FACTORS INFLUENCING STUDENTS' RESISTANCE TO CHANGE AND INTENTION TO USE MOBILE LEARNING IN SAUDI ARABIA

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by

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LIST OF SYMBOLS

SEM	Stractural Equation Model
EM	Expectation-Maximization approach to determine the missing value
CMV	Common Method Variance
AVE	The Average Variance Expected
R^2	Variance Explained
f^2	Effect Size
Q^2	Predictive Relevance

LIST OF ABBREVIATIONS

M-Learning	Mobile Learning
E-Learning	Electronic Learning
D-Learning	Distance Learning
UTAUT	Theory of Accepting and Use of Technology
PE	Performance Expectancy
EE	Effort Expectancy
LI	Lecturer Influence
FC	Facilitating Conditions
MIR	Model of Innovation Resistance
ATT	Attitude
PI	Personal Innovativeness
SE	Self-Efficacy
SML	Self-Management of Learning
IN	Inertia
BI	Behavior Intention
MR	M-Learning Resistance

LIST OF APPENDICES

FAKTOR-FAKTOR YANG MEMPENGARUHI RINTANGAN UNTUK BERUBAH DAN HASRAT PELAJAR DALAM PENGGUNAAN PEMBELAJARAN MUDAH ALIH DI ARAB SAUDI

ABSTRAK

Kajian ini mengkaji kesan UTAUT (Jangka Prestasi, Jangkaan Usaha, Pengaruh Pensyarah & Kemudahan Persekitaran) dan MIR (Sikap, Inovatif Peribadi, Efikasi Kendiri, Pengurusan Kendiri pembelajaran & Inersia) terhadap rintangan dan niat untuk menggunakan m-pembelajaran. M-Pembelajaran dalam kalangan pelajar Universiti Pengajian Tinggi di Arab Saudi di bawah premis model UTAUT dan MIR. Data kuantitatif di kumpul daripada 358 pelajar yang dipilih secara rawak berdasarkan Lima institusi pendidikan terbaik dan terkenal di Arab Saudi. Dapatan kajian menunjukkan jangkaan prestasi, jangkaan usaha, pengaruh pensyarah, keadaan pemudah cara, efikasi kendiri dan pengurusan kendiri pembelajaran impak positif yang signifikan terhadap niat menggunakan m-pembelajaran, sementara itu, jangkaan prestasi, pengaruh pensyarah, keadaan memudahkan, peribadi. inovatif dan efikasi kendiri impak positif yang signifikan terhadap rintangan m-pembelajaran. Dapatan kajian ini seterusnya mendedahkan kesan pengantaraan yang signifikan rintangan m-pembelajaran terhadap hubungan antara jangkaan prestasi, pengaruh pensyarah, keadaan pemudahcara, sikap, inovasi peribadi dan efikasi kendiri dengan niat untuk menggunakan m-pembelajaran. Adalah disyorkan agar Kerajaan ekonomi sedang pesat membangun seperti Arab Saudi, menggubal dasar untuk lebih m-pembelajaran dan menyokong pelajar mereka menggunakan m-pembelajaran.

FACTORS INFLUENCING STUDENTS' RESISTANCE TO CHANGE AND INTENTION TO USE MOBILE LEARNING IN SAUDI ARABIA

ABSTRACT

This study examined the effect of UTAUT (Performance Expectancy, Effort Expectancy, Lecturer Influence & Facilitating Condition) and MIR (Attitude, Personal Innovativeness, Self-efficacy, Self-Management of Learning & Inertia) on the m-learning resistance and intention to use m-learning among the universities students in Higher Education in Saudi Arabia under the premises of UTAUT and MIR models. Quantitative data was collected from randomly selected 358 students based on the five best-ranked and well reputed educational institutions in Saudi Arabia. Findings of the study revealed that performance expectancy, effort expectancy, lecturer influence, facilitating conditions, self-efficacy and self-management of learning positively significant impact of intention to use m-learning, meanwhile, performance expectancy, lecturer influence, facilitating conditions, personal innovativeness and self-efficacy positively significant impact of m-learning resistance. Findings of this study further revealed on significant mediating effect of m-learning resistance on the relationship between performance expectancy, lecturer influence, facilitating conditions, attitude, personal innovativeness and self-efficacy with intention to use m-learning. It is recommended that government of emerging economies such as Saudi Arabia, formulate policies for a more m-learning and support their student to use m-learning.

CHAPTER I

INTRODUCTION

1.1 Overview

Nowadays, researchers are exploring innovative techniques in order to gain learners' attention and provide an active learning environment for learners to constantly learn. In addition, innovative techniques also aim to provide a learning environment in a motivating and stimulating manner using various information technology tools. According to Pedro et al., (2018), m-learning has become one of the most important and highly preferred tools that most of the educational institutions are planning to integrate so that the students in any part of the world can have access to education in the form of digital learning, thereby ensuring equitable education to everyone. This particular research project focuses on examining the application and adaptation of m-learning in Saudi Arabia's higher educational institutions. This chapter gives an overview of the research topic and highlights the challenges addressed in this study. The research context and research problem are then presented. Next, the research questions as well as research objectives are outlined. The scope of the research and significance of the study will then be discussed. This chapter will conclude with an outline of the thesis and quick description of each chapter. Finally, a chapter summary is provided.

