A MODEL FOR ACCEPTANCE OF MOBILE BASED ASSESSMENT AMONG JORDANIAN STUDENTS BASED ON THEIR INTENTIONS

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UNIVERSITI PENDIDIKAN SULTAN IDRIS

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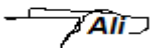

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ABSTRACT

Studies have shown that, despite its many advantages, the use of mobile based assessment (MBA) in educational institutions has some limitations. As such, this study was carried out to propose an acceptance model to determine factors that might influence students' acceptance of mobile based assessment based on the Technology Acceptance Model (TAM), which is a highly valid technology acceptance model. Essentially, the proposed model consists of six constructs, namely intention, usefulness, ease of use, enjoyment, content assessment, and navigation system. A panel consisting of 21 experts used the Delphi method to validate the proposed model. Also, a sample study consisting of 90 undergraduates were given survey questionnaires to collect data for further analysis using the Structural Equation Modeling method. The findings showed usefulness, ease of use, and enjoyment had significant relationships with students' intention to use such an assessment. Likewise, content assessment had significant relationships with usefulness, ease of use, and enjoyment. The findings also showed the navigation system had significant relationships with ease of use and enjoyment. Overall, these findings suggest that motivational factors, including content assessment and navigation system, play an important role in influencing students' acceptance of mobile based assessment. In summation, these findings can serve as a guideline to help all the stakeholders to take into account all the above factors for the successful implementation of mobile based assessment in educational institutions. Further studies can be carried out by focusing on other important psychological factors, such as trust and anxiety.

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MODEL PENERIMAAN PENILAIAN MUDAH ALIH DALAM KALANGAN PELAJAR JORDAN BERDASARKAN NIAT MEREKA

ABSTRAK

Beberapa kajian telah menunjukkan penggunaan penilaian mudah alih di institusi-institusi pendidikan mempunyai beberapa pembatasan walaupun ianya mempunyai banyak kelebihan. Maka, kajian ini dijalankan untuk mencadangkan satu model penerimaan dalam menentukan faktor-faktor yang mempengaruhi penerimaan penilaian mudah alih dalam kalangan pelajar berdasarkan Model Penerimaan Teknologi (TAM), iaitu satu model penerimaan teknologi yang mempunyai kesahan yang tinggi. Model yang dicadangkan dalam kajian ini mengandungi enam konstruk, iaitu niat, kebergunaan, mudah guna, keseronokan, penilaian kandungan, dan sistem pengemudian. Satu panel yang terdiri daripada 21 pakar menggunakan kaedah Delphi untuk mengesahkan model yang dicadangkan. Satu sampel yang terdiri daripada 90 pelajar diberikan borang selidik untuk mengutip data yang kemudiannya dianalisis dengan kaedah Pemodelan Persamaan Berstruktur (SEM). Dapatan menunjukkan kebergunaan, mudah guna, dan keseronokan mempunyai hubungan yang signifikan dengan niat pelajar untuk mengamalkan penilaian mudah alih. Begitu juga dengan penilaian kandungan yang mempunyai hubungan yang signifikan dengan kebergunaan, mudah guna, dan keseronokan. Dapatan turut menunjukkan sistem pengemudian mempunyai hubungan yang signifikan dengan mudah guna dan keseronokan. Keseluruhannya, dapatan menunjukkan faktor-faktor motivasi, termasuk penilaian kandungan dan sistem pengemudian, memainkan peranan yang penting dalam mempengaruhi penerimaan pelajar dalam mengamalkan penilaian mudah alih. Maka, dapatan ini boleh dijadikan sebagai satu garis panduan untuk semua yang terlibat dalam mengambil kira faktor-faktor seperti atas untuk memastikan implementasi penilaian mudah alih yang berkesan. Kajian seterusnya boleh dijalankan dengan mengambil kira faktor-faktor psikologi yang lain, seperti kepercayaan dan keresahan.

