

UNIVERSITY OF KWAZULU-NATAL

**FACTORS INFLUENCING STUDENTS' INTENTION TO USE
BLACKBOARD LEARNING MANAGEMENT SYSTEM AT
MANGOSUTHU UNIVERSITY OF TECHNOLOGY, DURBAN**

By

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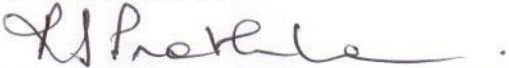
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DEDICATION

This dissertation is dedicated to my late father Professor Patrick Themba Sibaya who was always looking forward and enthusiastic in reading each chapter of the dissertation, even though he was only able to read the first two chapters.

DECLARATION

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ABSTRACT

The implementation and use of the Blackboard Learning Management System (LMS) varies from institution to institution in the South African higher education landscape. This variation is caused by the individual organizational culture and the different communities that they serve. Higher Education Institutions (HEIs) are also likely to change from one LMS to another. Different institutions also have different reasons for using LMS. This study explores the factors that most influence Business Information System 2 (BIS2) students' behavioural intention to use the Blackboard Learning Management System (LMS) at Mangosuthu University of Technology (MUT). Blackboard LMS is not the first LMS to be used at MUT; previously WebCT was used. In their first year BIS2 students used Blackboard LMS for assessment purposes only. A year later, they were introduced to other Blackboard LMS tools, including information announcements, course calendars and access to learning materials. No research that has been conducted in order to understand BIS2 students' perception of Blackboard LMS at MUT.

The study will therefore contribute to the body of knowledge by filling a gap in understanding the factors that influence behavioural intention to use Blackboard LMS. It will further contribute to the implementation and development of e-learning at MUT and assist lecturers who intend to use Blackboard LMS for their courses to devise good strategies for using Blackboard. Additionally, lecturers who are already using the system may review their strategies in view of the findings of the study. The findings may also motivate other lecturers to make use of the Blackboard LMS for their courses.

The Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT) and Task Technology Fit (TTF) models underpin the study and form its conceptual framework. The methodology for the study involved self-administered questionnaires, the sample of respondents being 109 BIS2 students from the Department of Accounting at MUT. The findings from the study reveal that performance expectancy (PE), perceived ease of use (PEOU) and social influence (SI) all have a positive significant effect on behavioural intention (BI) to use while SI was found to be the strongest predictor.

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LIST OF ACRONYMS

BI	Behavioural Intention
BIS	Business Information Systems
CSE	Computer Self-Efficacy
HEI	Higher Education Institution
LMS	Learning Management System
MUT	Mangosuthu University of Technology
PE	Performance Expectancy
PEOU	Perceived Ease of Use
SI	Social Influence
TAM	Technology Acceptance Model
TTF	Task-Technology Fit
UTAUT	Unified Theory of Acceptance and Use of Technology model

Chapter 1

INTRODUCTION

1.1 Introduction

The implementation of e-learning in Higher Education Institutions (HEIs) has been driven by the advancement in internet technology (Venter, Jansen van Rensburg, & Davis, 2012). Along with the growth in online and mobile technology, the easy collaboration and interaction which these enable has played a major role in the widespread adoption of Learning Management System (LMS) in HEIs. However, the manner in which HEIs use LMS varies. Some HEIs are using LMS in a distance and open learning environment, where students are located in remote areas, while others are using it in blended learning. According to Ntlabathi (2014) a blended learning setting occurs when face-to-face learning is carried out together with a LMS. Using LMS in a blended way can help students to access study material and collaborate with the lecturer, and among themselves, outside of the classroom. According to Little-Wiles and Naimi (2011) distance and open learning students have been found to use online courses and programs in a more profound way than students who use LMS in blended learning. The latter may be using LMS more superficially because of their additional access to face-to-face learning. The deployment of LMS in HEIs also varies, some use proprietary brands of LMS while others use Open Source LMS (Twakyond & Munaku, 2012) .

There are various LMS on the market, including Moodle, System for Multimedia Integrated Learning (Smile), Web Course Tools (WebCT), Blackboard, Edmodo and Web Course Homepage System (WebCH). Blackboard LMS was founded by Matthew Pittinsky and Michael Chasen in 1997 (Bradford, Porciello, Balkon, & Backus, 2007). According to the information available on the twenty best Learning Management Systems website (accessed on the 2 March 2016) Blackboard LMS is ranked fourth in the world. These ratings are based on the total number of active users and customers, as well as the presence of the system on social media. Bradford et al. (2007) articulate that more than 70% of U.S. tertiary institutions are using Blackboard. Furthermore, in June 2006 Blackboard LMS had 12 million users in more than 60 countries. The benefits of Blackboard LMS include: accessibility from the internet at any time and from anywhere; instant feedback on assessment scores; improved

communication between students and lecturers through its announcement and email features; and the tracking of students' usage.

Researchers seek to answer several questions with regard to LMS usage by students. This includes questions such as whether LMS works amongst university students (Adzharuddin & Ling, 2013) and which features are required in a LMS for the full benefit of students in a traditional learning setting (Naimi, 2011). However, despite these uncertainties concerning the value of LMS to students in HEIs, there is an increase in their adoption (Mtebe, 2015 & Naimi, 2011). This is a result of the perceived benefits of using LMS (Adzharuddin & Ling, 2013 ; Mtebe, 2015 & Naimi, 2011).

The aim of this study is to explore the factor that most impact Business Information Systems 2 (BIS2) students' behavioural intention (BI) to use Blackboard LMS at Mangosuthu University of Technology (MUT). In their first year they use Blackboard LMS for assessment purposes only. A year later, they are introduced to the use of several other Blackboard LMS tools. They are currently using Blackboard LMS to access learning materials such as a course calendar, and information announcements.

1.2 Background of the Study

Amongst the issues hindering the adoption and usage of LMS in HEIs is the constant migration from one LMS to another. This can be attributed to the failure of systems to deliver all the benefits which the institution expects and needs. According to the information available on the Canvas website more than 50 leading Scandinavian institution migrated to Canvas, an Open Source LMS from their legacy LMS. After several mergers they wanted to standardize their LMS. Stakeholders from different institutions were involved in the selection process. Canvas LMS was chosen because of its ease-to-use, open architecture and scalability. As an example, after 10 years of using Blackboard, the University of Dar-es-Salaam (UDSM) migrated to an Open Source LMS (Twakyond & Munaku, 2012). The reason for changing was the high cost of annual licensing for the proprietary system. Twakyond and Munaku (2012) found that Open Source LMSs were the most preferred, particularly from institutions in developing countries that were looking for cost effective LMS.

The University of the Witwatersrand (Wits) changed from Blackboard to Sakai (Dagada & Mungai, 2013). They state that the motivation for changing to an open source system was that the university could control the implementation based on their available budget; that it has greater flexibility as it is capable to adapt and transform teaching, and research based on the University's strategic direction; and it also affords opportunities for the University to engage and connect with other HEIs.

According to the information available in the OER Africa website (accessed 26 June 2015), the University of South Africa (UNISA) also changed from their custom-built LMS to the free, open source platform Sakai. The motive for this change is because of the demand from students. On the other hand,

according to the information available in the Blackboard website (accessed 26 June 2015), the University of the Free State changed from WebCT to Blackboard when the institution began to be faced with a situation whereby there was a shortage of technical support and development, which resulted in a poor service delivery to its students and academics.

MUT is not an exception to these changes. The first LMS that MUT adopted was WebCT, then changed to Blackboard LMS. However, since this change was made, that is for the past four years, there has been no research conducted to understand students' perception or the effectiveness of Blackboard. It is therefore important to see whether the investment in Blackboard LMS has been worthwhile or not. If this study is not conducted more money may be invested in a LMS whose influence is not fully recognized nor understood by lecturers. BIS is the only subject in the Department of Accounting that is currently using Blackboard LMS. Also, students may be missing the full benefits of using Blackboard LMS which provides tools such as discussion boards, content management systems, calendar, information announcements, e-mail, feedbacks, quizzes and exams marked, and grade maintenance and navigation tools. Blackboard also enables lecturers and students to communicate with each other, in what is referred to as 'computer mediated communication'. This study therefore attempts to explore the factor that most influence BIS students' BI to use Blackboard LMS at MUT.

1.3 Problem Statement

HEIs are in a position to use any LMS of their choice. Their objective will be to choose the system that best fits their educational objectives and to provide the best teaching and learning environment for their students. In the circumstances where MUT has changed LMS from WebCT to Blackboard. The majority of students are from disadvantaged communities with low computer literacy levels. Furthermore, given the fact that students have not been required to undergo Blackboard training. Therefore, this study aims to measure the BI of students to use the chosen LMS. The factors chosen to measure the BI are: perceived ease of use (PEOU), social influence (SI) and performance expectancy (PE). At MUT, Blackboard LMS is used in conjunction with face-to-face instruction. This study attempts to give solutions to the following main research question:

What is the principal factor that affect the BI to use Blackboard LMS by BIS2 students at MUT?

1.4 Research Questions and Objectives

1.4.1 Research Questions

The following research questions will be answered at the end of this study:

1. What is the influence of PE on the BI to use Blackboard LMS by BIS2 students at MUT?
2. What is the influence of PEOU on the BI to use Blackboard LMS by BIS2 students at MUT?

3. How does SI affect the BI to use Blackboard LMS by BIS 2 students at MUT?
4. Which of the three constructs (PE, PEOU and SI) has the most influence on the BI to use Blackboard LMS by BIS2 students at MUT?

1.4.2 Research Objectives

The principal aim of the study is to explore factors that influences the BI to use Blackboard LMS by BIS2 students at MUT. Therefore, this study intends to achieve the following:

1. To understand the influence of PE on the BI to use Blackboard LMS by BIS2 students at MUT.
2. To understand the influence of PEOU on the BI to use Blackboard LMS by BIS2 students at MUT.
3. To ascertain if SI affects the BI to use Blackboard LMS by BIS 2 students at MUT.
4. To determine which of the three constructs (PE, PEOU and SI) has the most influence on BI to use Blackboard LMS by BIS2 students at MUT.

1.5 Assumptions for the Study

The Technology Acceptance Model (TAM 3) proposes that when an individual believes that they have the ability to use a computer that will have an effect on PEOU (Masrom, 2007). Task-Technology fit theory states that the system has an effect on PE if the task characteristics fit with the technology characteristics (Irick, 2008). Based on these theories the following assumptions were made:

1. PE by BIS2 students at MUT does have an influence on BI to use Blackboard LMS.
2. PEOU by BIS2 students at MUT does have an influence on BI to use Blackboard LMS.
3. SI does have an effect on BI to use Blackboard by BIS2 students at MUT.

1.6 Rationale of the Study

MUT as a traditional university of technology is using mainly a face-to-face learning method. The adoption of LMS by lecturers in their courses has been gradual and very few subjects offered at MUT are currently making use of LMS. This should be seen in the context of the policy for the Provision of Distance Learning, which foresees that approximately 1.6 million student are expected to enrol at South African universities by 2030. The South African government envisage that it will not be likely for the traditional universities to enrol such big number of students therefore a consideration in the adoption of blended learning was perceived as a solution for this situation (Balfour, van der Walt, Spamer, & Tshivhase, 2015). Apart from the influence of these policies, literature indicates that there is an increase in the adoption and use of various LMS in Sub-Saharan countries (Mtebe & Raisamo, 2014). This increase is caused by perceived benefits, the need for institutions to enhance teaching and learning, and the expectations that they have of the benefits of LMS use. However, additional research needs to be

conducted on this phenomenon to understand the effectiveness of such strategies in teaching and learning as well as to inform policy makers in their planning.

MUT is situated at the township of Umlazi South of the Durban metropolitan area, in the province of KwaZulu-Natal. Historically disadvantage people live in this township. MUT therefore gives priority to students from historically disadvantage communities (MUT strategy 2020) and it is not surprising that some of the students will be using computers for the first time. It is especially important, therefore, to explore students' perception of the use of Blackboard LMS when its use is voluntary, increasing the possibility that these students may not attempt to use the system, despite its educational benefits.

Akbar (2013) and Juhary (2014) recommend further testing of those variables that affect students' use of technology. Hence, this study will contribute to existing knowledge of the variables: SI, PE, PEOU and BI in this case the use of Blackboard LMS in the context of MUT.

1.7 Significance of the Study

This study will assist in promoting good teaching and learning at MUT. By understanding the factors that influence students' perception of BI to use Blackboard LMS, lecturers will be able to incorporate LMS in their courses more strategically. Also, this understanding should enhance students' keenness and motivation to use Blackboard LMS in their studies. Their understanding of the importance and the significance of using the system will be increased.

Moreover, the study will be helpful to the university management and e-learning Unit. Outcomes of this study can be used as an input in the policy development of e-learning by university management while the study should also help to promote the use of Blackboard LMS by other lecturers.