1.2 Research Background

Mobile learning (m-learning) has developed as a new dimension in the education industry as a result of the rapid and advanced development of mobile technology over the previous decade, with additional value-added benefits (Dhawan, 2020). M-learning is still in its infancy in the evolution of e-learning and distance learning. As mobile devices have become more prevalent, many mobile applications have been developed to aid teaching

and learning programs (Chen, et al., 2008, Dhawan, 2020). Mobile applications that aim to enhance the teaching and learning process, according to El-Hussein and Cronje (2010), will become effective methods of disseminating knowledge for higher education. Bidin et al. (2013) define m-learning as "the application and implementation of mobile technology to facilitate education and the learning process". The vector of m-learning refers to the most widely used systems of m-learning in the education industry that use programs, also known as apps. Apps are mobile applications that run on a variety of mobile operating systems, can be used online or offline, and have easily downloadable features (Al-Razgan and Alotaibi, 2019). The applications provide students with a large amount of time to engage in various engaging educational activities such as communication, quizzes, and interactive instructional games are just a few of the features available, allowing them to boost their mental and psychological capabilities (Momani et al., 2017).

M-learning, which is the result of mobile devices' evolution, has allowed educators and students to learn anywhere and whenever they want (Negas & Ramos 2011; Wang et al. 2009, Dhawan, 2020). With easy accessibility, vast number of availabilities, and fitted with a number of applications, have paved the way for students to increase their range of interaction with others and mitigate serious challenges. M-learning has effectively offered a significant platform for sharing information, easy management of the learning materials, and easy communication with the other facilities. Undoubtedly, considering these factors, one can promptly understand that m-learning has become one of the best and provident companions for students of all ages. M-learning provides a number of significant benefits to the users such as providing them with the platform for interactive learning activities, participating in self-managing learning processes, investing their time for corporate learning, as well as influencing the students to adopt personalized

learning (Iqbal et al., 2017, Dhawan, 2020). According to Shuja et al., (2019), m-learning seems to have become a profound medium to send and receive knowledge from the other students, hence making the students to be efficiently eligible for group work which will help them in their next life, especially in the professional field. Al-Gahtani (2016) has reported that since e-learning helps the students to access and exchange the necessary information and data from anywhere according to their necessities and wish, mobility should be considered as the most distinctive feature of m-learning which separates it from the traditional form of learning process. Kim-Soon et al. (2015) also supported the notion that m-learning should be made a prerequisite for students entering higher education so that the performance of e-learning can be monitored.

Since an academic institution barely has any control over the students outside its walls, mobile phones, that apparently appear helpful, are spreading menaces as well. Essentially, the governments and the institutions, therefore, need to concentrate on identifying and mitigating the demerits before recommending the opt for m-learning process. Therefore, studying the elements that influence m-learning adoption is crucial since it will assist to identify the key drivers and barriers to adoption. It is essential to identify the factors that have an influence on user acceptance as it can ensure the successful delivery of an improved higher education experience (Grace-Anne Jackman, 2014). In addition, before m-learning is adopted in higher education, students' perceptions of m-learning must be explored (Cheon et al., 2012, Shuja et al., 2019). This is because there are many considerations that need to be taken into account before adopting m-learning. Furthermore, because m-learning is still in its early stages, a thorough investigation is required to fully understand its educational potential (Prajapati & Patel, 2014). According to Ayoade (2015), it is vital to determine what are the contributing

factors towards learners' acceptance of m-learning so that the adoption process of using m-learning will be more efficient.

Statistically, nearly 95% of the academic institutions in the USA and all the institutions in Japan are using the m-learning technology (Rodriguez et al. 2016). Nearly 73% of students and 19% of teachers in the USA use their mobile phones to access information while studying and teaching, meanwhile 45% of students and 13% of teachers were found to use a tablet while studying and teaching in their institution (Rodriguez et al., 2016). A study by Crompton, Olszewski & Bielefeldt (2016) highlighted that the total number of students allowed to use mobile phones with limitations in the UK was 49%, while 26% of them were allowed to use their phones without any specific restrictions. Nearly 94% of higher education institutions in Germany have been found to allow their students to access the free Wi-Fi at the campus and use their smartphones for accessing their necessary websites and e-books (Park, Nam & Cha, 2012). However, the study of Fuller & Joynes (2015) reported that in Germany, the number of challenges increased by 31% in the past 6 years when students were allowed to adopt the m-learning approach. It is quite clear from the above discussion that students extensively use smartphones in USA and UK university classrooms. However, are these same patterns evident in classrooms in GCC Universities? Mohammad Abu Taled et al., (2017) stated that, similar to US students, Arab undergraduates use their smartphones in class. Results from Mohammad Abu Taled et al., (2017), indicated 92% (US 97%) admitted they have sent or received a text message in class with 35% (US 30%) sending or recovering a text every day. Over 91% (US 97%) report seeing other students texting during class and roughly 88% report that they have text during class. In terms of texting during exams, 61.7% (US 67.3) reported never seeing another student text during an exam while 77.3% (US 86%) never

texted during an exam. This has caused the students to be distracted while surfing the Internet and waste their time (Fuller & Joynes, 2015). The research of Bannan, Cook & Pachler (2016) stated that even after allowing the students to access the websites with restrictions, there were several other applications available in Google Store or Apple Store which allow the user to create a secret proxy VPN in the mobile phone and allow the students to use different other websites.