CONTRNTS

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LIST OF ABBREVIATIONS

AR	Augmented Reality
ATU	Attitudes Towards Using
AMOS	Analysis of A Moment Structures.
BI	Behavioral Intention
BYOD	Bring Your Own Device
CBMS	Classroom Behavior Management System
CBT	Computer Based Test
CON	Content
DL&ML	Delone And Mclean Information System Success Model
E-learning	Electronic Learning
ENJ	Enjoyment
EOU	Ease of Use
ICT	Information and Communication Technology
IDT	Innovation Diffusion Theory
IEEE	Institute of Electrical and Electronic Engineers
IRT	Item Response Theory
IT	Information Technology
ITU	Intention to Use
MALA	Mobile-Assisted Language Assessment
MAPS	Mobile Assessment Participation System
MARPAS	Mobile AR Performance Assessment System

MBA	Mobile Based Assessment
MBT	Mobile Based Test
MIM	Video Message
M-learning	Mobile Learning
MM	Motivational Model
MPCU	The Model of PC Utilization
MRS	Mobile Response System
NAV	Navigation
PAD	Personal Assistant Device
PBT	Paper Based Test
PC	Personal Computer
RFID	Radio Frequency Identification
RQ	Research Question
SCT	Social Cognitive Theory
SDT	Self Determination Theory
SEM	Structural Equation Model
SIM	Text Message
STEM	Science Technology Engineering and Mathematics
TAM	Technology Acceptance Model
TAM3	Third Edition of Technology Acceptance Model
TPB	Theory of Planning Behavior
TRA	Theory of Response Action
USF	Usefulness
UTAUT	Unified Theory Acceptance and Use of Technology

WAP	Wireless Application Protocol.
Wi-Fi	Wireless Fidelity
WMD	Wireless Mobile Device
WoS	Web of Science

CHAPTER 1

INTRODUCTION

1.1 Content of Chapter

This chapter introduces the research topic, problem statement, objectives, significance, and scopes. Section 1.2 presents a background of the assessment types, mobile technology, mobile learning, and mobile based assessment (MBA). Section 1.3 identifies and introduces the problem that related to the MBA. Section 1.4 describes the proposed a model that used to overcome the research problem. Section 1.5 presents the explaination of each construct in proposed model Section 1.6 lists the questions of research that the study is trying to answer. Section 1.7 contains four objectives that the study attempts to achieve them. Section 1.8 discusses the importance of research. Section 1.9 describes the scope of the study. Finally, section 1.10 that shows the summary of the chapter.

1.2 Research Background

This section has three sub-sections related to the core of research topic. Section 1.2.1 presents the assessment definition and types. Section 1.2.2 explains the mobile technology and m-learning, section 1.2.3 interduses the MBA and shows the important of it in assessment process.

1.2.1 Educational Assessments

Eeducational assessment is a systematic process that aims to assess the students' knowledge and skills to improve students' learning outcome (Allen, 2004). Assessment is often based on a test, but it is not limited to tests based on the position of National Council on Measurement in Education (NCME, 2010). However, there are many classifications of educational assessment. The researcher discusses three categories of them:

First, time-based assessment, Generally, Assessment can be distinguished as formative, or summative. Formative assessment is conducted throughout a course or project. It is given as a form of immediate feedback on learning outcomes, students' knowledge and skills, and would not necessarily be used for grading purposes. Formative assessment can be conducted in the form of standardized tests, quizzes, oral question, or draft work. Formative assessment is conducted concurrently with instructions. The result of the students' assessments may not appear in the record degree. Formative assessment aims to see if the students understand the learning before doing a summative assessment (Mctighe O'Connor, 2005). The second type of assessment is the summative assessment, generally conducted at the end of a course or project. In an educational setting, summative

assessment is used to determine whether students pass or fail a course. It is used to summarize what students have learnt, to decide whether or not they understand the course well. This type of assessment is graded (e.g. pass/fail, 0-100), and can be conducted in the form of tests, long exams or project. The disadvantage of summary assessment is that it is deductive, and students discover late the worth of the acquired knowledge (Mctighe O'Connor, 2005).

Second, students' performance-based assessment, Assessment based on students' performance is administered in the forms of formal and informal assessment. Formal assessment implies a written document, such as a test, quiz, or paper. It carries a numerical grade, unlike informal assessment, based on students' performance. An informal assessment occurs more casually and may include observations, checklists, rating scales, participation inventories, rubrics, performance, portfolio assessments, self-evaluation, peer assessment and discussion (Valencia, Sheila,2009).