1.8 Organization of the Dissertation

The research carried out in this dissertation is presented in five chapters. Chapter 1 presents the problem statement, research questions and objectives. This chapter also justifies the purpose and explains the significance of the study. Chapter 2 reviews the theoretical basis of the study, drawing on the relevant literature, and establishes the knowledge gap which motivated the research. Chapter 3 deliberates on the research design and methodology used; Chapter 4 analyse results of the data collection. Chapter 5 interprets the results with respect to research questions and discusses the results in combination with the literature.

1.9 Summary

This chapter present the problem, provides a background to the study and establishes the need for the research. The problem was broken down into four research questions, designed to provide solutions to the problem which had been identified. The assumptions underpinning the study were also stipulated,

based on the theories selected to give solutions to the research questions. The chapter also identified the expected benefits of the research and the significance of the study. Chapter outlines were also presented in this chapter.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

This chapter entails reviewing of the relevant literature. It provides a conceptual understanding of the research topic. Secondary data refer to data that are used for background information relevant to the study conducted (Hair, Money, Samouel, & Page, 2003). According to Levy and Ellis (2006), literature reviews have the following common characteristics: systematically produce quality reviews; provide ground work to a research topic; deliver a solid basis for the choice of the research methodology and validate the contribution of the proposed research to the body of knowledge or that it develops the research field's knowledge-base.

The following are suggested by Randolph (2009) as the purpose of writing a literature review: to demonstrate the researcher's knowledge of the topic being studied, including aspects such as theories, vocabulary, important variables and phenomena, along with its approaches and history. Influential practitioners in the field will be identified in the literature review. Therefore, this chapter explores information relevant to the factors that influence students' BI to use a LMS.

2.2 Blended Learning

According to Friesen (2012) the term "blended learning" has been used since the inception of the internet in the late 1990's. Friesen (2012) analysed the term as: the combination of internet and digital media with an established classroom system which requires the co-presence of the instructor and students. What exactly do instructors do in a blended learning environment? This is an important question because the reasons for implementing blended learning in HEIs was to enhance student learning (Poon, 2013).

Jeffrey, Milne, Suddaby, and Higgins (2014) conducted a study to examine what instructors actually do in blended learning. Their findings were that the decision as to what to include in each mode of learning was driven by the instructors' perceptions of the functions served by the two different modes of content delivery. These perceptions were based on usefulness, ease of use and student pressure. Instructors considered the classroom as the first forum for teaching theory, and that tutorials should then be done online since they saw this as the application of theory. Most instructors considered online course content as a central repository. However, the volume of content should be considered carefully as too much content can discourage students from attending class, and false sense of security, that potentially confuse students (Jeffrey et al., 2014). However, this study was conducted on a small sample of

instructors, and therefore, might not reflect the broader picture of what instructors do in blended learning.

Poon (2013) provides suggestions concerning factors required for successful blended learning, the most important being the availability of resources, especially information technology and human resources. Another essential success factor was ensuring the suitability of blended learning as a delivery method for the course in question. Kiviniemi (2014) finds that blended learning may be an effective way of boosting students' learning and improving students' performance. Poon's study examined the benefits that blended learning provides to students' learning experiences – the primary benefit being identified as flexibility – students can access course material anytime and anywhere. Furthermore, it accommodates students with a variety of learning styles. Another advantage identified was its ability to provide different delivery methods, such as the use of simulated work experience, observations and case studies.

Jeffrey et al. (2014) compared the value of the online experience to that of the face-to-face learning using a set of strategy called student engagement. They realised that the initial stage of engagement was involving two mechanisms: social and primers. Primers are plans to trigger interest, inquisitiveness and significance of the subject at the beginning of the course whereas social included the teacher's eagerness and the amount to which learners feel part of the course and the discipline. These primer strategies were absent from most of the online sites, while instructors found it easy to explain about the course content in a face-to-face environment.

The second stage of the learning strategy involves maintaining engagement. These strategies work by motivating students, and by using challenging, and authentic tasks. The online activities in the form of quizzes proved very popular in that students' engagement levels were very high and were sustained over the semester, whereas activities which were done in the classroom were generally poorly attended, and those students who did attend, often showed less interest in these activities than in the online quizzes.

The third stage of the strategy involves maintaining engagement through organisation and structure. Most instructors felt that their classroom was structured and organised, and that these classroom structures were reflected online. Instructors pointed out that students prefer courses that were structured and organized. The last stage is re-engaging with learners, involving observing, personal contact and discussed study. Instructors indicated that few students were attending, which concurs with the findings of Jeffrey et al. (2014). Poor attendance was found to be caused by an excessive amount of course material being provided online.

According to Jeffrey et al. (2014) all the online sites studied had inadequate information about the course, such as the instructor's contacts details, a welcome page, and a discussion forum. Furthermore, most instructors felt that it was more convenient to engage with students in the classroom than online. In a classroom a dialogue can be established between students and instructors and, although the online environment has discussion forums, chat and email facilities for instructors to engage with students, the instructors generally used these forums only to contact students.

2.3 Learning Management Systems (LMS)

LMSs are online systems allowing instructors and learners to share material, assignments submission, and interaction (Lonn & Teasley, 2009). LMSs provide an easy ways for instructors to create and deliver content while monitoring participation and assessing students' performance (Parker, 2014). Lonn and Teasley (2009) investigated the system logs to see which LMS tools were used the most. They found that content sharing, announcements, schedules, and syllabi, accounted for 95% of all user action. Chat, discussion and Wikis were therefore not much used, accounting for only 5% of all user action. There remains however, a substantial difference in how teachers and students valued LMS tools. These researchers agreed that more investigation needs to be done as to how instructors can be successful in leveraging the interactive tools such as discussion forums and emails.

When Lonn and Teasley (2009) studied the perceived benefits of using a LMS to support face-to-face classroom teaching, several things were discovered. Teachers and students assumed that LMS improves teaching and learning. However, students did not believe that LMS has an effect on instructors' teaching. There was a significant variance between instructor and students when asked which LMS benefit was most valuable. They found that improved communication was seen as the most valuable benefit by the majority of instructors, while efficiency with respect to saving time was the most valuable benefit for the majority of students. According to Kulshrestha and Kant (2013), the implementation of LMS has reduced absenteeism and has resulted in an improvement in student performance. A study done by Nair and Patil (2012) also found that after the students started using LMS efficiently in the year 2009-2010, their retention rate increased. Other benefits that were identified by Kulshrestha and Kant (2013) were that the introduction of LMS to undergraduates provided a learning platform outside of the classroom which facilitated discussion among students. A LMS also enables repeated practise of concepts which is not possible in a classroom because of time constraints, thus resulting in students gaining more understanding of the concepts. There is also sharing of information among students and instructors. However, Jeffrey et al. (2014) argue that once the course materials are uploaded on LMS it becomes possible for the students to miss lectures.

The frequency of LMS usage has been found to differ amongst students. Usage patterns in this group range from the most frequent to the least frequent users. Frequent student users are classified as those

who use LMS at least once a week, and least frequent users are those students who use LMS once a month or less. Research shows however that there are more frequent users than infrequent users (Ramachandiran, 2011; Venter et al., 2012). In a study conducted by Ramachandiran (2011) in Malaysia to explore the transfer of students' usage patterns on LMS, the results showed that 78% of students were frequent users. In another study conducted in South Africa 64% of students were frequent users, 24% were occasional users while only 10% were amongst the 'least frequent' users (Venter et al., 2012). On the other hand, a study conducted by Nair and Patil (2012) over a three year period between 2008 and 2010 in the Middle East at the University College of Oman, shows that the frequency of use was very low. The students were clearly not aware of the benefits of using a LMS. However, the frequency of usage increased after the university introduced training in the use of LMS.

As discussed above, there are several LMSs such as Moodle, WebCT, Blackboard, WebCH, Edmodo and Smile. A survey that was conducted in 2009 at 51 universities from 19 different countries shows that Moodle, Blackboard/WebCt, and Sakai were the most used (Nair & Patil, 2012). These authors also concluded that previously more proprietary platforms were used but that there was an increase in the popularity of open source platforms. The following are the most significant LMS tools: communication, assessment, content management, announcements, curriculum planning, and report generation. These each provide different functionalities for the user (Lonn and Teasley (2009); Kulshrestha and Kant (2013)).

2.3.1 Blackboard LMS

Blackboard LMS was founded by Matthew Pittinsky and Michael Chasen in 1997. In the United State of America (U.S.A) more than 70% of colleges and universities are using Blackboard (Bradford et al., 2007). There were 12 million users in June 2016 over 60 countries. According to Parker (2014) Blackboard LMS is ranked as the fourth best LMS in the world. These findings metrics are based on active users, total number of customers, and the presence of the system on social media. Blackboard has a range of tools that can be used by both instructor and students to achieve their objectives. Blackboard LMS can be implemented in various ways in HEIs. Blackboard LMS can be utilised in distance open learning where students are off campus, and also in a blended way, that is, Blackboard can be combined with face-to-face instruction.

2.3.2 Moodle

The acronym Moodle stands for Modular Object Oriented Development Learning Environment (Lopes, 2011). According to the LMS report conducted at Thompson Rivers University (2011) Moodle was developed by Martin Douglas in 1999 in Australia while enrolled for a PhD. Moodle is an open source software as compared to Blackboard which is a proprietary or commercial brand. It is estimated that there are over 60 million users of Moodle. Lopes explains that Moodle has three levels of use with

features providing different uses and access features. The three levels are for administrators, instructors and students. A comparison of Blackboard with Moodle as perceived by Portuguese University students indicated that 46.5% preferred Blackboard while 34.7% preferred Moodle (Carvalho, A., Areal, N., & Silva, J., 2011). Factors that explained these results were that the students preferred an LMS that supported a greater number of their courses and Blackboard displayed all the courses for which the students were enrolled, and in addition most students had experience of IT and had used Blackboard LMS previously.

2.3.3 Sakai

Sakai is a community source software which was first devised as a project beginning in January 2004 (Ganjalizadeh & Molina, 2006). It remains as a collaborative initiative involving the development, implementation and productive use of eLearning software systems. It is an open source software like Moodle. It originated at the University of Michigan and Indiana University. Dolphin & James (2005) explain that when the Sakai project began, the Hewlett Foundation provided funding to initiate what was known as the 'Sakai Educational Partners Program'. The purpose was to build a community that would implement the Sakai software and contribute to its further development. 56 colleges and universities participated in 2004, and there are now 74. Feldstein (2010) found that the UNC school of medicine judged Sakai to be more flexible than Blackboard. Their judgement was established on the number of users for each system, which were being used concurrently. Both students and instructors used Sakai more than Blackboard. The overall cost of Sakai was also much less.

Wei, Wu, and Zheng (2014) found that the application of Sakai was not yet mature or extensive in China and that more research is needed in its use. However, in their study to examine the use of Sakai in the University of Science and Engineering, they found Sakai useful in promoting the development of interactive learning. It can also expand the perspectives of students and cultivate students' ability to ask relevant questions. In a study conducted by Dube and Scott (2014) to understand the factors that influence the users of Sakai LMS by academics at NUST in Zimbabwe. The study revealed that simple lack of knowhow is the principal cause of the system's lack of use. This lack of awareness and lack of technical knowledge were put down to the fact that the training offered was never communicated to the users.

2.4 Theoretical Framework Review

A theoretical framework can be viewed as the relevant theory or theories underpinning the knowledge base of the phenomenon to be researched (Sinclair, 2007). Relevant theories that best explain the factors that influence the BI to use a LMS were identified in this study.

2.4.1 Task-Technology Fit (TTF)

Several LMS studies focus mainly on adoption and acceptance, while research on task-technology fit has been inadequately investigated (McGill & Klobas, 2009). Task Technology fit is a model that was developed by Goodhue and Thompson in 1995. The theory holds that when a task characteristic fits with a technology characteristic, the individual performance will consequently be affected. However, the model had some limitations as it focused on the fit only, and did not take into account that the system must be used before it can have an influence on performance (Irick, 2008). The original model was then combined with the Utilization model. The Utilization model holds that increased utilization will lead to a positive performance impact (Irick, 2008). However, applying only the utilization model disregards the fact that not all utilization is voluntary. It may happen that probably a person is using the system because there is no other system available.

Goodhue and Thompson (1995) then came up with a model that combines the two models discussed above. This was called the technology-to-performance chain (TPC). Figure 2-1 shows the TPC model, that has both task-technology fit and utilization of technology.