Oman is among one of the forerunners among the Arabian countries to introduce m-learning for the higher institutions in the country. Almost 73% of the total Omani institutions are allowing students to use m-learning (Cook & Santos, 2016). Meanwhile, nearly 83% of the higher education institutions in UAE are offering m-learning options while 79% of Turkish institutions are fitted with effective m-learning technology. However, all of these institutions have successfully been able to limit the number of websites used by the students within the campus in order to restrict the students from getting deviated from their path of study (Niblock, 2015).

However, 37% of institutions in Oman had received a security breach in 2016 and the personal information of a large number of students were leaked online by hackers. A study of Alrashidi & Phan (2015) highlighted that nearly 32% of students failed in the year 2017 in UAE due to overuse of mobile phones, and being too distracted by social media. Furthermore, nearly 64% of the total respondents in a study conducted by Jaradat (2014) in Turkey have pointed out that they remain tensed about the battery life and Internet connection of their phone while being in their classes or studying anything that impacts their learning outside their classroom.

Saudi Arabia is well-known for the problems related to the Internet (International Trade Administration, 2022). However, according to the International Data Corporation

(IDC), the Saudi ICT sector grew by eight percent between 2019 and 2021, reaching a value of $32.1 billion. IDC predicts that spending in the sector will further grow by 2.3 percent in 2022 to reach a value of almost $33 billion. Growth is primarily being driven by digital transformation efforts in the government, telecom, finance, and oil and gas sectors, with an increased focus on giga-projects, smart cities and e-governance. Opportunities exist in cybersecurity, cloud, artificial intelligence, and internet of things. According to the International Telecommunication Union (ITU), Saudi Arabia currently has the largest cybersecurity industry in the Middle East. The Saudi Arabian cybersecurity market was valued at $3.6 billion in 2020 and is expected to grow at a CAGR of 17.98 percent to reach $9.8 billion by 2026 Cyber threats in Saudi Arabia continue to be a major challenge. However, despite Saudi Arabia the leading sectors in Technology, nearly 39% of higher education institutions in the country do not allow their students to use the Wi-Fi within the campus due to the apprehension that the students might be using it for the wrong purposes (International Trade Administration, 2022). Being a country that is guided and dominated by tradition, letting the students engage in conventional study procedure has been the main point of attention for the country for a long time. According to Alrashidi & Phan (2015), approximately 62 percent of Saudi Arabia's higher education institutions have contemplated making an urgent switch to an Internet-based learning style. A big number of Saudi Arabian students appear to have complained about poor Internet connectivity, which has made it difficult for them to download or access important instructional materials or read e-books (Alrashidi & Phan, 2015).

The Saudi government has gained some interest with regards to the benefits that e-learning and m-learning provide. The government has taken a step towards adopting e-learning technology in Saudi Arabia's higher education. This is because, the government intends to take measures towards reducing financial wastes, and curb the problems of increase in population and insufficient numbers of universities and higher educations in Saudi Arabia. Nassuora (2012) has reported that since the Saudi government is committed and determined to provide easy access, cost efficient, and effective lifelong education to the current generation and the generations to come, adaptation of any sort of strategy such as m-learning is quite natural. Moreover, m-learning is not a new term in Saudi Arabia's education because it is already in its implementation phase (Nassuora, 2013; Momani et al., 2017; Shorfuzzaman & Alhussein, 2016; Al-Hujran et al., 2014; Seliaman, 2012). M-learning has yet to be formally integrated into the delivery of higher education in Saudi Arabia (Nassuora, 2012; Alqahtani, 2016). This is also true of e-learning in general, yet students and teachers are making use of it (Nassuora, 2012).

It is vital to note that innovative technologies for m-learning have been successfully implemented in technologically advanced countries such as the South Korea, Japan, China, and United States. In international research and development, the models utilized in these countries serve as measuring scales. However, these figures may not necessarily reflect the challenges that Middle Eastern countries face when it comes to advanced mobile technology. There is no certainty that the influencing concerns and difficulties in adapting and implementing the process of m-learning will be the same in developing countries like Saudi Arabia (Masarweh, 2018; Alqahtani, 2016).

Environmental, cultural, and economic disparities, according to Briz-Ponce et al. (2017), impede the deployment of most western technologies in developing countries like

Saudi Arabia. The technological procedures necessary as well as the important success elements in such countries are fundamentally different. As a result, it's acceptable to claim that comprehending the influencing variables that influence students' behavioral intention to utilize m-learning is critical in order to create an appropriate m-learning setting that cater to the interests and demands of students.

1.3 Context of the Study

Saudi Arabia was established in 1932 and currently covers over half of the Arabian Peninsula. The Red Sea borders it on the west, Kuwait, Iraq and Jordan on the north, the United Arab Emirates, Oman, Qatar and the Arabian Gulf on the east, and Yemen on the south (Figure 1.1).