Finally, assessment based on the examiner, examiners can either be from the within or outside an institute. Internal assessment is created and assessed by the teachers in educational institutes. Students are given marks and feedback on the assessment. Whereas, external assessment is designed and assessed by an outside body and is marked by unbiased assessors. Feedback reports on external assessment give information about students' performance. It helps decision-makers to address and compare students' learning achievements in different institutes and also helps formulate a plan for the future.

1.2.2 Mobile Technology and Mobile-Learning

The development of Information and communication technology (ICT) and the internet is essential in a wide range of our daily life. The mobile devices, the wireless networks Wireless Fidelity (Wi-Fi), and mobile applications make our life easier. The new generation of mobile devices, called smart devices, such as Android, IOS, and windows phone contain operating systems, which have made these devices multi-functioning devices. They are not just used to communicate, but also as portals to access various applications and websites through the technology of wireless networks, Wireless Fidelity (Wi-Fi) and Wireless Application Protocol (WAP). Chaveesuk et al. (2013); Lu et al. (2016) listed many types of mobile devices such as personal digital assistants (PDAs), smartphones, Pads, digital audio players laptops, notebooks, e-readers, and Table, the development of a handheld device is making the mobile cell more popularly; these developments are changing the usability of a mobile device and make it more an active device. With affordable digital network infrastructure, it becomes easy and possible to do more activities such as information search, banking, investment, booking, shopping, and communication. So, a Mobile device has become an indispensable tool for anyone (Tamboli & Biswas, 2015). Mohageg and Bergman pointed out the three-domain of use of mobile devices: communication, information access and entertainment (Chaveesuk et al. 2013).

The term m-learning emerged at the time of the arrival, in the public domain, of mobile devices and is seen by some as an extension of e-learning. In truth, it is different from e-learning. By M-learning, learners can learn from their handheld devices through accessing applications and websites, without the restriction of time and place. The concept

of m-learning has different definitions because there is a debate among researchers about the concept of mobility, is mobility related to learners or devices (Alharbi & Drew, 2014). According to Paturusi et al. (2015), the m-learning is defined as the transmitting of knowledge through different types of devices such as cell phone, Tablet, laptops, PCs without the restriction of place and time. The learning process can take place in different places, home, school, and restaurant, bus etc. and available anytime anywhere. According Cochrane (2010) indicated that m-learning is using the wireless mobile device (WMD) as a mediating tool for learning activities and facilitate collaborative learning environments (LAM, 2015). In general, Alharbi and Drew (2014) identified m-learning as 'the conducting of educational activities using a mobile device and wireless service in which both learner and device are mobile'. Some previous studies indicated the general benefits of m-learning like reducing cost through transition from paper-based to digital textbooks, facilitate communications among learners through what is called MIM video message, text message SIM, and study aids through the access of application and information resources (Cheon et al. 2012). Moreover, Cheon et al. (2012) indicated that m-learning could support four type of learning: Firstly, individual' learning where learner pace learning at their speed. Secondly, situated' learning, users can learn within a real context. Thirdly, collaborative' learning where learners can contact others. Finally, informal learning, where the learner can learn outside of a classroom.

M-learning can support different types of education, whether formal education, where the learning takes place in a school and university, or informal education where learning takes place in a museum and science center (Nikou & Economides, 2014). Also, it can support different stages of education: Basic education, vocational training, higher education and special education (Sánchez-Prieto et al. 2016). Despite the advantages of m-

learning in education, it has not been fully adopted because of some challenges. Some of these challenges are small screen size, short battery life, and unfriendly user-interfaces (Lu et al. 2016). Other problems include learners' awareness of the limitations of m-learning, ignorance of some learners about the concept of m-learning and its advantages. Besides, some users prefer to use the device for pleasure more than for learning purposes. There is also the challenge of countries' public policy; some educational institutions prevent students from using a mobile device during the learning process because it interferes with learning (Cheon et al. 2012).

1.2.3 Mobile - Based Assessment

The educational assessment process based on paper and computer through which called paper-based assessment (PBA), and computer-based assessment (CBA). The emergence of mobile based assessment (MBA) recently, which means the possibility of conducting the assessment process based on mobile technology (Nikou & Economides, 2017). On top of the (PBA) and (CBA), MBA has become highly significant as it can be used anytime, anywhere. MBA can solve many issues related to the educational assessment conducted by PBA and CBA for example the examinations which hold outside the campus such as examinations in scientific trips, and the in medical clinics are immediate assessments which are need available assessment tool in real-time. By using the MBA, teachers can log in and check assessment progress and enable students to conduct assessment activities without restrictions on time and place (Nikou &Economides 2018).