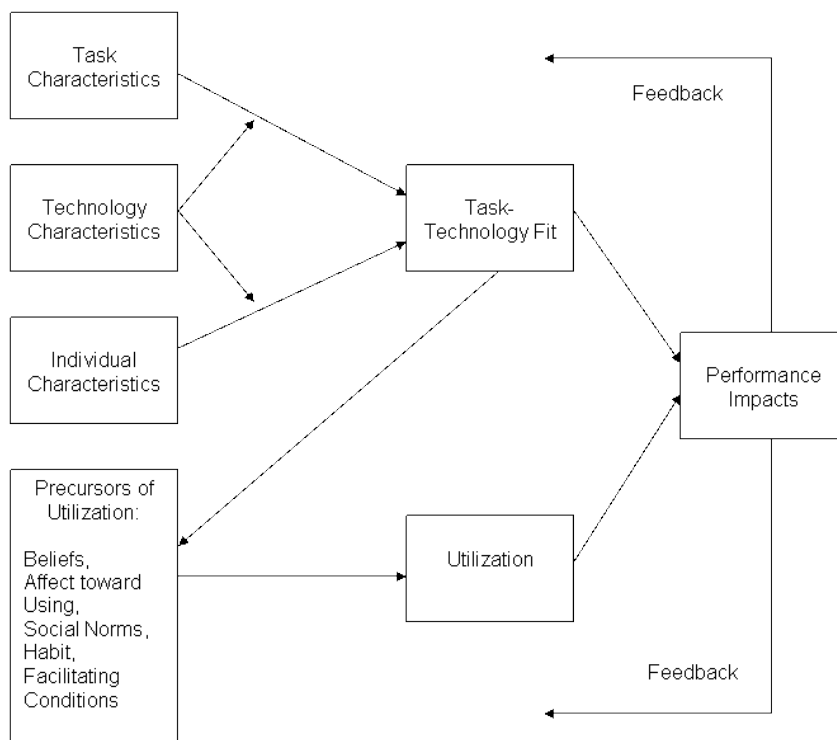


Figure 2-1 : Technology-to-Performance Chain Model (Irick, 2009)

The limitation of TPC model is that it only focuses on the performance impact factor. It does not show other factors that are influenced by utilization and task-technology fit. Whereas, this study is concerned about the factors that influence BI to use the system.

2.4.2 Technology Acceptance Model (TAM)

TAM was originally proposed by Fred Davies in 1985 (Masrom, 2007). TAM proposes that the motivation to use the system is inspired by system features and capabilities (Chuttur, 2009). TAM was based on Theory of Reasoned Action (TRA) which was discovered by Fishbein and Ajzen's (1975). TAM suggests an individual's attitude towards using the system is influenced by perceived usefulness (PU) and perceived ease of use (PEOU) (Larsen, Allen, Vance, & Eargle, 2015; Masrom, 2007). An individual's intention to make use of technology has an influence on the actual use of the technology (Larsen et al., 2015). Additionally, PEOU was also considered to directly impact PU. TAM was simplified by removing the construct attitude found in the TRA (Larsen et al., 2015). Figure 2-2 depicts the original version of TAM.

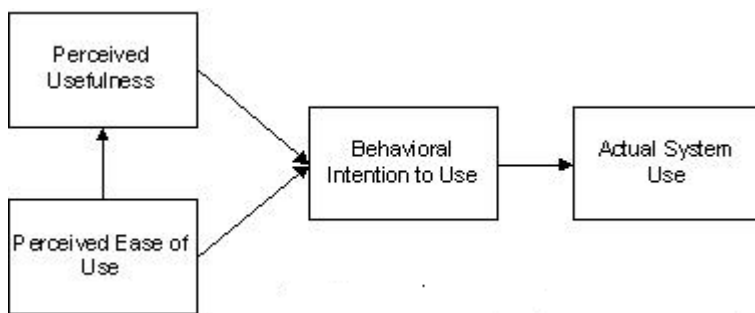


Figure 2-2 : Original version of TAM (Davis et al. (1989), Venkatech et. al. (2003))

In TAM, PU denotes the extent to which the user is positive that using a particular technology will improve their performance in a job (Davis, 1985). PEOU refers to the belief that when one uses a system it will be easy (Davis, 1985). According to Venter et al. (2012) the TAM is the utmost extensively used model for predicting BI and use of technology. Marchewka and Kostiwa (2007) concur with Venter et al. (2012), by saying that TAM is one of the most dominant and robust theories for clarifying technology acceptance.

Various studies have used TAM to investigate whether PEOU has an effect on students' BI to use technology. Tarhini, Hone, and Liu (2013) conducted separate studies in the United Kingdom (UK) Britain, a developed country, and Lebanon, a developing country. The study was about investigating the factors that impact students' intention to use e-learning systems. TAM was extended to include the constructs: SI, organizational and individual features. In both countries the results showed that PEOU had an effect on BI to use e-learning system. A similar study was conducted by Tarhini, Hone, and Liu (2015), in a cross-cultural setting, once more, the results showed that PEOU had a positive effect on BI. As a result the following recommendation were made for policy developers: policies pertaining to content quality of e-learning should be established and also a system which promotes ease of use and usefulness should be developed.

Lin, Persada, and Nadlifatin (2014) conducted a study on student behaviour in accepting Blackboard LMS. Their results showed that PEOU indirectly influenced BI through attitude. TAM only refers to factors that influence the actual use of the system, as well as the factors that influence BI. However, from the literature, it is evident that BI is not only influenced by PE and PEOU. Hence, TAM cannot be used as an adopted model for this study.

2.4.3 Unified Theory of Acceptance and Use of Technology (UTAUT) model

Another prominent model in technology acceptance studies is UTAUT (Akbar, 2013). Venkatesh, Morris, Davis and Davis (1989) consolidated eight models and proposed the UTAUT model (Akbar, 2013; Lin, Lu, & Liu, 2013; Marchewka & Kostiwa, 2007). The eight models that were combined are the TRA, TAM, the Motivational Model, the Theory of Planned Behaviour, a combined theory of Planned behaviour and TAM, the Model of PC Utilization, Innovation Diffusion Theory, and Social Cognitive Theory (Akbar, 2013). The UTAUT model hold that PE, SI, EE and Facilitating Conditions (FC) are direct determinants of BI towards acceptance of technology (Taiwo & Downe, 2013). They further say that the theory proposes that FC and BI predict use behaviour in the acceptance of technology. The four constructs are moderately impacted by age, gender, experience and voluntariness (Akbar, 2013; Larsen et al., 2015). Figure 2-3 shows the UTAUT model.

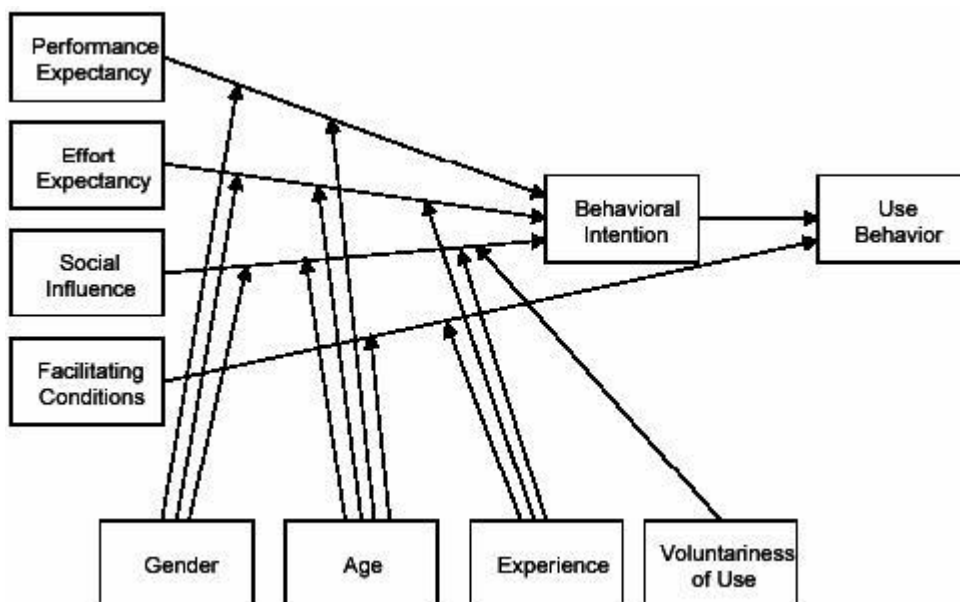


Figure 2-3 : UTAUT Model (Venkatesh et al., 2003)

The UTAUT model was found to be the best as compared to the other eight individual models (Mtebe & Raisamo, 2014). According to the information available on the Dr V. Vankatesh website (accessed 20 January 2015), UTAUT constructs are defined as follows: PE refers to an individual believe that when using a system it will help him/her attain positive job performance. EE is the effort that need to be applied by the user in a system. SI is the extent to which a person believes that important others encourage him or her to use a system. FC refers to the resources available to support an individual in using the system. BI is an extent a person has visualised to execute or not execute some specified future behaviour. The actual use of a system is referred to as use behaviour.

Taiwo and Downe (2013) proclaim that ever since UTAUT's commencement, the theory has been measured using different systems. It has become an important model for determining user acceptance of a system, but the results of the studies differ. Thus, Taiwo and Downe (2013) conducted a study involving a meta-analysis on 37 empirical studies. The papers that were used in the study were published or dated after 2003 when UTAUT was first published, up to the year 2011. The strength of the relationship between the constructs of UTAUT was identified. The results reveals that PE-BI relationship is the strongest followed EE-BI then SI-BI. The relationship between FC –BI was the weakest.

Mtebe and Raisamo (2014) conducted a study to investigate students' behavioural intention to adopt and use mobile learning in higher education. The results shows that PE has the most significant effect on BI. Therefore, students have confidence that mobile learning is useful and also that it will help them in learning. On the other hand, a study conducted by Marchewka and Kostiwa (2014) to describe students' perceptions of Blackboard found that PE has a negative significant impact on BI. The study by Mtebe and Raisamo (2014) was conducted in a developing country in East Africa with a sample size of 823 students was used while Marchewka and Kostiwa (2014) study was conducted in a developed country the United State with a sample size of 132 students.

In most of the studies that applied UTAUT to investigate students' acceptance and use of technology, SI was discovered to have an effect on BI (Khechine, Lakhel, Pascot, & Bytha, 2014; Marchewka & Kostiwa, 2014; Tan, 2013). Although, in a study conducted by Mtebe and Raisamo (2014), SI was found to have the least influence on student BI to use mobile learning. This may imply that students in developing countries believe that important others encourages them to use mobile learning, but training and awareness should be conducted (Mtebe & Raisamo, 2014). The UTAUT has many factors that influence BI. However, it lacks information on task characteristics, technology characteristics, and information on computer self-efficacy (CSE). Thus the model could not be used for this study.

2.4.4 Factors Influencing LMS Usage

As indicated in the discussion, LMS usage varies among users, some use it very profoundly and others seldom use it, while various factors influence its use. Several studies have been conducted that scrutinize the factors that impact on the use of LMS. It is important to find out about these factors because it can assist HEIs to maintain and increase their level of usage rather than having a situation where the usage level declines and the benefits of using LMS are not enjoyed or attained.

The use of technology in teaching and learning is to assist students and instructors to perform their tasks more effectively and efficiently. Therefore, there must be a fit between technology characteristics and task characteristics. Many studies have been carried out to investigate the influence of TTF on students' performance. Research reveals that TTF had direct and indirect effects on BI to use LMS (Baleghi-Zadeh, Ayub, Mahmud, & Daud, 2014). Osang (2015) used a technology utilization satisfaction and performance (TUSPEM) model as the theoretical framework in the evaluation of end-users performance impacts from the TTF. The result showed that TTF significant when technology characteristics and task to be performed by a user are similar. Furthermore, TTF was found to have an impact on performance.

In a study conducted by Tan (2013) to investigate and explain the factors that affect acceptance of E-learning by Taiwanese college students, the outcome show that PE positively influences BI to use E-learning. In another study factors that influence student's acceptance of webinars was investigated (Khechine et al., 2014). They found that PE positively affects the students' BI to use webinars. PE was the strongest predictor of the intention to use webinars. Students enrolled in an undergraduate programme at a business school demonstrated that performance was the first concern for most of them because their chances of being accepted in a job or postgraduate studies depend on their performance. They believed that webinar could help them in reaching their optimum performance levels.

According to Igarria and Iivari (1995) for a task to be performed using technology a user should be computer self-efficient. CSE is the belief by an individual that they capable of using a computer for specific task (Venkatesh & Bala, 2000). The study by Ariff, Yeow, Zakuan, Jusoh, and Bahari (2012) reveals that CSE is indirectly influencing BI through PEOU. This is also confirmed by extended TAM which posits that PEOU and PU are influenced by external variables such as CSE (Venkatesh & Bala, 2000).

A study conducted by Šumak, Heričko, Pušnik, and Polančič (2011) to examine factors that influence the students' perceptions of the use of Moodle revealed that PEOU and PU are variables that directly affect students' attitude towards using Moodle. Another study conducted by Raman, Don, Khalid, and Rizuan (2014) to examine the level of acceptance of Moodle, found that PE and SI had a positive significant influence on BI to use Moodle. Students intention to use was prompted by usefulness

(Raman et al., 2014) and SI (Raman et al., 2014). These studies were, however, only conducted on Moodle LMS and might not have produced the same outcomes with other LMS. Also, the study by Raman et al. (2014) was conducted on post-graduate students only.