Figure 1.1: Location of Saudi Arabia

According to Global Media Insight (2019), Saudi Arabia recorded an estimation of 33.4 million people by the end of 2018. Looking back, in the year of 1960, the population of Saudi Arabia was recorded at 4.0 million people. There are now 18.76

million men (56.69 percent) and 14.33 million women in the country (43.31 percent). Saudi Arabia's population accounts for 0.41 percent of the world's total, which means that one out of every 248 individuals on the earth lives in Saudi Arabia. The following chart shows the increase in population from year 2009-2018:

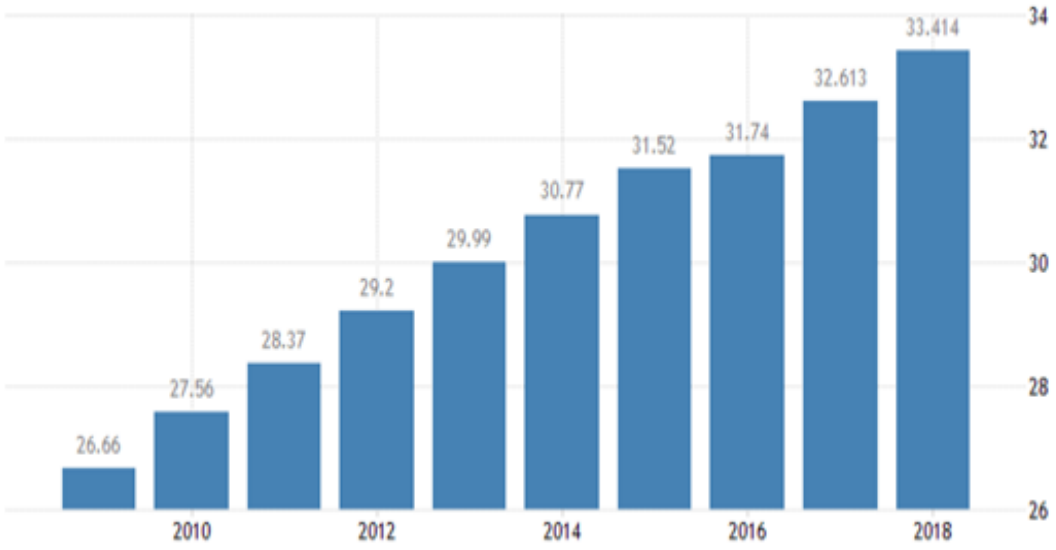

Figure 1.2: Population of Saudi Arabia (Tradingeconomics.com, 2019)

1.3.1 Mobile Communication Development in Saudi Arabia

Mobile communication development has taken place in the economy of Saudi Arabia. Saudi Arabia's Ministry of Communication and Information Technology (2019) has reported that the first mobile wireless station was imported in 1934 to provide telegraph services to the population of Saudi Arabia. In 1934, a telephone line was established to connect all of Saudi Arabia's cities and villages. In 1984, the Kingdom launched and operated the world's first fiber optic network, while mobile phone service was launched in 1995 (Baabdullah et al., 2017). Mobile devices have become a fundamental aspect of Saudi Arabians' daily life activities and are used extensively in the

banking, commerce, health and education sectors. STC, Mobily and Zain are the three telecommunication provider companies in Saudi Arabia (Aldhaban, Daim and Harmon, 2016). Most of the telecommunication market has been captured by these three decent companies. STC holds the maximum portion that is 45% of the telecommunication market. Mobily is in the second position in order to grab customers and it holds 38.30% of the total market share. Zain is in the third position where it holds 16.70% of the entire telecommunication market (Uluc & Ferman, 2016). The following chart explains the portion of each company.

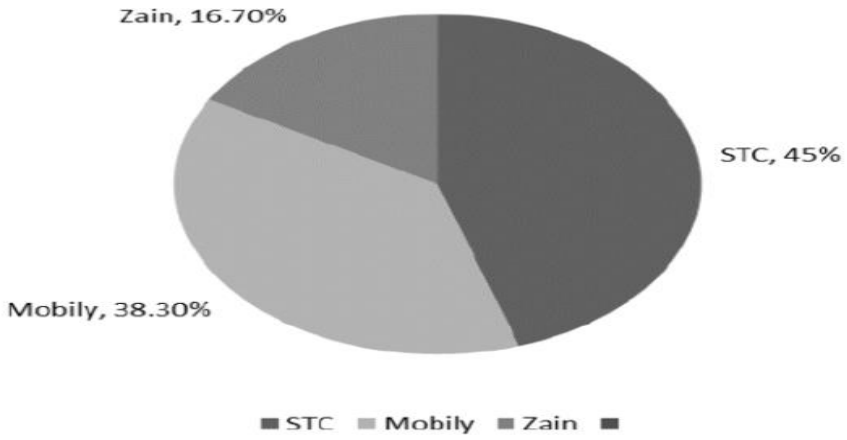

Figure 1.3: Telecommunication companies in Saudi Arabia

In Saudi Arabia, STC is the sole provider of telephone lines. As a result, users must pay costs to STC for ADSL service activation and to the ISP for Internet service. Customers, on the other hand, have chastised the STC for their incompetence in delivering fast ADSL connection. Instead, clients must typically wait a considerable time for ADSL service to be delivered to their phone lines. Since 2001, the ADSL service has been offered in Saudi Arabia. STC increased the scale of its ADSL infrastructure in 2006, resulting in a reduction in client wait times. Despite their efforts, however, many clients remained on

the waiting list. In addition, STC also offers Fiber Optic Internet Connectivity, but it is mainly available in larger cities. The maximum Internet speed available in 2011 was 200 Mbit/s.