However, assessment is a critical process in education that features both measuring and supporting student learning. The definition by OECD (Nusche, Laveault, MacBeath, & Santiago, 2012) that assessment refers to the process of measuring and/or collecting and using evidence about the outcomes of students' learning. Assessment can be distinguished as summative assessment (takes place after a cycle of learning and measures what has been learnt, i.e. "assessment of learning") or formative assessment (takes place throughout the cycle of learning gathering evidence of learning and providing teachers and/or students with feedback information in order to improve learning. i.e. "assessment for learning") (Black, 2008). Assessment is one of the critical systems necessary to support the skills, knowledge and expertise students should master in order to succeed in work and life in the 21st century. However, traditional assessment practices are not always appropriate to evaluate competences related to real-world tasks, as well as higher level skills such as problem-solving, creativity and collaboration which are of great importance (Binkley et al., 2014). Researchers agree that there is a need to redesign educational assessment practices based on modern theories of learning, in order to combine different types of evidence and reflect on what students really know and can do (Harlen, 2013; National Research Council, 2001). The utilization of wireless technologies and personal mobile electronic devices in assessment procedures facilitate the development of a relatively new assessment mode. MBA is the assessment that is delivered with the use of personal electronic mobile devices such as Personal Digital Assistants, smart phones or Tablets. According to UNESCO (2015) Future of Learning series, mobile technologies have the potential to support 21st century learning and assessment. On top it has a positive effete on students' learning performance (Chen et al. 2017; Chen et al. 2013), motivation (Nikou and Economides

2017a; Santos et al.2012), and attitude toward learning (Song and Kong 2017; van der Schaaf et al. 2017)

There are many affordances associated with the use of mobile devices in assessment. Mobile technologies provide new and enhanced functionalities and opportunities to assess learning, such as personalization and adaptivity, context-awareness and ubiquity, interactivity, communication and collaboration among learners, and seamless bridging between contexts in both formal and informal learning (Sung et al., 2016; West & Vosloo, 2013). Mobile devices can effectively support new and advanced question items and assessment activities augmented with virtual or real physical elements (Santos, Hernández-Leo, Pérez-Sanagustín, & Blat, 2012).

Mobile devices can support a wide range of assessment practices such as classroom polling (Stowell, 2015), self- and peer-assessments (Chen, 2010; Lai & Hwang, 2015), high-stakes summative testing (Arthur, Doverspike, Muñoz, Taylor, & Carr, 2014), formative assessments (Hwang & Chang, 2011), adaptive and personalized assessments (Song, Wong, & Looi, 2012; Triantafillou, Georgiadou, & Economides, 2008), performance-based (Campbell & Main, 2014) and competency based assessments (Coulby, Hennessey, Davies, & Fuller, 2011), authentic, context-aware and ubiquitous assessments (Chu, Hwang, Tsai, & Tseng, 2010; Huang & Chiu, 2015; Hwang & Chang, 2011; Santos, Pérez-Sanagustín, Hernández-Leo, & Blat, 2012), game-based assessments (Wang, 2015) and assessments with augmented reality features (Chao, Chang, Lan, Kinshuk, & Sung, 2016).

1.3 Problem Statement

Despite the advantages of MBA for enhancing learning outcomes, but it's still not adopted in wide range on educational assessments. MBA, as well as m-learning have not been fully adopted due to shortcomes related to the features of the mobile devices which have limited screen size, and short battery life (Lu et al. 2016). Also, the learning activities which are delivered by mobile technology may be not satisfy the students' motivation, students prefer to use the phone devices for pleasure more than for learning or assessment purposes. In addition, some educational institutions prevent students for using a mobile device in assessment process (Cheon et al. 2012).

