towards the Future Gate. The results of this study do not explain the actual uses of the Future Gate. Therefore, the relationship between the Saudi K-12 teachers' attitudes towards the Future Gate and the actual uses need to be investigated and understood.
2. This study only tested the significance of TAM model and TRA model variables to understand K-12 teachers' attitudes toward the Future Gate. However, there are more variable that have been mentioned in the literature, but they are not included in TAM model and TRA model. I suggest to conduct a research that implements a different statistical methodology such as structural equation modeling (SEM) that can include a wide range of variables and understand which factors directly and indirectly affect K-12 teachers' attitudes toward technology.
3. This study did not allure to the students' attitude towards the Future Gate, and I believe that it is important to investigate and understand students' points of views towards any technology they use to guarantee the success of technology implementation.

4. The impact of the Future Gate was not investigated in this study, so further researches needs to be conducted to measure the impact of the Future Gate on teachers' practice and students' performance.

Conclusion

In order to guarantee the adoption or acceptance of technology among teachers, their attitude towards technology need to be deeply understood. Swaramarinda (2018) reported that one of teachers' failures to adopt technology is their negative attitude towards technology. The goals of this study were to measure K-12 Saudi teachers' attitudes toward the Future Gate and the factors that impact those attitudes. In additions, this study investigated the relationship between the factors that impact K-12 Saudi teachers' attitudes towards the Future Gate and their prior experiences about technology integration. The findings of the study confirmed the following:

1. K-12 Saudi teachers' maintain moderate to high positive attitude towards the Future Gate ($M = 2.81$, $SD = .89$).
2. The relationship between K-12 Saudi teachers' training workshops in technology integration and their self-efficacy was significant $r(530)= .14$, $p= .001$. However, it was not a meaningful relationship due to its poor effect size.
3. There was a statistical difference between K-12 Saudi teachers based on their computer skills proficiency so that teachers who have higher computer skills have higher self-efficacy, and vice versa.
4. There was a statistical difference between K-12 Saudi teachers' self-efficacy based on their computer skills proficiency so that teachers who have higher computer skills have higher self-efficacy, and vice versa.

5. There was a statistical difference between K-12 Saudi teachers' perceived ease of use based on their computer skills proficiency so that teachers who have higher computer skills are more likely to easily use the Future Gate, and vice versa.
6. The relationship between the prior teaching experiences using technology of K-12 Saudi teachers and their self-efficacy was not significant r(530)= .047, p= .285.
5. The relationship between K-12 Saudi teachers' training workshops in utilizing the Future Gate and perceived usefulness was significant r(530)= .09, p= .041. However, it was not a meaningful relationship due to its poor effect size.
7. The study found that perceive of usefulness, ease of use, self-efficacy were good predictors of K-12 Saudi teachers' attitudes toward the Future Gate.

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Appendix

Appendix A: Study Survey

Saudi K12 Teachers' Attitudes Toward the Future Gate System

إتجاهات المعلمين حول نظام بوابة المستقبل

1. **Gender:** الجنس

Male ذكر ☐
Female أنثى ☐

2. **School Level:** مرحلة المدرسة

Elementary School المرحلة الإبتدائية ☐
Intermediate School المرحلة المتوسطة ☐
High School المرحلة الثانوية ☐

3. **Teaching Subject:** موضوع التدريس

Islamic Studies:الدراسات الإسلامية ☐
Sciences:العلوم ☐
Math:الرياضيات ☐
Computer Sciences:علوم الحاسب ☐
Social Studies:الدراسات الإجتماعية ☐
Sport Education:الرياضة البدنية ☐
Art Education: الفنية ☐
Arabic Studies:اللغة العربية ☐
English Studies:اللغة الإنجليزية ☐

4. **Computer Skills Proficiency**: إجادة مهارات الحاسب

Beginner:مبتدئ ☐
Intermediate:متوسط ☐
Advance: متقدم ☐

5. **Teaching Experience:** الخبرات التدريسية

Years of teaching experience سنوات الخبرة التدريسية (.....)
Years of teaching with technology سنوات تضمين التقنية مع التدريس (.....)