In order to develop the telecommunication industry, the government of Saudi Arabia has taken considerable measures for the development of mobile communication (Gerpott, May and Nas, 2017). According to Shorfuzzaman and Alhussein (2016), by the second quarter of 2015, the number of cellular phone subscribers had risen to 53.1 million, with a penetration rate of 170.5 percent. Meanwhile, the number of Internet users grew fast, reaching 66 percent of the population in 2015 (Shorfuzzaman and Alhussein, 2016). Saudi Arabia was recently ranked second among G20 countries in terms of radio spectrum available to operators for public mobile telecom services (Arab News, 2019). The Saudi mobile communication development has prepared the Saudi Telecommunication Corporation to launch 5G mobile communication in the country (Callanan, Jerman-Blažič and Blažič, 2016). According to Statista (2022), the number of users for online learning platform in Saudi Arabia, expected to amount to 5.2m user by 2027 and as for user penetration will be 9.3% in 2022 and is expected to hit 13.7% by 2027.

1.3.2 Education in Saudi Arabia

The Ministry of Education, the Ministry of Higher Education, the General Organization for Technical Education and Vocational Training are in charge of Saudi Arabia's education system. Other authorities, such as the Ministry of Defense and Aviation, the National Guard Presidency, and the Ministry of the Interior, provide education at all levels to their affiliates and children in accordance with the Ministry of Education's rules. The Supreme Committee for Educational Policy, which was created in

1963, is Saudi Arabia's highest educational body (World Data on Education, 2016). The World Bank's database has revealed that the public spent 6.8% of GDP on education which accounted for 27.6% in terms of government expenditure in 2004. Furthermore, between 1970 and 2000, this spending tripled, and neither economic improvement nor the price of oil had much of an impact on this trend (The World Bank, 2008). According to Saudi Arabia's Ministry of Education, (2005), the population reached 22,757,092 in 2001, and the country's general literacy rate was recorded at 62.8% (71.5%for males and 50.2%for females). Table 1.1 is the Ten-Year Plan (1425-1435) set by the Ministry of Education which involves the following goals.

Table 1.1: The Ten-Year Plan's Objectives

No.	Goals
1	Kindergarten is distinct from other educational stages in terms of its buildings and curricula, as well as the teaching of children aged 4 to 6.
2	At various stages of education, students of all ages, ranging from 6-18, are accommodated.
3	Increasing intellectual knowledge of Saudi Arabia's domestic problems in order to strengthen the country's spirit of loyalty and pride.
4	Preparing children academically and culturally at the local and worldwide levels so that they can reach advanced international positions in math and science for various age groups while complying to international test norms.
5	Organizing girls' technical education.
6	The creation of a special education system for kids with disabilities.
7	Education and administrative training for Ministry workers are being developed and expanded.
8	Improvement of the educational system's internal and external sufficiency.

9	Syllabi based on Islamic values are being developed, resulting in the development of male and female students' personalities and their integration into society, as well as the acquisition of scientific and thinking abilities and life qualities, resulting in self-education and lifelong learning.
10	To maximize the utilization of Saudi human resources, improve the quality of male and female teachers, and boost the citizen participation rate in the education sector.
11	In the next stage, develop the instructional framework and update the school map to suit the anticipated quantitative and qualitative changes.
12	To improve the infrastructure of information and communication technology, as well as the use of it in education and learning.
13	To improve adult education for both men and women and to eliminate illiteracy.
14	The growth of the Ministry's administrative structure as a whole.
15	Social participation in schooling is becoming more widespread.
16	To create a system of responsibility that is interconnected.

Source: Saudi Arabia's Ministry of Education Website (2005)

The education in Saudi Arabia has been noted for its religious forms and content. Religious studies were reported to be 9 periods per week at the primary school level, compared to 23 periods per week for other courses such as mathematics, science (physics, chemistry, biology, and geology), social studies, Arabic language, English language, and physical education (House, Karen Elliott, 2012). Meanwhile, over two-thirds of university graduates have degrees in Islamic topics (House, Karen Elliott, 2012). As noted by previous researchers, the widespread condemnation of the Saudi educational system are as follows:

- Saudi youth "generally lacks the education and technical skills that the private sector needs" (CIA World Factbook, 2011).

- The education system has also been criticized for "poorly trained teachers, low retention rates, lack of rigorous standards, as well as weak scientific and technical instruction" (Commins, David, 2009).

1.3.3 Higher Education in Saudi Arabia

Since the early 1970s, Saudi Arabia has begun to focus on higher education as that was when the country entered the rapid development era. A separate Ministry of Higher Education was created in 1975. The Ministry then embarked on a long-term strategy to ensure that the education system in Saudi Arabia produces graduates who are highly skilled and talented in order to take charge and run the country's economy effectively. The government's plan was to establish new educational institutions all over the Kingdom and expand the existing ones. By 2014, the government had fulfilled its goal, with 25 major public universities, a huge number of vocational schools, and an increasing number of private colleges. Establishing more undergraduate and postgraduate programs was the primary aim of the higher educational institutions. This has provided access to the students in Saudi Arabia to pursue their studies in any field that they are interested in. Besides, the students also have opportunities to pursue higher education abroad if it is necessary.