Exploring the factors that help students to accept the MBA is very important process. The acceptance of MBA among students is one of the important keys which overcome the issue of limited adoption of technology in learning generally and in context of MBA. Although, the MBA is a part of wider context of m-learning, but the acceptance of it must be studied separately from m-learning for many reasons: Firstly, there are lack of the studies that focus on the issues of acceptance of MBA (Nikou & Economides, 2017). Secondly, previous studies that focused on students' perceptions and attitudes about MBA are inconsistent. Thirdly, acceptance of MBA is important for improving educational outcome (Nikou & Economides, 2017). In fact, there is a lack of studies explored the influential factors on students' acceptance of MBA compare with the studies that addressed m-learning acceptance (Alrfouo, lakulu, Almaiah; 2019). However, In Jordan, there is a lack of using the mobile technology in the formal education (Althunibat, 2015) especially in formal assessment in higher education. On top, there are laws and regulations of universities' regulations prevent using mobile devices during lectures. (Alomari, 2014). For

this reason, this study came to verify the acceptance of mobile technology in educational assessments among Jordanian students in high educational level.

1.4 Study's Model to Investigating the Acceptance of MBA

In order to adopted the mobile technology in wide range in assessment activities, it is essential to investigate the acceptance of it among students and teachers (Nikou & Economides, 2015). Technology acceptance model (TAM) is a valid model that address the issue of acceptance the technology. TAM was used in the many fildes helth, economy, and education ...ets. In order to predict the user'acceptance of technology in his work. Based on TAM, the actual use of the technology effected by the user' intention, intention measures the user' intention to use the technology in coming future, and it is affected directly, and indirectly by: First, Attitude Toward Use which is refer to the negative or positive feeling when he/she uses the technology. Second, Usefulness which is measures the user'usefulness from technology. Third, Ease of Use, which is measures the user' effort when he using the technology. These factors are also affected by many external factors.

In fact, there are some shortcomings with TAM: first, TAM is limited to the utilitarian system, due to it primarily concerns with extrinsic motivation factors (e.g. perceived usefulness, perceived ease of use while intrinsic motivation (e.g. Enjoyment) usually underestimated. Second the prediction of intention of use is limited to attitude toward use, and usefulness (Sánchez-Prieto, Olmos-Migueláñez, & García-Peñalvo; 2017). In order to overcome these shortcomings many previous studies extended TAM by adding some factors or eliminating others such as: TAM 2 (Venkatesh & Davis, 2000),

TAM 3 (Venkatesh & Bala, 2008).TAM also extended by the previous studies in the context of acceptance mobile technology in education (García-Peñalvo 2017; Sabah 2016; Briz-Ponce et al. 2017), the studies indicated that extrinsic motivation factors are significant influential factors on intention to use m-learning. Furthermore, the studies of Bere (2014), Zhang et al. (2015), Merhi (2015), Yung-Ming Cheng (2015), Lu et al. (2016) and Sánchez-Prieto et al. (2016) emphasised the importance of enjoyment as intrinsic motivation factor on the intention to use m-learning.

However, the content and navigation system for information system play an important role of acceptance the technology, the previous studies confirmed the importance of electronic content in e-learning (Shee & Wang, 2008). Terzis and Economides (2011) highlighted the content is critical in e-assessment acceptance. In addition, navigation system has a huge significant influence on acceptance of m-learning (Khalifa & Shen, 2008; Tucker, 2008; Cheng, 2015).

MBA is utilitarian nature systems doe to the student 'need to get of a good grade in order to pass the course, at the same time it has a hedonistic nature by enable the student to take the exam whenever and wherever he prefers (Nikou, & Economides,2014). We claim that in order to understand students' intention to adopt MBA we should examine the effect of both: extrinsic and intrinsic motivation factors on students' intentions to use MBA as well as the effect of electronic educational assessment environment (navigation, and content) as indirect factors on intention to use.To this end, a model for the acceptance the MBA, based on the extended TAM, is developed. The proposed model integrates the extrinsic motivation factors (e.g. Usefulness, and Ease of Use), with intrinsic motivation

factors (e.g. Enjoyment) as direct influential factors on students' intention to use the MBA. Besides, Internal Assessment Environment factors IAEF (e.g. navigation and contents) as indirect influential factors on students' intention to use the MBA. Figure 1.1 illustrates the primary constructs of the proposed MBA acceptance model.