Learning management systems enable collaboration and sharing of information through tools such as discussion groups. Therefore, the interactive function of e-learning should attract the interest students (Raman et al., 2014). This shows that SI can be the promoter for BI to use the system. In a study conducted by Revyathi and Tselios (2017) attitude (AT), perceived usefulness (PU), social norms (SN), and system usability scale (SE) were all found to have an influence on BI. Baleghi-Zadeh et al. (2014) integrated the TTF with the TAM to predict BI to use LMS among higher education students. The results revealed that TTF, PU, PEOU and SN all had a positive significant effect on BI.

2.5 Conceptual Framework

Rocco and Plakhotnik, (2009) explain that a conceptual framework direct the study in the appropriate knowledge base(s) that underpin the problem statement and research questions. Furthermore, while theory may not be guiding the study, concepts are. Maxwell (2005) states that a conceptual framework is primarily a model of the plan to study what is going on with the variables and why.

The conceptual framework of this study adopts the following theories: TAM3, UTAUT and TTF. The following constructs will be used in the study:

- **Performance Expectancy**

According to Akbar (2013), PE refers to an individual believe that when using a system it will help him/her attain positive job performance. McGill and Klobas (2009) articulates that when the fit between task characteristics and technology characteristics has an impact on PE This construct will be used to investigate if the use of Blackboard LMS helps MUT BIS2 students in attaining good marks. UTAUT posits that PE has an influence on BI.

- **Perceived Ease of Use**

PEOU refers to an individual belief that they can use the system with ease (Akbar (2013). According to TAM3 CSE has an effect on PEOU. This construct will be used to explore the level of ease perceived by BIS 2 students at MUT in their intention to use Blackboard LMS. This takes into consideration that these students were exposed to Blackboard LMS in first year but they were not trained in its use. TAM3 holds that PEOU has an effect on BI.

- **Social influence**

SI refers to the belief that a user thinks that important people encourage the use of a system (Akbar, 2013). UTAUT holds that SI is a direct determinant BI. The SN construct has been found to have an influence on BI to use Blackboard LMS (Tarhini et al., 2013). This construct was used to establish if SI does affect the use of Blackboard LMS by BIS 2 students at MUT.

- **Behavioural Intention**

According to Akbar (2013) BI refers to an individual belief that he or she might use the system in future. According to TAM3 and UTAUT BI has an effect on the actual use of the system. Hence, BI is a dependant variable in this study.

Based on the above variables, therefore the study proposes a schematic conceptual framework represented in figure 2-4.

2.6 Summary

The secondary literature relevant to the research topic was reviewed in this chapter. The term ‘blended learning’ was discussed because the use of Blackboard LMS at MUT is combined with face-to-face learning. The term LMS was discussed together with different types of LMS. Also, the factors that influence the use of LMS was discussed. In the light of this literature, the following models: TTF, TAM and UTAUT were identified as an appropriate conceptual framework. PE was proposed as influenced by a fit in task characteristic and technology characteristics and PEOU was also understood to be influenced by CSE. PE, PEOU and SI were proposed as variables that influence the BI to use Blackboard LMS by BIS2 students at MUT. The literature review also identified a knowledge gap establishing the need for the study to explore the factor that influence BI to use Blackboard LMS by BIS2 students at MUT.

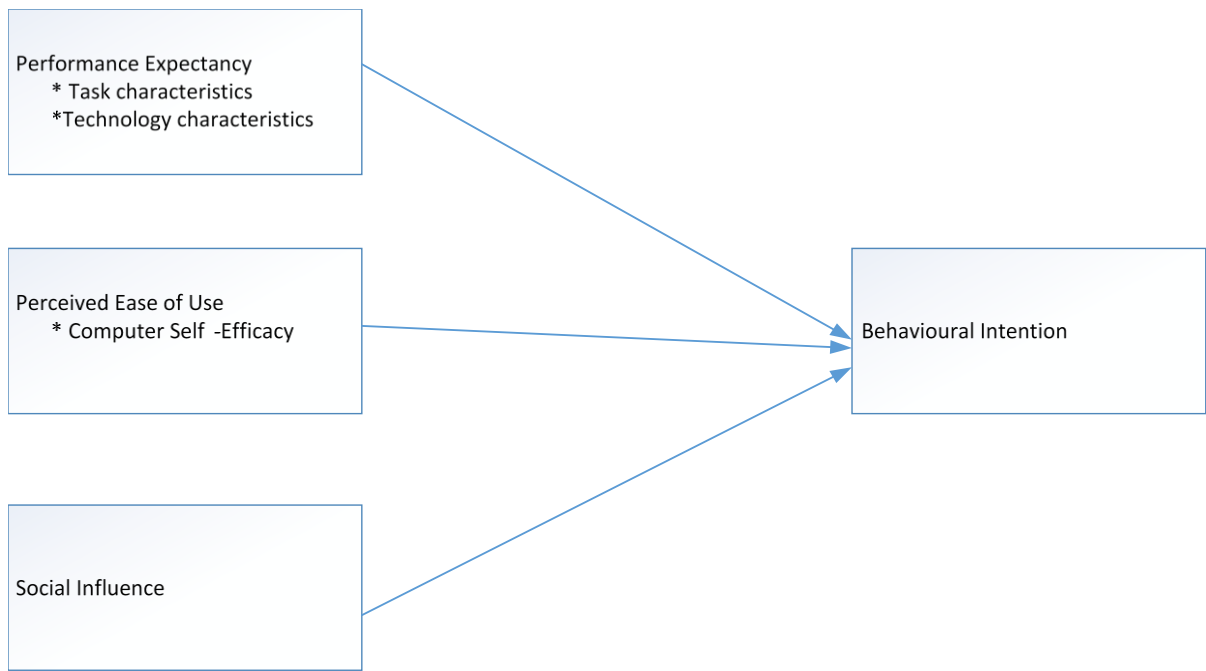


Figure 2-4 : Proposed conceptual framework

Chapter 3

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology and design refer to the processes and approaches used to find answers to the research question. Answers for the research question can be obtained from the information collected and analysed using research methodology approaches. According to Hair et al. (2003) research design offers elementary guidelines for carrying out a project. Therefore, a researcher should select a design that provides relevant information and further completes the job in the most efficient manner. Additionally, appropriate methodology helps to address the research problem effectively.

This chapter presents the research design used to answer the following research questions:

1. What is the influence of PE on the BI to use Blackboard LMS by BIS2 students at MUT?
2. What is the influence of PEOU on the BI to use Blackboard LMS by BIS2 students at MUT?
3. How does SI affect the BI to use Blackboard LMS by BIS 2 students at MUT?
4. Which of the three constructs (PE, PEOU and SI) has the most influence on the BI to use Blackboard LMS by BIS2 students at MUT?

The following processes were determined and conducted in order to find answers to the research questions: an appropriate research paradigm, research approach, sampling design and data analysis.

3.2 Research Paradigm

Research projects have a philosophical world view which is referred to as a “research paradigm”. Mckenna (2014) defines the research paradigm as the philosophical world view adopted in understanding the purpose of the research. According to McKenna there are three principal research paradigms: firstly positivism, secondly constructivism, and finally a transformative design. In addition to these three, Creswell (2014) identifies a fourth paradigm which is the pragmatism. The positivist paradigm identifies and assesses the causes that influence the outcomes. Mckenna (2014) refers to it as research that seeks to find out a truth. Constructivism, also known as socially constructed realities, seeks an understanding of the world by making sense or interpret the meanings individuals have about the world. A transformative world view embraces that research investigation needs to be combined with politics and political change to address inequalities. Creswell (2014) explains that pragmatism is a worldview arising out of action, situations, and consequences.

This study falls under a positivist paradigm because it focuses on finding out the truth about students’ perception of Blackboard LMS at MUT. Therefore, the philosophical worldview of this study is

positivism. According to Creswell (2014) positivism intends to decrease ideas into a small, discreet set, such as the variables that incorporate research questions. The knowledge recognised through a positivist lens is founded on observation and measurement.

3.3 Research Design

According to Kumar (2005) research designs can be categorized within the following three groups: (1) cross-sectional design which takes into consideration the number of contacts within the study population, (2) longitudinal design which has to do with the reference period of the study and (3) ‘before and after’ studies which look at the nature of the investigation. A cross-sectional study was conducted in this case because there was to be only one contact session with the respondents, since the students were only available during the MUT academic period.

Cross sectional studies can be descriptive, explanatory or exploratory (Hair et al. (2003). Van Wyk (2012) says the following about the three types of cross sectional study: the goal of descriptive research is to offer a precise and valid representation of the variables that are pertinent to the research questions; an explanatory study (also known as an analytical study) identify any causal link between the variables that relate to the research question while exploratory research is the utmost advantageous and suitable design for projects that are addressing a subject with a high level of uncertainty.

The type of the research design that was employed in this study is exploratory. According to Hair et al. (2003) exploratory research is useful when there is little theory available to guide the development of a hypothesis. Furthermore, they see it as appropriate when the researcher knows little about the problem or opportunity involved. The first LMS that was used at MUT is WebCT. After few years of using WebCT they changed to Blackboard LMS. The cause for change is not known since there is no empirical evidence for the reasons to change from WebCT to Blackboard LMS. Hence, there is no theory available to utilize for this study.

3.4 Research Approach

Creswell (2014) defines a research method as the strategies and processes for research that span the steps to be taken from comprehensive assumptions to exhaustive methods of data collection, analysis, and interpretation. Principal research consist of three approaches namely, quantitative, qualitative, and mixed methods (Creswell (2014). Quantitative research refers to a method of investigating the relationship among variables. Qualitative research is a method for discovering and understanding the meaning individuals assign to a social or human problem. Mixed methods refers to a methodology that uses both qualitative and quantitative approaches. A quantitative research approach was chosen for this study in line with the study’s positivist philosophical assumptions.

3.5 Sampling Design

Sampling refers to a procedure of choosing a sample from a population (Kumar, 2005). A sample will be used as foundation for predicting the population. Furthermore, the objective sampling design is to minimise the gap between the values obtained from the sample and population.

Hair et al. (2003) recommend considering the following three criteria in the process of selecting a sampling design. First, should a sample or a census be employed? Second, if a sample is employed, then which sampling method is best? Finally, how large should a required sample be? When a small sample is chosen, therefore, a sample should represent a true reflection of the population that is being studied Kumar (2005).

3.5.1 Study Site and Setting

The study site describes the physical location (geographical area) where research will be conducted (Mutinta, 2014). The study setting refers to the particular place where data are collected. The study site for this research was at MUT. MUT is a Higher Education Institution (HEI) situated at uMlazi Township south of the Durban metropolitan area, in the province of KwaZulu-Natal. The setting for the study was the Department of Accounting at MUT.

3.5.2 Target Population

A target population is a comprehensive group of elements pertinent to the research project (Hair et al., 2003). The target population for the study were undergraduate BIS2 students enrolled at MUT in the year 2015. The BIS2 course consisted of 240 students enrolled in the Faculty of Management Sciences. According to the MUT Strategy 2020, MUT gives priority to students from disadvantage communities and the students in this study therefore largely reflected this socio-economic group.

3.5.3 Sample and Sampling Technique

Sampling design consist of three types namely: random (probability), non-random (non-probability) and 'mixed' sampling designs (Kumar, 2005). In probability sampling all elements in the population have the same and independent chance of being nominated. Non-probability elements are chosen based on the researcher's criteria. The 'mixed' sampling design consist of both probability and non-probability characteristics. According to Creswell (2014) each individual in the population has an equal probability of being selected. Hence, a probability sampling design was used in this study.

Simple random sampling, stratified random sampling, cluster sampling, and systematic sampling are types of a probability sampling (Hair et al., 2003). In simple random sampling the number of all elements in the population is identified. A decision on a sample size is made. A number is allocated to each element of a target population. Then, a set of random numbers are produced. A stratified random

sampling is a method in which a researcher splits the entire targeted population into different subgroups. The researcher randomly selects the subjects evenly from each group. A cluster sampling technique may be used if it is impractical to compile an exhaustive list of all elements in a target population. Here population elements are grouped into sub-populations. In a stratified sampling technique, the sampling interval is determined first, and then the initial starting point in a list is identified. An interval number is used to select every x^{th} element in the list.

In a systematic sampling technique there is an assurance that the population will be evenly sampled. Therefore, a systematic sampling technique was used in the study. An initial starting point on a list of BIS2 students was selected. The initial starting point selected was the first student in the class; thereafter a sampling interval of 2 was used, which means that every 2nd student was randomly selected from the students who were in the class. The sampling interval is the number of population elements divided by the sample size. According to Hair et al. (2003) the sampling interval (d) is calculated using the formula $d = \text{population size (N)} / \text{sample size (n)}$.