1.3.4 Higher Education Institutions in Saudi Arabia

There are about 1 million students who are currently enrolled in Saudi Arabia's higher educational institutions including universities and colleges as compared to only 7000 students in 1970. The numbers vividly show a stark improvement. Half of these students are women. All major institutions, as well as numerous all-female colleges and private women's universities, have female students (The Embassy of Saudi Arabia in Washington DC' Website, 2017). Moreover, chances are also open to the students if they wish to pursue specialized graduate and postgraduate degrees overseas. Thousands of

students have taken the opportunity to enroll themselves in universities outside Saudi Arabia using scholarships provided by the Saudi government (The Embassy of Saudi Arabia in Washington DC' Website, 2017). Based on the Times Ranking, there are 26 universities were selected on the basis of Times' Higher Education Ranking in Saudi Arabia including public and private sector universities (Times, 2020). The following list (Table 1.2) is the colleges and universities listed by Times' Higher Education Ranking.

Table 1.2: List of Education Institutions Listed by Times in Saudi Arabia

No	Institution
1	Al-Farabi College for Nursing and Dentistry
2	Al-Imam Mohamed Ibn Saud Islamic University
3	Alfaisal University
4	Dar Al-Hekma University
5	DUPE - Umm Al-Qura University
6	Effat University
7	Imam Abdulrahman Bin Faisal University
8	Jazan University
9	King Abdulaziz University
10	King Abdullah University of Science and Technology (KAUST)
11	King Fahd University of Petroleum and Minerals
12	King Faisal University
13	King Khalid University
14	King Saud bin Abdulaziz University for Health Sciences
15	King Saud University
16	Majmaah University
17	Prince Mohammad Bin Fahd University
18	Prince Sattam Bin Abdulaziz University
19	Prince Sultan University (PSU)
20	Princess Nourah bint Abdulrahman University
21	Qassim University

22	Taibah University
23	Taif University
24	Umm Al-Qura University
25	University of Tabuk
26	Yanbu Industrial College

(Source: Times, 2020)

Due to time lag, this study cannot cover all colleges and universities in Saudi Arabia therefore, only top five universities will be targeted to gather data for this study. These five universities were selected on the basis of Times' Higher Education Ranking. The following (Table 1.3) is the list of top universities in Saudi Arabia (Times, 2020).

Table 1.3: List of Top 5 Universities

Universities	Times Higher Education Ranking (2020)
King Abdulaziz University	201
Alfaisal University	251
King Abdullah University of Science and Technology	434
King Fahd University of Petroleum & Minerals	501
King Saud University	501

1.3.5 Distance Learning & E-Learning in Saudi Arabia

In 2006, the Saudi Arabian Ministry of Higher Education formally accepted and approved distance education and the use of technology in e-learning. Saudi Arabia's King Abdullah bin Abdul Aziz, according to the Saudi Ministry of Higher Education (2015), has called for a national plan to use information technology and implement e-learning and online education in Saudi higher education. The proposal calls for the creation of a national center to provide technical assistance and the resources necessary for the advancement of digital education. This plan was developed as a result of increasing the population and to tackle the issue of insufficient numbers of faculty and universities, as

well as an effort to reduce any form of financial waste. According to Habibi (2015), the estimated number of graduates from public education institutions in 2022 will be 386000 students, all of whom subsequently strive for a place in one of the country's 25 public universities. This has created a demand that is hard to fulfil. The Saudi Ministry of Higher Education signed a contract with the Malaysian business METEOR to create the National Center for e-learning and Distance Education (NCeDE) in Saudi Arabia, with a budget surpassing 47 million Saudi riyals (12,531,161 US dollars).

NCeDE is in responsibility of implementing educational, information, and communication technologies to improve the efficacy and quality of all educational and training processes (NCeDE, 2019). The NCeDE is based in Riyadh and enjoys financial and administrative independence. It is organizationally related to the Minister of Education (NCeDE, 2019). NCeDE's mission is to increase the overall quality of e-learning while wielding unparalleled influence over the education sector by:

- Establishing e-learning regulations and quality criteria.
- Controlling the quality of e-learning programs.
- Providing recognized credentials to companies and government agencies through the licensing of e-learning programs.
- Obtaining the licenses that are awarded to entities and companies that provide e-learning programs.
- Oversight of the program for Open Educational Resources (OER).
- Conducting research and studies in the field of e-learning.
- Providing e-learning consulting services.
- Organizing meetings, conferences and workshops in the field of e-learning.

- Placing Saudi Arabia on the global map in the field of e-learning.

The main objective of NCeDE is to become the main body of distance education for all institutions in Saudi Arabia and also function to help these institutions to incorporate e-learning in their curriculum besides providing various other opportunities to the students. Particularly, this center aims to provide the necessary assistance for women's education. In addition, the center also aims to connect all higher education institutions in Saudi Arabia and all over the world.