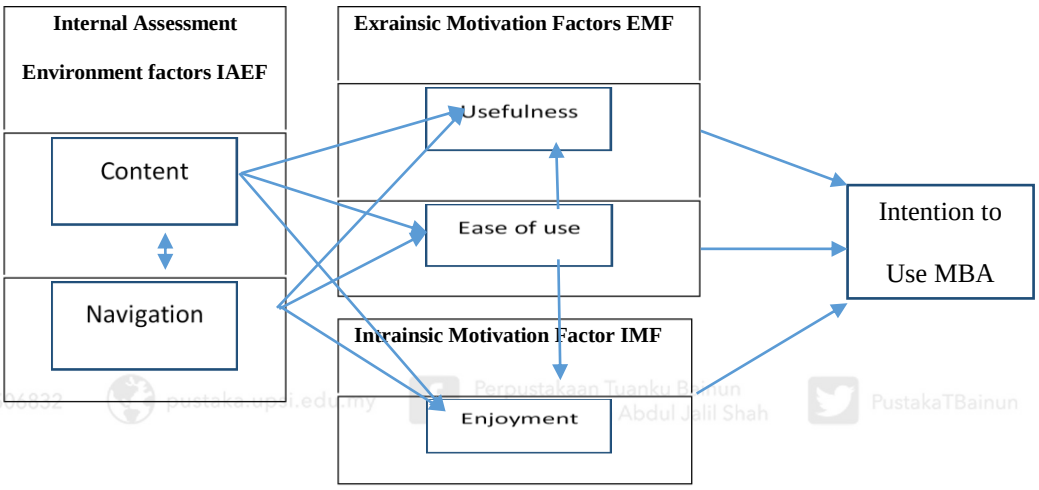

Figure 1.1. Conceptual Framework of MBA

1.5 perational Definitions

This section presents the concept of this study model' constructs namely: Navigation, Content, Enjoyment, Usefulness, Ease of Use, and Intention to Use. in a briefly way, whereby these concepts discussed in chapter 4 in detail.

i. Navigation: The term navigation refers to student' movement in the electronic exam environment. In order to consider the MBA navigation design as influentaial factor on student' intention, it must satisfy the student's motivations (e.g. usefulness, ease

of use and enjoyment). If the navigation system allows the student to move in the electronic assessment without consuming the time and efforts of student, and makes him to explore the system smoothly, and gives him more options to down and up through the system, it will satisfy the student's motivations. Navigation system in this study was designed based on the branching design that gives the student freedom to browse the test questions smoothly, with this design, student can move from question to another without consuming the time and efforts.

ii. Content: This term refers to the questions that used in MBA exam which are related to the course of discrete mathematics. In order to consider assessment'content as influential factor on student' intention, it must satisfy the student's motivations (e.g. student' usefulness, ease of use, and enjoyment). If the questions reflect the course syllabus, easy to answer, and includes a challenge, it will satisfy the motivations factors. The assessment questions in MBA exam was created and design based on reflecting the discrete mathematics syllabus, easy to answer, and includes a challenge.

iii. Enjoyment: This term refers to sense of fun while student answering the exam in MBA experiment. If the students sense of pleasant, exciting, and entertaining, it will increase his intention to use MBA in comeing futuer. This term was added to the MBA conceptual framework as intrinsic motivation factor in order to check his influence on student intention to use MBA.

iv. Usefulness: The term of usefulness refers to the degree to which a student believes that using an MBA would enhance his performance, effectiveness, and productivity.

Usually, student prefers to use an MBA when he feeling that is usefulness for him. if the MBA exam is useful for student this make him planning to use this experiment again.

v. Ease of Use: The term of Ease of Use refers to the degree to which a student believes that using an MBA would be free of physical and mental effort. If the student has interactions and skills to answer the question, he will find the MBA easy and make him to intent useing MBA again.

Both terms usefulness and ease of use were added to the conceptual framework as extrinsic motivation factors in order to check their influences on student intention to use MBA.

vi. Intention to use MBA: This term refers to the student' intention to use the MBA in coming future. Intention is strong predictive indicator of acceptance MBA. Thus, if the student intent, plan, and predict to use MBA, he will accept it in coming future.

1.6 Research Question

According to the study' model, the target point is to predict the students' acceptance to use MBA, based on investigation of the effect of EMF, IMF, and IAEF on students' intentions. So, the research seeks to answer the following questions:

RQ I. Does the content of MBA correlate with navigation of MBA?