The sample size is obtained by using the formula $n = Z^2 P(1-P) / d^2$ as suggested by Daniel (1999) cited by Naing, Winn, and Rusli (2006). Where $n =$ sample size, $Z =$ Z statistic for a confidence level, $P =$ standard of deviation or expected prevalence or proportion, $d =$ margin of error or confidence interval or precision. Creswell (2014) claims that the margin of error is a + or – figure that represents how accurately the answers given by the sample correlate to the answers given by the entire population. In addition any margin of error can be used as long as one is willing to tolerate that margin of error. For a population of 240 students an acceptable margin of error 0.0313 is considered for this study (Naing et al., 2006). The confidence level for this margin of error used was 1.74 (93%). The amount of variance expected from responses is 0.04. Thus, the sample size was calculated as follows: $n = (1.74)^2(0.04) (1-0.04) / (0.0313)^2$. However, according to the formula a number greater than 118 is a sufficient sample size. Therefore, the sample size employed for this study was 120. Hence, n will be $240 / 120 = 2$.

3.6 Research Instrument

Kumar (2005) articulate that two major issues needs to be considered when gathering information about a condition. These are: (1) the information required is readily available and needs to be extracted and (2) the information needs to be collected because it does not exist. The nature of this study requires data to be collected. Therefore, a research instrument was developed. Kumar (2005) defines a research instrument or research tool as something that turn into a means of collecting information for the study.

3.6.1 Data Collection Instrument

It is imperative when selecting data collection method to be aware of the following: socioeconomic-demographic features, status and attitude of the participation (Kumar (2005). The quality of data

obtained depends on the approach in which the purpose and relevance of the study is explained to respondents.

A questionnaire is a printed list of questions or statements, used by respondents to write answers (Kumar, 2005; Sibaya, 2015). A face-to-face questionnaire was used. This involves administering the questionnaire in a group setting such as a classroom (Sibaya, 2015). A questionnaire was chosen because the researcher felt that BIS2 students would feel reluctant to discuss the topic with an investigator, since it is the only subject which makes use of Blackboard LMS. In addition, during their first year they had been using Blackboard LMS for assessment only, while a year later they had now been introduced to, and were using, other Blackboard LMS tools. However, as has been mentioned, the target population of MUT students come from historically disadvantage communities and they can seldom access computers and internet facilities off campus. This meant that a face-to-face questionnaire was appropriate.

The questionnaire (see Appendix D) contains five sections, namely: demographic information, PE, PEOU, SI and BI. At the beginning of each section there is a description of the questions concerning each variable, followed by a list of close-ended questions then open-ended questions. The reason for using both types of questions were: close-ended questions provide set answers from which the respondent had to make a selection, which ensured that the information required by the researcher was obtained. Open-ended questions provides a situation where respondents can have additional and in-depth input. Each question in the questionnaire uses a 5 point Likert scale with responses: “completely disagree”, “fairly disagree”, “neutral (neither disagrees nor agrees)”, “fairly agree” and “completely agree”.

3.6.2 Data Quality Control

The research instrument used to collect data was tested for validity and reliability. Hair et al. (2003) define reliability as existing when a scale or questions consistently measures a concept, and validity as when a variable measures what it is supposed to measure. A pilot study was conducted using 24 respondents. The 24 respondents were given the developed research instrument so that they could respond to the questions. Cronbach’s alpha test was used to test reliability. The results of the tests indicated in table 3-1 show that the Cronbach’s alpha for the four variables is close to 1.0.

According to Gliem and Gliem (2003) when the Cronbach Alpha coefficient is proximate to 1.0 there is an internal consistency of items in the scale. Therefore, since the Cronbach Alpha of the four variables is close to 1.0, it means that the variables are reliable.

Table 3-1 : Cronbach's alpha results for reliability on pilot study

Construct	Cronbach's alpha	No. of questions
Performance expectancy	.860	10
Ease of Use	.731	9
Social influence	.808	8
Behavioural intention	.897	6

To test for validity of the questionnaire was distributed to the lecturers in the University of KwaZulu-Natal (UKZN) and MUT. Their feedback was received to check whether they could interpret the questions clearly and make appropriate responses. The comments given by these respondents were duly considered and the questionnaire modified appropriately. The questionnaire was also sent to the statistician for comments in order to ensure correctness.

3.7 Data Collection Procedure

BIS2 students were informed in good time, during an earlier lecture, about the survey that would be conducted in their classroom. Students were told of the day, time and venue for the administration of the questionnaire. As the students were entering the venue, every second student on the list was selected. Once everybody had taken their seats, the researcher explained again the purpose of the research. Also, the consent form was read to students. Questionnaires were then distributed to the participants. Once the participants had finished answering the questionnaire, they submitted the questionnaire to the researcher.

3.8 Ethical Consideration

A majority of professions have a code of conduct that governs the process they work, while most institutions and bodies have developed code of ethics exclusively for research purposes Kumar (2005). The different stakeholders such as individual and the institutions and other bodies involved, need to be considered when looking at ethical issues. It is necessary for researchers to safeguard participants, cultivate trust, and endorse the integrity of research. This can be done by soliciting permission and consent from all the different stakeholders involved in the research.

Permission to collect data at MUT was requested from their Research and Ethics Committee. This permission was granted and the gatekeeper's letter (see Appendix A) was issued on 19 October 2015. Then the researcher applied for ethical clearance at the University of Kwa-Zulu Natal (UKZN), and full approval was granted to the researcher (refer to Appendix B for ethical clearance).

Participants were told that they have a right to withdraw from, or to refuse to participate in, the investigation whenever or for whatever reason they wish. They were also told that they will remain anonymous and their participation will be confidential. The first pages of the questionnaire included the consent letter, which students had to sign if they decided to participate in the research.

Completed questionnaires were handed over to the School of Management, IT & Governance. These will be stored in a research repository for a period of 5 years and then disposed of, as per agreed procedures. The data captured and stored as SPSS were password protected and will be maintained in the researcher's computer (hard disc) for a period of 5 years and disposed of (deleted) thereafter.

3.9 Summary

In this chapter, the research paradigm was identified which defined the goal of this study. Once the purpose of research was established then the research processes were more easily arrived at. The research design used for this study is exploratory because unknown factors that influence BI to use Blackboard LMS by BIS2 students at MUT had to be discovered. The research paradigm is positivist, and therefore a quantitative research approach was employed. A systematic sampling design was used to obtain a sample 120 subjects. Data were collected from the subjects through a 5-point Likert scale questionnaire which consisted of both open and close ended questions. The data quality was ensured through a pilot study. Reliability and validity testing was conducted, and all variables satisfied the requirements. Ethical clearance was obtained from UKZN and a gate keeper's letter was granted for the researcher to conduct the research at MUT.

Chapter 4

FINDINGS AND ANALYSIS

4.1 Introduction

Quantitative data analysis will be presented in this chapter. Oates (2012) defines quantitative data as data, constructed on numbers. Data analysis is conducted in order to identify patterns in data and infer conclusions. Data that is analysed in this chapter is obtained from a self-administered questionnaires. Statistical Package of Social Sciences (SPSS) was used to analyse data. As stated above, four research objectives drove the collection of data and subsequent analysis. The objectives of the study are:

1. To understand the influence of PE on the BI to use Blackboard LMS by BIS2 student at MUT.
2. To understand the influence of PEOU on the BI to use Blackboard LMS by BIS2 students at MUT.
3. To ascertain if SI affects the BI to use Blackboard LMS by BIS2 students at MUT.
4. To determine which of the three constructs (PE, PEOU and SI) has the most influence on BI to use Blackboard LMS by BIS2 students at MUT.

4.2 Response Rate

The questionnaires were distributed to BIS2 students at MUT. 120 questionnaires in total were given out to participants and 115 answered questionnaires were returned. 109 of the returned questionnaires were usable, and an overall response rate of 90.83%. The survey responses from the participants were in general complete, with very few responses to individual questions incomplete.

4.3 Statistical Techniques

Statistical analysis refers to the group of techniques used for gathering, establishing, analysing and interpreting data (Kazmier, 2004). The statistical analysis methods employed in this study are reliability, and descriptive and inferential statistics. The responses in each questionnaire were captured into Microsoft Excel 2010 (MS Excel 2010) using codes, and data captured on MS Excel2013 was then imported to the Statistical Package for Social Scientist (SPSS) for analysis.

4.3.1 Descriptive Statistics

Heiman (1996) defines descriptive statistics as procedures for organizing and summarising data so that the important characteristics of the data can be communicated and described. Techniques that are used in descriptive statistics can either be graphical or involve computational analysis (Kazmier, 2004). The descriptive statistics included means and standard deviations, where applicable. In this study, tables

and graphs are used to represent responses of each question in a variable. A one sample t-test is employed to test if a mean score is significantly dissimilar from a value of the central score.

4.3.2 Inferential Statistics

Inferential statistics are procedures that allow researchers to decide whether to conclude that the sample data accurately represents a particular score or relationship in the population (Heiman, 1996). Inferential statistics used in this study involve regression analysis. All conditions for regression were tested and found to be satisfied. Thus, the linear relationship between the independent variables (PE, EOE, SI,) and dependant variable (BI) is determined.

4.3.3 Internal Consistency Reliability

Reliability testing is done to check if the questions are consistently testing one measure. Each construct is first tested for reliability before regression analysis is conducted. Table 4-1 lists the Cronbach's alpha results and the number of questions in each variable. According to Gliem and Gliem (2003) when the Cronbach Alpha coefficient is close to 1.0 there is an internal consistency of items in the scale. Since, the Cronbach Alpha scores for each variable of this study are close to 1.0, it could be concluded that the research instrument was reliable.

Table 4-1 : Cronbach's alpha results for reliability on actual study

Construct	Cronbach's alpha	No. of questions
Performance expectancy	.860	10
Perceived Ease of Use	.731	9
Social influence	.808	8
Behavioural Intention	.897	6

4.4 Statistical Analysis

4.4.1 Demographic Characteristics

Table 4-2 shows data about the number of participants under each type of enrolment. Participants include 43 (39.4%) enrolled in a 3 year day programme and 34 (31.2%) in a 4 year day programme. Then, 30 (37.5%) enrolled in a 3 year evening programme and only 1 (0.9%) in a 4 year evening programme.

Table 4-2 : Descriptive statistic for enrolment

Enrolment category	Frequency	Percent	Valid Percent	Cumulative Percent
Day – 3	43	39.8	39.8	39.8
Day – 4	34	31.5	31.5	71.3
Evening – 3	30	27.8	27.8	99.1
Evening – 4	1	.9	.9	100.0
Total	109	100.0	100.0	

Out of 109 participants 59 (54.1%) are females, and 50 (45.9%) are males, the frequency for the gender is listed in table 4-3.

Table 4-3 : Descriptive statistic for gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	59	54.1	54.1	54.1
Male	50	45.9	45.9	100.0
Total	109	100.0	100.0	

Table 4-4 portrays the frequencies of the age of participants. 7 (6.4%) of the participants are under the age of 20, 93 (85.3%) are between the ages of 21 and 25 and 9 (8.3%) are between the ages of 26 and 30.

Table 4-4 : Descriptive statistic for age

Age	Frequency	Percent	Valid Percent	Cumulative Percent
Under 20	7	6.4	6.4	6.4
21 – 25	93	85.3	85.3	91.7
26 – 30	9	8.3	8.3	100.0
Total	109	100.0	100.0	

The demographic characteristics of the sample are summarised in figure 4-1. The data show that there were slightly more females than males with 54.1% females and 45.9% males. Also, 85.3% of participants were between that ages of 21-25. There are 39.4% of participants enrolled in a 3 year day programme which is larger than the other types of enrolment.

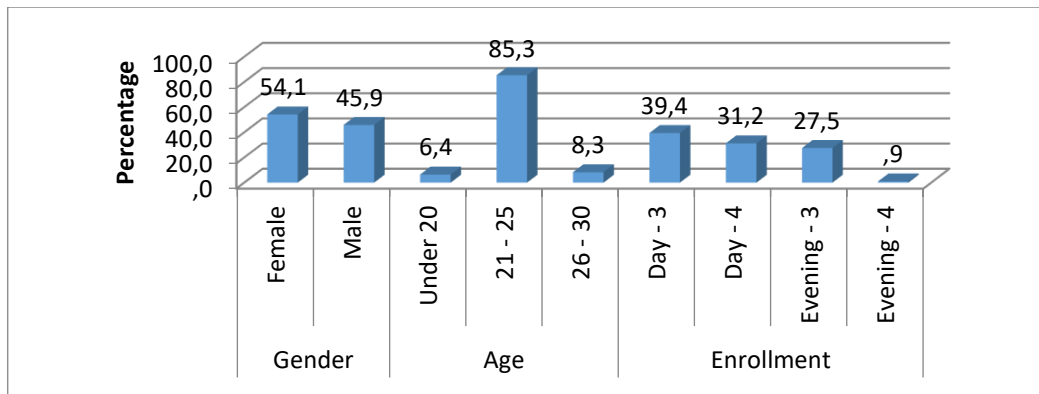


Figure 4-1 : Summarized demographic characteristics for participants

4.4.2 Performance Expectancy

According to Akbar (2013) PE refers to an individual believe that when using a system it will help him/her to attain positive job performance. The variable PE is used in this study to measure the degree to which Blackboard has helped BIS2 students at MUT to perform well in the course. The participants had to respond to 10 questions on this variable.