1.3.6 Level of M-Learning in Saudi Arabia

The Saudi government is extremely concerned with expanding the national economy and reducing oil dependency. Hence, a knowledge-based service economy is known as a driver that can prompt this. Education is regarded as vital concern for the government of Saudi Arabia. The government has focused on investing in IT projects in order to cater to the education sector in the Kingdom (Al Masarweh, 2018). A shift from conventional learning to electronic and distance learning can be observed in the education system of Saudi Arabia. People in Saudi Arabia are becoming more aware on the existence of m-learning due to the advancement in mobile technology and wireless network which has helped to increase the capability of mobile devices, besides the massive investments by the government in improving the infrastructure and educational needs (Al Masarweh, 2018). M-learning has become an essential topic of interest in Saudi Arabia's academics despite its initial stage of implementation (Nassuora, 2012). M-learning in Saudi Arabia and GCC countries is currently under development stage (Momani, et al., 2017; Shorfuzzaman, 2016; Al-Hujran et al., 2014; Nassuora, 2012; Seliaman, 2012). Universities in Saudi Arabia have already begun to adapt and practice the use of technology for distant learning, with some using short messaging service (SMS) for

teaching and learning (Altameem, 2011). This highlights the importance of investigating the factors that influence students' resistance and intentions to use m-learning in higher education studies in the Kingdom of Saudi Arabia.

1.4 Problem Statement

Saudi Arabia's digital transformation is anchored in the country's 2030 Vision of expanding its digital economy by 50% (DCunha, 2022; Monthy, 2022). Saudi Arabia's Ministry of Education has always cited technology as an integral component of its transformational agenda concerning education. As a result, integrating digital technologies into teaching and learning processes has become essential and a requisite for all universities students (Aloitaibi, 2021). In the context of teaching and learning in the higher education, many empirical studies have highlighted the significance of utilising digital technologies because of their positive impact on teaching performance and learning outcomes (Al-Abdullatif, 2021). Recently, interest in employing digital mobile technologies for teaching and learning in higher education has increased considerably, particularly since the COVID-19 pandemic (Zubaidah et al., 2021; Mingazova et al., 2020; Daud et al., 2021; Alsubie 2022). The pandemic highlighted the necessity for teachers and lecturer to be ready to utilise a range of digital technologies throughout their online-teaching practices (Alelaimat et al., 2021), which also heightened the importance of using mobile technology and digital platforms (Nikolopoulou et al., 2021).

Despite the enormous progress toward the digital transformation of Saudi Arabia, the pandemic presented unprecedented challenges and opportunities. Teachers and students had to quickly adapt to the new learning environment of distance education and use digital platforms (e.g., the Madrasati digital platform) for teaching and learning (Alsubaie et al., 2022; Al Lily et al., 2021). The use of digital learning platforms during

the pandemic had a significant impact on the teaching landscape and overall learning outcomes (Aladsani et al., 2022; Alsamadi et., 2021; Abdulrahim 2020). Digital learning platforms are increasingly gaining popularity in terms of supporting m-learning in higher educational contexts, specifically with respect to teaching and learning skills through a more attractive learning environment (Zubaidah et al., 2021; Mingazova et al., 2020; Daud et al., 2021; Alsubie 2022).

Researchers have been identified some barriers that limit mobile phones' roles in facilitating learning (Jeno, Adachi, Grytnes, Vandvik, & Deci, 2019; Jeno, Vandvik, Eliassen, & Grytnes, 2019; Pappas, Giannakos, & Sampson, 2019). The elements that influence the deployment of m-learning in higher education, according to Abu Al-Aish (2014), are not thoroughly understood. Farhan et al., (2016) has effectively highlighted that despite the Arab world's acceptance of the rising importance of m-learning, the use of technology has been only ostensibly observed and it has not received adequate attention. Lack of comprehensive studies evaluating the process of adaptation of m-learning in Saudi Arabia or determining the beneficial factors of this particular strategy that would eventually motivate the institutions to prompt the students and teachers to adopt m-learning in general have proven to be a pressing concern in the country (Alfarani, 2015).

Nevertheless, teachers and students in Saudi Arabia's higher education encounter a wide range of challenges when integrating m-learning in their teaching practices in general. For example, some teachers and students have negative perceptions about using technology in the classroom, while others have not been trained or do not have the essential technical knowledge to use digital technology tools (Alsubaie 2022; Alkinani

2021). Other teachers lack adequate support from university administration to integrate digital technologies (Alabdulazizz 2016; Duraku 2020). Al Lily et al. (2021) and Alfallaj (2020) also noted problems related to management, technicalities, financial constraints, and cultural factors as the major obstacles to using digital and m-learning in Saudi higher education. In the context of teaching and learning in Saudi Arabia, a recent study by Al-Abdullatif and Aldoghan (2021) highlighted that teachers and students lack the digital confidence and competencies necessary to integrate digital technologies into their teaching practices. This issue became more prominent during the COVID-19 pandemic when teachers in Saudi Arabia found themselves forced to utilise digital learning platforms to instruct and assess students at a distance (Al lily et al., 2021). Now, the pandemic's crisis phase is over and traditional classroom learning is back, do teacher and students intend to use digital learning platform technologies for teaching and learning? The importance of answering this question has been highlighted, especially since the Saudi Ministry of Education's move toward adopting blended learning strategies for the future of higher education (Aladsani et al., 2022). Thus, the objective of this study was to answer a key research question as this study intend to examine the effect of UTAUT and MIR on the m-learning resistance and intention to use m-learning among the university's students in higher education institutions in Saudi Arabia.