6. **Training experience:** الخبرات التدريبية

Number of workshops regard integrating technology عدد الدورات حول تضمين التقنية (.....)
Number of workshops regard using FG عدد الدورات حول استخدام بوابة المستقبل (.....)

To which extent do you agree with the following statements:

إلى أي حد تتفق مع العبارات التالية:

N	Attitude	Strongly Disagree لا أتفق بشدة 1	Disagree لا أتفق 2	Agree أتفق 3	Strongly Agree أتفق بشدة 4
7	I believe it is a good idea to use FG to enhance e-learning أعتقد أن إستخدام بوابة المستقبل فكرة جيدة لتعزيز التعلم الإلكتروني				
8	Teaching with FG is fun التدريس بواسطة بوابة المستقبل ممتع.				
9	I believe that FG makes teaching more interesting. أعتقد أن إستخدام بوابة المستقبل تجعل التدريس أكثر إثارة للإهتمام.				
10	I like teaching with the FG. يعجبني التدريس بواسطة بوابة المستقبل				
N	Ease of Use	Strongly Disagree لا أتفق بشدة 1	Disagree لا أتفق 2	Agree أتفق 3	Strongly Agree أتفق بشدة 4
11	I believe that using FG is easy for me. أعتقد أن إستخدام بوابة المستقبل سهل بالنسبة لي				
12	I believe that it is easy to become skillful at using FG. أعتقد أنه من السهل أن أصبح متمكنا من إستخدام بوابة المستقبل				
13	I believe that FG is flexible to interact with. أعتقد أن التفاعل مع بوابة المستقبل مرن.				
14	Learning to operate FG is easy for me. تعلم كيفية استخدام بوابة المستقبل سهل بالنسبة لي.				
15	It is easy for me to get FG to do what I want to do. من السهل بالنسبة لي استخدام بوابة المستقبل لإنجاز ما أريد عمله				
16	I believe that my interaction with FG is clear and understandable. أعتقد أن تفاعلي مع بوابة المستقبل واضح ومفهوم				
N	Usefulness	Strongly Disagree لا أتفق بشدة 1	Disagree لا أتفق 2	Agree أتفق 3	Strongly Agree أتفق بشدة 4
17	Using FG in my job enable me to accomplish				

	tasks more quickly بوابة المستقبل تمكنني من انجاز المهام بشكل أسرع				
18	Using FG improves my job performance إستخدام بوبة المستقبل يحسن من أدائي في العمل				
19	Using FG in my job increase my productivity إستخدام بوبة المستقبل يزيد من أنتاجيتي في العمل				
20	Using FG enhance my effectiveness on the job. إستخدام بوبة المستقبل يعزز من فعاليتي في العمل				
21	FG makes it easier to do my job بوابة المستقبل تجعل القيام بعملي أكثر سهولة				
22	I believe that FG useful in my job. أعتقد أن إستخدام بوابة المستقبل مفيد في عملي				
N	Self-Efficacy **I can complete a job or task using Future Gate:** يمكنني القيام بعمل أو مهمة ما بإستخدام بوابة المستقبل:	Strongly Disagree لا أتفق بشدة 1	Disagree لا أتفق 2	Agree أتفق 3	Strongly Agree أتفق بشدة 4
23	If there is no one around to tell me what to do as I go. إذا لم يكن حولي أحد يخبرني ماذا أعمل أثناء عملي على بوابة المستقبل				
24	If I can call someone for help if I get stuck. إذا كان بالإمكان الإتصال بشخص ما للمساعدة عند تعثري أثناء عملي على بوابة المستقبل				
25	If I have a lot of time to complete the job for which the software was provided. إذا توفر لدي الوقت لإنهاء الأعمال التي وجدت بوابة المستقبل من أجلها				
26	If I have just the built-in help facility for assistance. إذا توفرت لدي وسائل مساعدة مدمجة أو مضمنة في بوابة المستقبل				
N	Subjective Norm	Strongly Disagree لا أتفق بشدة 1	Disagree لا أتفق 2	Agree أتفق 3	Strongly Agree أتفق بشدة 4
27	My colleagues think I should use FG. زملائي يعتقدون أنه من الواجب علي إستخدام بوابة المستقبل				
28	In my school, teachers are expected to use FG يتوقع من المعلمون في مدرستي أنهم يستخدمون بوابة المستقبل				
29	The school administrators are helpful in the				