Table 4-5 indicates the responses to the statement: I find blackboard useful in my study of BIS 2. The results show that 72 participants agree (22.0% completely agree and 44.0% fairly agree). Whereas, 20 disagree. 14 (12.8%) completely disagree and 6 (5.5 %) fairly disagree. 17 (15.6%) participants were neutral.

Table 4-5 : I find blackboard useful in my study of BIS2 (PE1)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	14	12.8	12.8	12.8
Fairly disagree	6	5.5	5.5	18.3
Neutral	17	15.6	15.6	33.9
Fairly agree	48	44.0	44.0	78.0
Completely agree	24	22.0	22.0	100.0
Total	109	100.0	100.0	

Table 4-6 indicates the results of the statement: using Blackboard enables me to accomplish tasks more quickly. The results reveals that 54 participants agree (15 completely agree and 39 fairly agree), whereas 41 (37.6%) disagree. 20 (18.3%) completely disagree and 21(19.3%) fairly disagree. Only 14 (12.8%) participants are neutral.

Table 4-6 : Using Blackboard enables me to accomplish tasks more quickly (PE2)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	20	18.3	18.3	18.3
Fairly disagree	21	19.3	19.3	37.6
Neutral	14	12.8	12.8	50.5
Fairly agree	39	35.8	35.8	86.2
Completely agree	15	13.8	13.8	100.0
Total	109	100.0	100.0	

Table 4-7 reveals the results of the statement: if I use Blackboard, I will increase my chances of getting better marks in BIS 2. Results shows that 64 (58.7%) agree. 31 (28.4%) completely agree and 33 (30.3%) fairly agree; while 11 (10.1%) completely disagree and 12 (11%) fairly disagree). 22 (20.2%) participants are neutral. These results confirms Kiviniemi (2014) observation that blended learning may be an effective way of boosting students learning and improving students' performance.

Table 4-7 : If I use Blackboard, I will increase my chances of getting better marks in BIS 2 (PE3)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	11	10.1	10.1	10.1
Fairly disagree	12	11.0	11.0	21.1
Neutral	22	20.2	20.2	41.3
Fairly agree	33	30.3	30.3	71.6
Completely agree	31	28.4	28.4	100.0
Total	109	100.0	100.0	

Table 4-8 shows the results of the statement: using Blackboard in BIS 2 improves my learning motivation. The results reveal that 54 (49.5%) agree. 24 (22%) completely agree and 30 (27.5%) fairly agree. 24 (22%) disagree. 13 (11.9%) completely disagree and 11(10.1%) fairly disagree. 31 (28.4%) participants are neutral.

Table 4-8 : Using Blackboard in BIS 2 improves my learning motivation (PE4)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	13	11.9	11.9	11.9
Fairly disagree	11	10.1	10.1	22.0
Neutral	31	28.4	28.4	50.5
Fairly agree	30	27.5	27.5	78.0
Completely agree	24	22.0	22.0	100.0
Total	109	100.0	100.0	

Table 4-9 reveals results about the use by BIS 2 students of the assessment tool in Blackboard to answer examination questions, and whether it will enable them to answer questions more easily. The students had been using the assessment tools since their first year of study. Results show that 77 agree (70.7%). 27 (24.8%) completely agree and 50 (45.9%) fairly agree. Only 16 disagree. 110 (9.2%) completely disagree and 6 (5.5%) fairly disagree. 16 (14.7%) participants are neutral.

Table 4-9 : Using the assessment tool in Blackboard to answer examination questions will enable me to answer questions easily (PE5)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	10	9.2	9.2	9.2
Fairly disagree	6	5.5	5.5	14.7
Neutral	16	14.7	14.7	29.4
Fairly agree	50	45.9	45.9	75.2
Completely agree	27	24.8	24.8	100.0
Total	109	100.0	100.0	

Table 4-10 depicts the results concerning the course management tool in Blackboard and whether this contains important course material that will make students perform well in their study of BIS2. The course management tool is another tool that BIS2 students have been using since their first year of study. The results show that 68 (62.4%) agree. 18 (16.5%) completely agree and 50 (45.9%) fairly agree. 18 (16.5%) disagree. 7 (6.4%) completely disagree and 11 (10.1%) fairly disagree. 23 (21.1%) participants are neutral.

Table 4-10 : The course management tool in Blackboard has important course material that will make me perform well in my study of BIS (PE6)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	7	6.4	6.4	6.4
Fairly disagree	11	10.1	10.1	16.5
Neutral	23	21.1	21.1	37.6
Fairly agree	50	45.9	45.9	83.5
Completely agree	18	16.5	16.5	100.0
Total	109	100.0	100.0	

Table 4-11 shows the results for the statement: the announcement tool in Blackboard has up-to-date information that will help me in the study of BIS 2. 59 (54.1%) agree. 20 (18.3%) completely agree and 39 (35.8%) fairly agree, whereas 23 (21.1%) disagree. 10 (11.9%) completely disagree and 13 (9.2%) fairly disagree. 27 (24.8%) participants are neutral.

Table 4-11 : The announcement tool in Blackboard has up to date information that will help in the study of BIS 2 (PE7)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	10	9.2	9.2	9.2
Fairly disagree	13	11.9	11.9	21.1
Neutral	27	24.8	24.8	45.9
Fairly agree	39	35.8	35.8	81.7
Completely agree	20	18.3	18.3	100.0
Total	109	100.0	100.0	

Table 4-12 depicts the results of the statement: using Blackboard improves the quality of learning. The results show that 75 (68.8%) agree. 31(28.4%) completely agree and 44 (40.4%) fairly agree. On the other hand, only 13 (11.9) disagree. 7 (6.4%) completely disagree and 6 (5.5%) fairly disagree). 20 (18.3%) participants are neutral.

Table 4-12 : Using Blackboard improves the quality of learning (PE8)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	7	6.4	6.5	6.5
Fairly disagree	6	5.5	5.6	12.0
Neutral	20	18.3	18.5	30.6
Fairly agree	44	40.4	40.7	71.3
Completely agree	31	28.4	28.7	100.0
Total	109	100.0	100.0	

Table 4-13 demonstrates the results for the responses to the statement: using Blackboard makes it easy to learn. The results reveal that 61 (58.7%) agree. 22 (20.2%) completely agree and 39 (35.8%) fairly agree. 17 (15.6%) disagree. 11 (10.1%) completely disagree and 6 (5.5%) fairly disagree. 30 (27.5%) participants are neutral.

Table 4-13 : Using Blackboard makes it easy to learn (PE9)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	11	10.1	10.2	10.2
Fairly disagree	6	5.5	5.6	15.7
Neutral	30	27.5	27.8	43.5
Fairly agree	39	35.8	36.1	79.6
Completely agree	22	20.2	20.4	100.0
Total	109	100.0	100.0	

Table 4-14 demonstrates the results for the statement: if I use Blackboard my classmates will see me as competent. The results reveal that participants had more or less the same perception about classmates competence whether they use Blackboard or not. 39 (35.8%) agree. 17 (15.6%) completely agree and 22 (20.2%) fairly agree. 34 (31.2%) disagree. 21 (19.3%) completely disagree and 13 (11.9%) fairly disagree. 36 (33.0%) participants are neutral.

Table 4-14 : If I use Blackboard my classmates will see me as competent (PE10)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	21	19.3	19.3	19.3
Fairly disagree	13	11.9	11.9	31.2
Neutral	36	33.0	33.0	64.2
Fairly agree	22	20.2	20.2	84.4
Completely agree	17	15.6	15.6	100.0
Total	109	100.0	100.0	

Figure 4-2 shows the participants' responses for all questions within the variable PE in percentages. The responses per question are: **PE1**, student response is: 22.0% completely agree, 44.0% fairly agree, 15.6% neutral, 5.5% fairly disagree and 12.5% completely disagree. **PE2**: 13.8% completely agree, 35.8% fairly agree, 12.8% neutral, 19.3% fairly disagree and 18.3% completely disagree. **PE3**: 28.4% completely agree, 30.3% fairly agree, 20.2% neutral, 11.0% fairly disagree, 10.1% completely disagree. **PE4**: 22.0% completely agree, 27.5% fairly agree, 28.4% neutral, 10.1% fairly disagree and 11.9% completely disagree. **PE5**: 24.8% completely agree, 45.9% fairly agree, 14.7% neutral, 5.5% fairly disagree and 9.2% completely disagree. **PE6**: 16.5% completely agree, 45.9% fairly disagree, 21.1% neutral, 10.1% fairly disagree and 6.4% completely disagree. **PE7**: 18.3% completely agree, 15.8% fairly agree, 24.8% neutral, 11.9% fairly disagree and 9.2% completely disagree. **PE8**: 28.4% completely agree, 40.4% fairly agree, 18.3% neutral, 5.5% fairly disagree and 6.4% completely disagree. **PE9**: 20.2% completely agree, 35.8% fairly agree, 27.5% neutral, 5.5% fairly disagree and 10.1% completely disagree. **PE9**: 15.6% completely agree, 20.2% fairly agree, 33.0% neutral, 11.9% fairly disagree and 19.3% completely disagree.

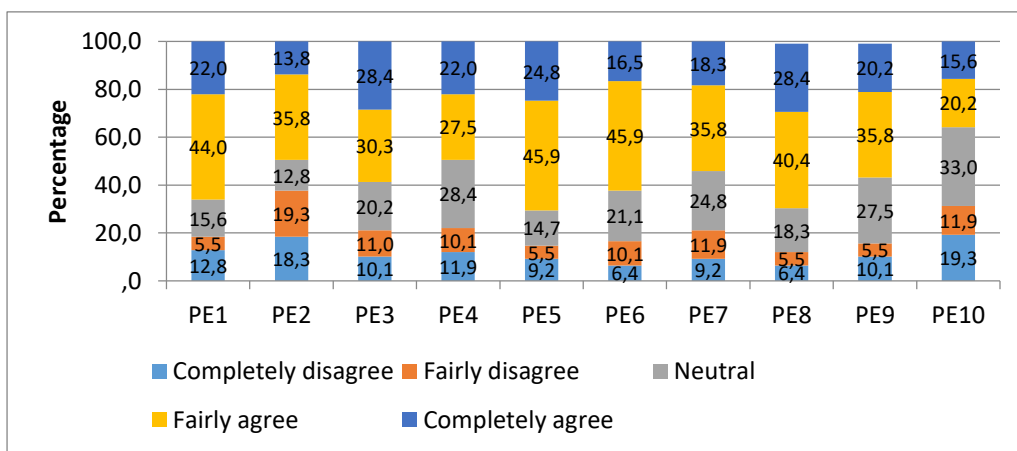


Figure 4-2 : Participants' responses in percentages for the variable PE.

Table 4-15 displays the results of a one sample statistics for the variable PE. The mean and standard deviation values for each question are listed. The table shows that all questions have the mean greater than the central mean score. Therefore, there is a positive significant agreement in all questions.

Table 4-15 : One sample statistics for PE

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
PE1 I find blackboard useful in my study of BIS 2.	109	3.57	1.257	.120
PE2 Using Blackboard enables me to accomplish tasks more quickly	109	3.07	1.359	.130
PE3 If I use Blackboard, I will increase my chances of getting better mark in BIS 2	109	3.56	1.287	.123
PE4 Using Blackboard in BIS 2 improves my learning motivation.	109	3.38	1.268	.121
PE5 Using the assessment tool in Blackboard to answer examination questions will enables me to answer questions easily	109	3.72	1.171	.112
PE6 The course management tool in Blackboard has important course material that will make me perform well in my study of BIS.	109	3.56	1.084	.104
PE7 The announcement tool in Blackboard has up to date information that will help in the study of BIS 2.	109	3.42	1.189	.114
PE8 .Using Blackboard improves the quality of learning.	108	3.80	1.117	.107
PE9 Using Blackboard makes it easy to learn.	108	3.51	1.180	.114
PE10 If I use Blackboard my classmate will see me as competent	109	3.01	1.316	.126

Figure 4-3 shows the mean for each question within the variable PE. Question PE8 has the highest mean of 3.80. The PE8 question is: using Blackboard improves the quality of learning. Question PE 10 has the lowest mean of 3.01. PE10 question is: If I use Blackboard my classmates will see me as competent.