RQ II. To what extent the content of MBA and navigation influence the student's usefulness, ease of use, and enjoyment?

RQ III. Does the student's usefulness, and student's enjoyment mediate the influence of student's ease of use on students' intentions to use MBA?

RQ IV. Does student's usefulness, student's ease of use, and student's enjoyment influence student's intentions to use MBA?

1.7 Research Objectives

In order to gete answers of the research questions the research aims to achieve the following objectives:

RO I. To examine the correlation between content of MBA and navigation.

RO II. To study the influence of MBA content and navigation, on student's usefulness, ease of use, and enjoyment

RO III. To addres the influence of ease of use on student’s usefulness and enjoyment of MBA

RO IV. To investigate the influence of student's usefulness, enjoyment and ease of use on students’ intentions to use MBA.

In order to achieve these objectives, the researcher assumed 12 hypotheses each objective has one or more hypothesis Table 1.1 shows the relationships between the research objectives, questions, and hypotheses.

Table 1.1

Matrix Table for Research Objectives, Questions, and Hypotheses

S/N	Research Objectives	Research Questions	Research Hypothesis
1.	RO I. To examine the correlation between content of MBA and navigation.	RQ I. Does the content of MBA correlate with navigation of MBA?	H1. Content of assessment is correlate with the navigation system of MBA
2.	RO II. To study the influence of MBA content and navigation, on student's usefulness, ease of use, and enjoyment	RQ II. To what extent the content of MBA and navigation influence the student's usefulness, ease of use, and enjoyment?	H2: Content of MBA positively influences the student' usefulness H3: Content of MBA positively influences the student'ease of use H4: Content of MBA positively influences the student' enjoyment. H5: MBA Navigation system positively influences the student' usefulness. H6: MBA Navigation system positively influences the student'ease of use. H7: MBA navigation system positively influences the student' enjoyment
3.	RO III. To address the influence of ease of use on student's usefulness and enjoyment of MBA	RQ III. Does the student's usefulness, and student's enjoyment mediate the influence of student's ease of use on students' intentions to use MBA?	H8: Ease of use of MBA positively influences the student' usefulness. H9: Ease of use of MBA positively influences the student' enjoyment.
4.	RO IV. To investigate the influence of student's usefulness, enjoyment and ease of use on students' intentions to use MBA.	RQ IV. Does student's usefulness, student's ease of use, and student's enjoyment influence student's intentions to use MBA?	H10: student'usefulness positively influences the student' intention to use MBA. H11: Student' ease of use positively influences the student' intention to use MBA. H12: student'enjoyment positively influences the student' intention to use MBA

1.8 Research Significance

The need for studies in the context of MBA acceptance is significant. In order to enable this technology in wide range of assessments which can contribute to enhance the learning outputs, and helps to overcome issues related to computers, and paper-based assessment that restricted by place, and time.

The followings are the contributions of the research:

- It promotes the use of mobile devices in the assessment process in wide range, besides the computer-based assessment and paper-based assessment.
- To help universities to develop suitable plans to promote MBA
- It gives a roadmap to examiners to create ac ceptable MBA among students

1.9 Research Scope

This study has limitations in its scope in terms of sample and MBA experiment. The study sample was limited to the students who enrolled in discrete mathematics course in Tafila Technical University one of the ten public universities in Jordan. Due to, there is a lack in researches that investigating the tertiary students' intentions to use MBA (Nikou & Economides, 2017). Most of the previous studies in context of acceptance MBA targeted secondary educational level (Nikou & Economides, 2015, 2017). In addition, the MBA experiment conducted under formative assessment of discrete mathematics course based on students' phones Android, iOS.

1.10 Chapter Summary

This chapter provides a background of the assessment type, mobile technology and m-learning in addition it presented the important of using the mobile technology in assessment activites. The main problem that the study tries to solve is the low adoption of an MBA in a formal assessment. One of the proposed solutions is to investigate the user acceptance of using MBA the study develops a model to investigate the influential factors in students' intentions which is consider as a strong predictive indicator of acceptance the technology generally. The specific questions, objectives, and hypotheses are also created based on proposed model. Moreover, the importance and constraints of the research were presented elaborately.