	use of FG. إدارة المدرسة مساعدة في إستخدام بوابة المستقبل				
30	The people who influence my behavior think I should use FG. الأشخاص المؤثرون في سلوكي في عملي يعتقدون أنه يجب أن أستخدم بوابة المستقبل				

Appendix B:IBR approval of initial study

Date: October 1, 2019

TO: Basim Alshehri, (b196a614@ku.edu)

FROM: Alyssa Haase, IRB Administrator (785-864-7385, irb@ku.edu)

RE: **Approval of Initial Study**

The IRB reviewed the submission referenced below on 10/1/2019. The IRB approved the protocol, effective 10/1/2019.

IRB Action: APPROVED	**Effective date: 10/1/2019**	**Expiration Date : 9/30/2020**
STUDY DETAILS		
Investigator:	Basim Alshehri	
IRB ID:	STUDY00144713	
Title of Study:	Investigating Saudi Teachers' Opinions Regarding "The Future Gate (FG)," the New Learning Management System as Applied to E-learning	
Funding ID:	None	
REVIEW INFORMATION		
Review Type:	Initial Study	
Review Date:	10/1/2019	
Documents Reviewed:	• HRPP information statement 6 2016 Alshehri Basim.docx, • HRPP information statement 6 2016 Alshehri Basim.docx, • KU Human Research Protocol 8-17-1 0 Alshehri Basim.pdf, • Recrutment Material Basim Alshehri.docx, • Recrutment Material Basim Alshehri.docx, • To which extent do you agree with the following statements Arabic.docx	
Exemption Determination:	• (2)(i) Tests, surveys, interviews, or observation (non-identifiable)	
Additional Information:		

KEY PROCEDURES AND GUIDELINES Consult our website for additional information.

1. **Approved Consent Form:** You must use the final, watermarked version of the consent form, available under the "Documents" tab, "Final" column, in eCompliance. Participants must be given a copy of the form.
2. **Continuing Review and Study Closure:** You are required to provide a project update to HRPP before the above expiration date through the submission of a Continuing Review. Please close your study at completion.
3. **Modifications:** Modifications to the study may affect Exempt status and must be submitted for review and approval before implementing changes. For more information on the types of modifications that require IRB review and approval, visit our website.
4. **Add Study Team Members:** Complete a study team modification if you need to add investigators not named in original application. Note that new investigators must take the online tutorial prior to being approved to work on the project.
5. **Data Security:** University data security and handling requirements apply to your project.
6. **Submit a Report of New Information (RNI):** If a subject is injured in the course of the research procedure or there is a breach of participant information, an RNI must be submitted immediately. Potential non-compliance may also be reported through the RNI process.
7. **Consent Records:** When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity.

8. **Study Records** must be kept a minimum of three years after the completion of the research. Funding agencies may have retention requirements that exceed three years.

Appendix C: Sample information statement

Investigating Saudi Teachers' Opinions Regarding "The Future Gate (FG)," the New Learning Management System as Applied to E-learning

It is important to understand that:

- Your participation in this research project is completely voluntary.
- Your participation will take approximately 8 minutes.
- You will be asked to fill out an online survey that will cause no risk or discomfort than you would experience in your everyday life.
- Although participation may not benefit you directly, we believe that the information obtained from this study will help us gain a better understanding of the factors impact Saudi teachers to accept a new technology. It is essential to understand that the result from this study will be shared with the school district leaders and administrator. Your participation is solicited; it is strictly voluntary.
- Your alternative to participating in this research study is not to participate.