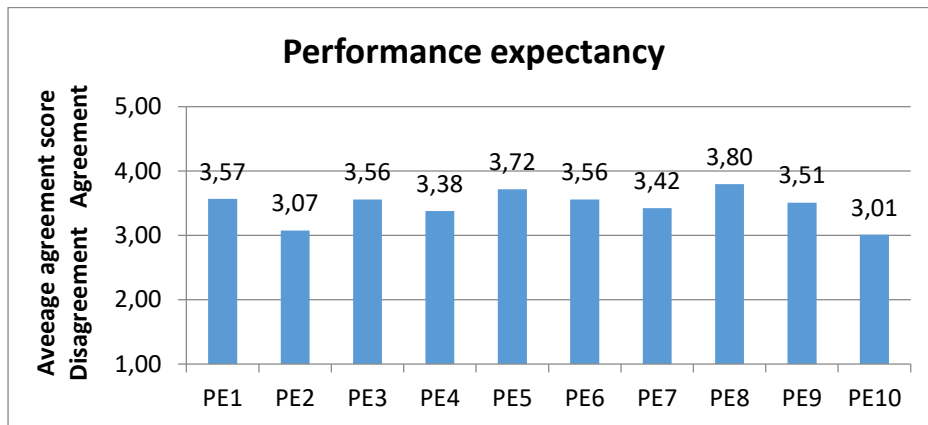


Figure 4-3 : Mean for questions within the variable PE

4.4.3 Perceived Ease of Use

According to Wu, Chou, Weng, and Huang (2008) PEOU refers to an individual belief that they can use the system with ease. In this study PEOU measures the degree of ease associated with the use of Blackboard by BIS2 students at MUT. The participants had to respond to 9 questions in this variable.

Table 4-16 displays the results of the statement: learning to use Blackboard would be easy for me. The results show that 79 participants agree (30.3% completely agree and 42.2 fairly agree). 12 participants disagree (5.5% completely disagree and 5.5% fairly disagree), and 18 (16.5%) participants are neutral.

Table 4-16 : Learning to use Blackboard would be easy for me (PEOU1)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	6	5.5	5.5	5.5
Fairly disagree	6	5.5	5.5	11.0
Neutral	18	16.5	16.5	27.5
Fairly agree	46	42.2	42.2	69.7
Completely agree	33	30.3	30.3	100.0
Total	109	100.0	100.0	

Table 4-17 illustrates the results for the statement: I would find Blackboard easy to us. The results shows that 83 participants agree (29.4% completely agree and 46.8 fairly agree) only 10 disagree (4.6 completely disagreed and fairly disagreed), and 16 (14.7%) participants are neutral.

Table 4-17 : I would find Blackboard easy to use (PEOU2)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	5	4.6	4.6	4.6
Fairly disagree	5	4.6	4.6	9.2
Neutral	16	14.7	14.7	23.9
Fairly agree	51	46.8	46.8	70.6
Completely agree	32	29.4	29.4	100.0
Total	109	100.0	100.0	

Table 4-18 demonstrates the results for the statement: my interaction with Blackboard is clear and understandable. The responses are: 66 agree (25.7% completely agreed and 34.9% fairly agree) while only 18 participants disagree (5.5% completely disagreed and 11% fairly disagreed), and 25 (30.3%) participants are neutral.

Table 4-18 : My interaction with Blackboard is clear and understandable (PEOU3)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	6	5.5	5.5	5.5
Fairly disagree	12	11.0	11.0	16.5
Neutral	25	22.9	22.9	39.4
Fairly agree	38	34.9	34.9	74.3
Completely agree	28	25.7	25.7	100.0
Total	109	100.0	100.0	

Table 4-19 depicts the participants' responses when asked if they would find it easy to get Blackboard to do what they would want it to do. The participants responses are: 55 participants agreed (19.3%

completely agree and 31.2% fairly agree), 21 participants disagreed (9.2 completely disagree and 10.1 fairly disagree) and 33 (30.3%) participants are neutral.

Table 4-19 : I would find it easy to get Blackboard to do what I want it to do (PEOU4)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	10	9.2	9.2	9.2
Fairly disagree	11	10.1	10.1	19.3
Neutral	33	30.3	30.3	49.5
Fairly agree	34	31.2	31.2	80.7
Completely agree	21	19.3	19.3	100.0
Total	109	100.0	100.0	

Table 4-20 demonstrates the results for the question: it is easy for me to become skilful at using Blackboard. The results show that 68 participants agree (12.8% completely agree and 27.5% fairly agree) while 43 participants disagree (16.5% completely disagree and 22.9% fairly disagree) and 21(19.3%) participants are neutral. In a study conducted by Nair and Patil (2012), it was discovered that when students are trained in using a LMS the frequency of usage increases and the users thus become efficient in using the system. This indicates that, since BIS2 students perceive that it would be easy to learn using Blackboard, if they were trained in using Blackboard they should become skilful at using the system.

Table 4-20 : It is easy for me to become skilful at using Blackboard (PEOU5)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	3	2.8	2.8	2.8
Fairly disagree	17	15.6	15.6	18.3
Neutral	21	19.3	19.3	37.6
Fairly agree	38	34.9	34.9	72.5
Completely agree	30	27.5	27.5	100.0
Total	109	100.0	100.0	

Table 4-21 shows the results for the statement: I have experience of using similar systems. The results reveals that 44 agreed (12.8% completely agree and 27.5% fairly agree), 43 disagree (16.5% completely disagree and 25.9% fairly disagree) and 22 (20.2%) participants are neutral.

Table 4-21 : I have experience of using a similar system (PEOU6)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	18	16.5	16.5	16.5
Fairly disagree	25	22.9	22.9	39.4
Neutral	22	20.2	20.2	59.6
Fairly agree	30	27.5	27.5	87.2
Completely agree	14	12.8	12.8	100.0
Total	109	100.0	100.0	

Table 4-22 depicts the results when participants were asked whether they have sufficient background knowledge to use Blackboard. The result shows that 49 participants agreed (14.7% completely agree and 30.3% fairly agree), 35 participants disagree (9.2% completely disagree and 22.9% fairly disagree) and 24 (22.0%) participants were neutral.

Table 4-22 : I have sufficient background knowledge to use Blackboard (PEOU7)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	10	9.2	9.3	9.3
Fairly disagree	25	22.9	23.1	32.4
Neutral	24	22.0	22.2	54.6
Fairly agree	33	30.3	30.6	85.2
Completely agree	16	14.7	14.8	100.0
Total	108	100.0	100.0	

Table 4-23 depicts the results of the statement: I rarely become confused when I use Blackboard. 42 agree (13.8% completely agree and 24.8 fairly agree) while a similar number of participants, that is 43, disagree (18.3% completely disagree and 21.1% fairly disagree) and only 23 (21.1%) participants are neutral.

Table 4-23 : I rarely become confused when I use Blackboard (PEOU8)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	20	18.3	18.5	18.5
Fairly disagree	23	21.1	21.3	39.8
Neutral	23	21.1	21.3	61.1
Fairly agree	27	24.8	25.0	86.1
Completely agree	15	13.8	13.9	100.0
Total	109	100.0	100.0	

Table 4-24 shows the results for the statement: I am rarely frustrated when using Blackboard. It is well-known that BIS 2 students at MUT have not undergone any training in Blackboard LMS. Therefore, the result reveals that 36 participants agree (9.2% completely agreed and 23.9% fairly agreed), while a large number of participants disagree. 57 disagree (24.8% completely disagree and 23.9% fairly disagree) and 18 (16.5%) participants are neutral. A study conducted by Mtebe and Raisamo (2014) suggests that learning providers should provide training in LMS if students are to be satisfied with its use.

Table 4-24 : I am rarely frustrated when using Blackboard (PEOU9)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	27	24.8	25.2	25.2
Fairly disagree	26	23.9	24.3	49.5
Neutral	18	16.5	16.8	66.4
Fairly agree	26	23.9	24.3	90.7
Completely agree	10	9.2	9.3	100.0
Total	109	100.0	100.0	

Figure 4-3 depicts the participants' responses for all questions within the variable PEOU in percentages. The responses per question are: **PEOU1**, 30.3% completely agree, 42.2% fairly agree, 16.3% neutral, 5.5% fairly disagree and 5.5% completely disagree. **PEOU2**: 29.4% completely agree, 46.8% fairly agree, 14.7% neutral, 4.6% fairly disagree and 4.6% completely disagree. **PEOU3**: 25.7% completely agree, 34.9% fairly agree, 22.9% neutral, 11.0% fairly disagree and .5% completely disagree. **PEOU4**:

19.3% completely agree, 31.2% fairly agree, 30.3% neutral, 10.1% fairly disagree and 9.2% completely disagree. **PEOU5**: 27.5% completely agree, 34.9% fairly agree, 19.3% neutral, 15.6% fairly disagree and 2.8% completely disagree. **PEOU6**: 12.8% completely agree, 27.5% fairly agree, 20.2% neutral, 22.9% fairly disagree and 16.5% completely disagree. **PEOU7**: 14.7% completely agree, 30.3% fairly agree, 22.0% neutral, 22.9% fairly disagree and 9.2% completely disagree. **PEOU8**: 13.8% completely agree, 24.8% fairly agree, 21.1% neutral, 21.1% fairly disagree and 18.3% completely disagree. **PEOU9**: 9.2% completely agree, 23.9% fairly agree, 16.5% neutral, 23.9% fairly disagree and 24.8% completely disagree.

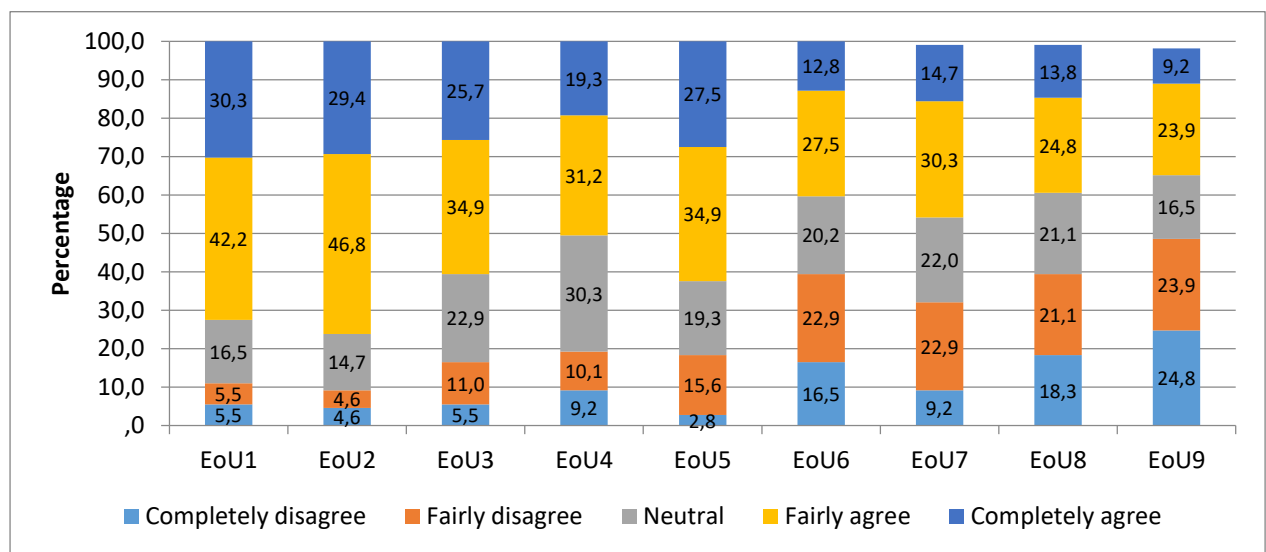


Figure 4-4 : Participants' responses in percentages for the variable PEOU

Table 4-25 depicts the outcome of a one sample statistics for the variable PEOU. The mean and standard deviation values of each question are listed. The table reveals that all questions have the mean greater than the central mean score, except for questions PEOU6, PEOU8 and PEOU9. Participants disagree with question PEOU6 which asked if participants have experience of using a similar system. The reason for disagreeing is because for most students the only LMS they have ever used since first year is Blackboard LMS. The findings of statements PEOU7, which asked if participants have sufficient background knowledge to use Blackboard, and PEOU9, which asked if participants rarely become frustrated when using Blackboard, reflect the fact that BIS2 students at MUT have not undergone any Blackboard training. Therefore, it is not surprising that the participants disagree with the statements. All questions with a mean greater than the central mean score, indicate that there is a positive significant agreement.

Table 4-25 : One sample statistic for PEOU

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
PEOU1 Learning to use Blackboard would be easy for me.	109	3.86	1.084	.104
PEOU2 I would find Blackboard easy to use.	109	3.92	1.020	.098
PEOU3 My interaction with Blackboard is clear and understandable.	109	3.64	1.143	.109
PEOU 4 I would find it easy to get Blackboard to do what I want it to do.	109	3.41	1.180	.113
PEOU5 It is easy for me to become skilful at using Blackboard.	109	3.69	1.120	.107
PEOU6 I have experience of using similar system	109	2.97	1.301	.125
PEOU7 I have sufficient background knowledge to use Blackboard	108	3.19	1.216	.117
PEOU8 I rarely become confused when I use Blackboard.	108	2.94	1.331	.128
PEOU9 I am rarely frustrated when using Blackboard.	107	2.68	1.336	.129

Figure 4-5 shows the mean of each question within the variable PEOU. The statement with the highest mean is PEOU2. This statement is: I would find Blackboard easy to use. Statement PEOU9 has the lowest mean, the statement being: I am rarely frustrated when using Blackboard.