Theoretically, in the context of m-learning there are numerous adoption prototypes such as the Innovation Diffusion Theory (IDT) and the Technology Acceptance Model (TAM). One of the most significant problems is the fact that these theoretical practices failed in terms of addressing the system variables such as social influence and facilitating factors (Almatari et al., 2013; Handy et al., 2001; Donaldson, 2011; Briz-Ponce et. al.,

2017; Rogers, 2003; Venkatesh et al., 2003; Hayden (2014), which play a vital role in affecting an individual's intention of using new technology (Alqhtani, 2016; Nassuora, 2012; Al-Zoubi & Ali, 2019). According to previous study on mobile technologies (Al-Zoubi & Ali, 2019), social influence is a crucial factor determining users' behavioral intentions to adopt technology. The main reasons for introducing and incorporating UTAUT is the fact that this approach will help to evaluate the multidimensional aspects of social influence and facilitating factors, where the earlier conventional approaches have severely lacked.

The second problem regarding these acceptance models is lack of clarity. These theoretical orientations have only focused on different independent variables which may have a positive effect on the intention to adopt as a dependent variable. Nevertheless, despite the significant explanatory power of these studies, limitations still exist because these theories only considered the viewpoint of innovation adoption practices (Kim et. al 2017), and hence are ineffective in the long run (Briz-Ponce et al., 2017). One of the most significant problems is the fact that such theoretical practices do not address a negative response or sense (Ram, 1987; Lee, 2009; Kim et al., 2017). Although intensity, probability or frequency of usage are the variables affected by the concept of adoption, it does not necessarily indicate the nature of consumer choice and action. This goes to show that the low use intention does not mean that a consumer will not adopt m-learning which makes it difficult to identify whether the negative response is actually a resentment or not (Kim et. al. 2017; Lee 2013) .

However, as suggested by Briz-Ponce et al. (2017), advancements in technology should also address the rudimentary technological concepts of an individual. Kim et. al.

(2017), indicated that the characteristics of the acceptance models are based on perceived usefulness and ease of use which eventually facilitates the conditions within an effective system instead of looking at the overall technology views of a person. Therefore, it is more "system specific" than "individual specific" (Lin, Shih, and Sher 2007; Kim et al., 2017). The implications of Briz-Ponce et al. (2017) also indicated the vital fact that there has been little study regarding the critical factors of students' resistance in m-learning. The consequences and effects of students' resistance towards m-learning have not been studied extensively (Kim et al., 2017). Since consumers exhibit the proclivity to amalgamate both conventional and new technologies, it is important to realize the motivating factors of resistance to innovation (Kim et al., 2017).

In view of the aforementioned limitations, this study essentially aims at a better explanation of the relative importance of both system rudiments and individual aspects with respect to the propensity of students towards m-learning. This research attempts to study both innovation and individual aspects in a comprehensive and integrated manner by linking UTAUT with MIR. The research problems are dependent on how the innovation and individual aspects are poorly handled by poor methods. This research would integrate both system and individual aspects to identify the main factors affecting both students' resistance and intentions to use m-learning, which will result in the development of the technology resistance and acceptance model. This model would integrate the system characteristics and individual characteristics through the employment of the acceptance model UTAUT and the resistance model MIR in order to study m-learning adoption in Saudi Arabia's higher educational institutions to limit the gap. This study has added the concept of lecturers' influence to UTAUT to focus more on the

learning aspects instead of general social influence. This study has also added the concepts of attitude, personal innovativeness, self-efficacy, self-management of learning and inertia to enlighten a greater understanding regarding the personal aspects of students' intention to use m-learning.

1.5 Aim and Objectives of the Study

In order to address the issues highlighted in the problem statement and to answer the research questions above, the general objective of this study was to examine the effect of UTAUT and MIR on the m-learning resistance and intention to use m-learning among the universities students in higher education is Saudi Arabia. Specifically, the objectives of this study could be worded as follows:

RO1: To investigate the effect of UTAUT (Performance Expectancy, Effort Expectancy, Lecturer Influence and Facilitating Conditions) on the intention to use m-learning among universities students in higher education institutions in Saudi Arabia.

RO2: To investigate the effect of MIR (Attitude, Personal Innovativeness, Self-Efficacy, Self-Management of Learning and Inertia) on the intention to use m-learning among universities students in higher education institutions in Saudi Arabia.

RO3: To investigate the effect of UTAUT (Performance Expectancy, Effort Expectancy, Lecturer Influence and Facilitating Conditions) on the m-learning resistance among universities students in higher education institutions in Saudi Arabia.

RO4: To investigate the effect of MIR (Attitude, Personal Innovativeness, Self-Efficacy, Self-Management of Learning and Inertia) on the m-learning resistance among universities students in higher education institutions in Saudi Arabia.

RO5: To investigate the effect of m-learning resistance on the intention to use m-learning among universities students in higher education institutions in Saudi Arabia.