The Department of Educational leadership & policy Studies at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

We are conducting this study to better understand he factors that impact Saudi teachers to accept a new technology.

Your name will not be associated in any way with the research findings. Your identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission. It is possible, however, with internet communications, that through intent or accident some other than the intended recipient may see your response.

If you would like additional information concerning this study before or after it is completed, please feel free to contact us by phone or mail.

Completion of the survey indicates your willingness to take part in this study and that you are at least 18 years old. If you have any additional questions about your rights as a research participant, you may call (785) 864-7429 or write the Human Research Protection Program (HRPP), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email irb@ku.edu.

Sincerely,

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إستطلاع رأي المعلمين السعوديون حول نظام إدارة التعلم الجديد المسمى "بوابة المستقبل":

من المهم أن تعي:

- أنَّ مشاركتك في هذا الاستبيان بشكل تطوعي منك.
- من المتوقع أن تستغرق مشاركتك حوالي ٨ دقائق حتى تكتمل.
- لا ينبغي أن يتسبب محتوى هدا الاستبيان في إزعاج أكثر مما كنت ستشهده في حياتك اليومية.
- على الرغم من أن المشاركة قد لا تفيدك بشكل مباشر، إلا أننا نعتقد أن المعلومات التي سوف يتم الحصول عليها من هذه الدراسة ستساعدنا على فهم أفضل للعوامل المؤثرة على تقبل المعلمين لتقنية جديدة. من الضروري أن تفهم أن نتائج هذه الدراسة قد تتم مشاركتها مع قادة التعليم ومسؤولها.
- البديل عن المشاركة في هذه الدراسة البحثية هو عدم المشاركة.

يدعم قسم القيادة التربوية ودراسات السياسات التربوية في جامعة كانساس ممارسة حماية البشر المشاركين في الأبحاث. فقد يتم توفير المعلومات التالية لك لتقرير ما إذا كنت ترغب في المشاركة في هذه الدراسة. يجب أن تدرك أنه حتى لو وافقت على المشاركة، فأنت حر في الانسحاب في أي وقت دون عقوبة.

نحن نجري هذه الدراسة لمحاولة فهم فهم أفضل للعوامل المؤثرة على تقبل المعلمين لتقنية جديدة. وهذا يستلزم مشاركتك، وإنهاءك لهذا الاستبيان.

مشاركتك، وهي طواعية تماما. لن يرتبط اسمك بأي شكل من الأشكال بنتائج البحث. لن يتم مشاركة معلوماتك الشخصية إلا إذا كان (أ) مطلوبًا بموجب القانون أو سياسة الجامعة، أو (ب)إذا منحت إذنًا كتابيًا. ومع ذلك، من الممكن، من خلال الاتصالات عبر الإنترنت، أن يرى شخص ما بخلاف المستلم المقصود أو عن طريق الصدفة ردك.

إذا كنت ترغب في الحصول على معلومات إضافية حول هذه الدراسة قبل أو بعد الانتهاء منها ، فلا تتردد في الاتصال بنا عن طريق الهاتف أو البريد.

يشير إكمال الاستبيان إلى استعدادك للمشاركة في هذه الدراسة وأنك تبلغ من العمر 18 عامًا على الأقل. إذا كان لديك أي أسئلة إضافية حول حقوقك كمشارك في البحث، يمكنك الاتصال على (785) 864 7429 أو مراسلة برنامج حماية البحوث الإنسانية (HRPP) ، جامعة كانساس، Irving Hill Road 2385 ، لورانس ، كانساس 66045 7563 ، البريد الإلكتروني irb@ku.edu.

بإخلاص،

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Appendix D: Instrument key Elements

		Items
Key Elements 1	Demographic Information	1-6
Key Elements 2	Attitude Scale	7-10
Key Elements 3	Perceived Ease of Use Scale	11-16
Key Elements 4	Perceived Usefulness Scale	17-22
Key Elements 5	Self-Efficacy Scale	23-26
Key Elements 6	Subjective Norm Scale	27-30