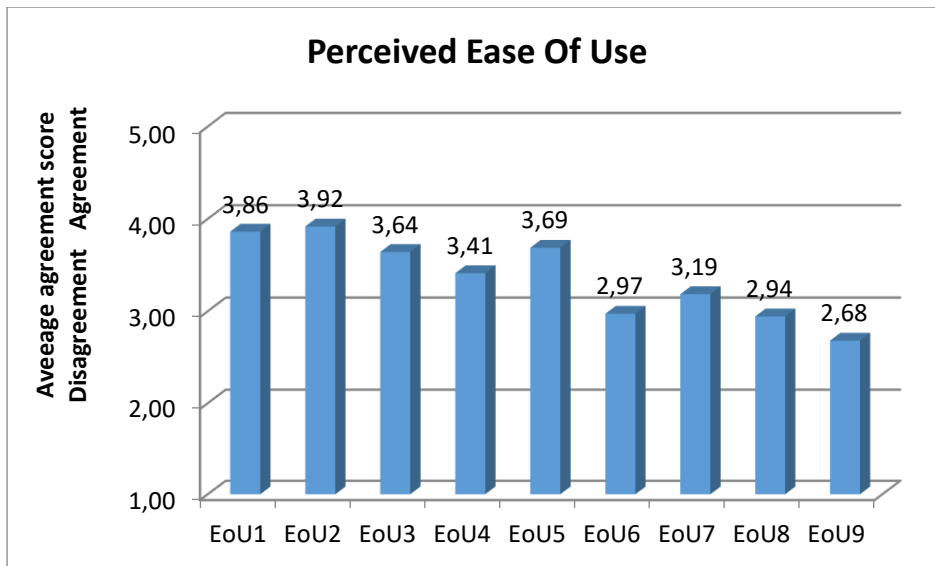


Figure 4-5 : Mean for questions within the variable PEOU

4.4.4 Social Influence

SI refers to the belief that a user thinks that important people encourage the use of a system (Akbar, 2013). In this study the variable SI measures the degree to which an individual thinks that people important to them believe they should use Blackboard. Respondents had to answer 8 questions in this section.

Table 4-26 depicts the results for the statement: my friends think that I should use Blackboard. The results show that 49 participants agree (16.5% completely agree and 28.4% fairly agree) while 38 disagree (14.37 completely disagree and 20.2% fairly disagree) and 21(19.3%) participants are neutral.

Table 4-26 : My friends think that I should use Blackboard (SI1)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	16	14.7	14.8	14.8
Fairly disagree	22	20.2	20.4	35.2
Neutral	21	19.3	19.4	54.6
Fairly agree	31	28.4	28.7	83.3
Completely agree	18	16.5	16.7	100.0
Total	109	100.0	100.0	

Table 4-27 shows the response for the statement: my friends want me to use Blackboard. The results reveal that 41 participants agree (17.4% completely agree and 29.4% fairly agree), while 31 disagree (18.3% completely disagree and 10.1 fairly disagree) and 26 (23.9%) participants are neutral.

Table 4-27 : My friends want me to use Blackboard (SI2)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	20	18.3	18.5	18.5
Fairly disagree	11	10.1	10.2	28.7
Neutral	26	23.9	24.1	52.8
Fairly agree	32	29.4	29.6	82.4
Completely agree	19	17.4	17.6	100.0
Total	109	100.0	100.0	

Table 4-28 shows the results of the statement: my friends encourage me to use Blackboard. The results reveal that 59 participants agree (17.4% completely agree and 30.3% fairly agree), while 37 participants disagree (22.9% completely disagree and 11.0% fairly disagree) and 16 (14.7%) participants are neutral.

Table 4-28 : My friends encourage me to use Blackboard (SI3)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	25	22.9	23.8	23.8
Fairly disagree	12	11.0	11.4	35.2
Neutral	16	14.7	15.2	50.5
Fairly agree	33	30.3	31.4	81.9
Completely agree	19	17.4	18.1	100.0
Total	109	100.0	100.0	

Table 4-29 reveals that 57 participants agree (18.3% completely agree and 33.9% fairly agree) that their friends have been helpful in the use of Blackboard, while 30 participants disagree (16.5% completely disagree and 11.0% fairly disagree) and 21 (19.3%) participants are neutral.

Table 4-29 : My friends have been helpful in the use of Blackboard (SI4)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	18	16.5	16.7	16.7
Fairly disagree	12	11.0	11.1	27.8
Neutral	21	19.3	19.4	47.2
Fairly agree	37	33.9	34.3	81.5
Completely agree	20	18.3	18.5	100.0
Total	109	100.0	100.0	

Table 4-30 shows the response for the statement: My lecturer wants me to use Blackboard. The results reveal that 98 participants agree, (58.7% completely agree and 31.2% fairly agree) while only 3 participants disagree (1.8 completely disagree and 0.9% fairly disagree) and 7 (6.4%) participants are neutral. These results concur with Mtebe and Raisamo (2014) study, which finds that students in the developing countries believe that instructors and friends influences them to adopt e-learning.

Table 4-30 : My lecturer wants me to use Blackboard (SI5)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	2	1.8	1.9	1.9
Fairly disagree	1	.9	.9	2.8
Neutral	7	6.4	6.5	9.3
Fairly agree	34	31.2	31.5	40.7
Completely agree	64	58.7	59.3	100.0
Total	109	100.0	100.0	

Table 4-31 shows the results of the statement: My lecturer encourages me to use Blackboard. The results show that 95 participants agree (58.7% completely agree and 28.4% fairly agree) while only 5 participants disagree (1.8 completely disagree and 2.8 fairly disagree) and 7 (6.4%) participants are neutral. The previous question (SI5) and this question show a very high positive response, which means that lecturers have great influence in the use of Blackboard by students. However, a study conducted by Ramachandiran (2011) shows that there is no relationship between the frequency of Blackboard usage and the influence of the lecturer.

Table 4-31 : My lecturer encourages me to use Blackboard (SI6)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	2	1.8	1.9	1.9
Fairly disagree	3	2.8	2.8	4.7
Neutral	7	6.4	6.5	11.2
Fairly agree	31	28.4	29.0	40.2
Completely agree	64	58.7	59.8	100.0
Total	109	100.0	100.0	

Table 4-32 reveals the results of the statement: my lecturer has been helpful in the use of Blackboard. The results shown that 71 participants agree (25.7% completely agree and 27.5% fairly disagree), while only 25 participants disagree (10.1% completely disagree and 12.8% fairly disagree) and 25 (22.9%) participants are neutral.

Table 4-32 : My lecturer has been helpful in the use of Blackboard (SI7)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	10	9.2	9.3	9.3
Fairly disagree	13	11.9	12.0	21.3
Neutral	14	12.8	13.0	34.3
Fairly agree	38	34.9	35.2	69.4
Completely agree	33	30.3	30.6	100.0
Total	109	100.0	100.0	

Table 4-33 depicts the results of the statement: my classmates think that using Blackboard is a technological trend (fashionable). The results show that 58 participants agree (25.7% completely agree and 27.5 fairly agree), 25 participants disagree (10.1% completely disagree and 12.8% fairly disagree) and again 25 (22.9%) participants are neutral.

Table 4-33 : My classmates think that using Blackboard is a technological trend (fashionable) (SI8)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	11	10.1	10.2	10.2
Fairly disagree	14	12.8	13.0	23.1
Neutral	25	22.9	23.1	46.3
Fairly agree	30	27.5	27.8	74.1
Completely agree	28	25.7	25.9	100.0
Total	109	100.0	100.0	

Figure 4-5 depicts the participants' responses of all questions within the variable SI in percentages. The responses per question are: **SI1:** 16.5% completely agree, 28.4% fairly agree, 19.3% neutral, 20.2% fairly disagree and 14.7% completely disagree. **SI2:** 17.4% completely agree, 29.4% fairly agree, 23.9% neutral, 10.1% fairly disagree and 18.3% completely disagree. **SI3:** 17.4% completely agree, 30.3% fairly agree, 14.7% neutral, 11.0% fairly disagree and 22.9% completely disagree. **SI4:** 18.3% completely agree, 33.9% fairly agree, 19.3% neutral, 11.0% fairly disagree and 16.5% completely disagree. **SI5:** 58.7% completely agree, 31.2% fairly agree, 6.4% neutral, 9% fairly disagree and 1.8% completely disagree. **SI6:** 58.7% completely agree, 28.4% fairly agree, 6.4% neutral, 2.6% fairly disagree and 1.8% completely disagree. **SI7:** 30.3% completely agree, 34.9% fairly agree, 12.8% neutral, 11.9% fairly disagree and 9.2% completely disagree. **SI8:** 25.7% completely agree, 27.5% fairly agree, 22.9% neutral, 12.8% fairly disagree and 10.1% completely disagree.

Table 4-34 demonstrates a one sample statistic for the variable SI. The mean and standard deviation values are listed. The table shows that each question has the mean greater than the mean score. Therefore, there is a positive significant agreement in all questions. This shows that lecturers have the utmost influence on the use of Blackboard by BIS2 students at MUT. These results concur with Tarhini et al. (2013) findings. They also suggest that instructors should make Blackboard mandatory to students.

Figure 4-7 shows the mean for each question within the variable SI. The figure reveals that the variable SI has the questions with the highest mean as compared to other variables. Question SI5 has the highest mean of 4.45. The question for SI5 is: my lecturer wants me to use Blackboard. Question SI3 has the lowest mean of 3.09. The question for SI3 is: my friends encourage me to use Blackboard.

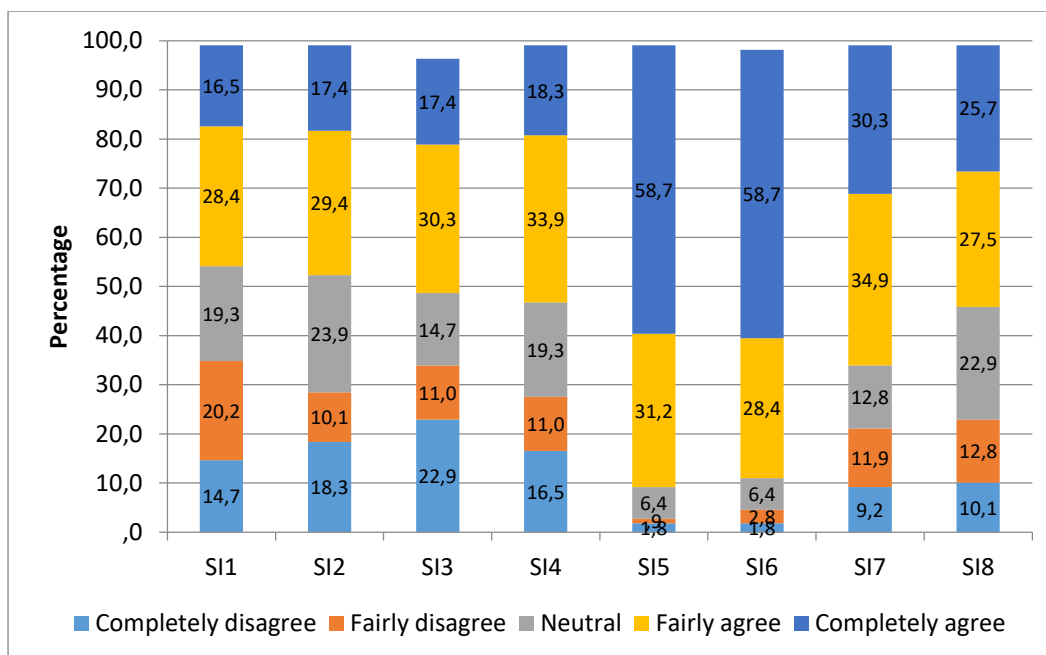


Figure 4-6 : Participants' responses in percentages for the variable SI

Table 4-34 : One sample statistic for SI

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
SI1 My friends think that I should use Blackboard.	108	3.12	1.324	.127
SI2 My friends want me to use Blackboard.	108	3.18	1.352	.130
SI3 My fiends encourages me to use Blackboard	105	3.09	1.455	.142
SI4 My friends have been helpful in the use of Blackboard.	108	3.27	1.344	.129
SI5 My lecturer wants me to use Backboard.	108	4.45	.813	.078
SI6 My lecturer encourages me to use Blackboard.	107	4.42	.880	.085
SI7 My lecturer has been helpful in the use of Blackboard.	108	3.66	1.284	.124
SI8 My classmates think that using Blackboard is a technological trend (fashionable).	108	3.46	1.286	.124

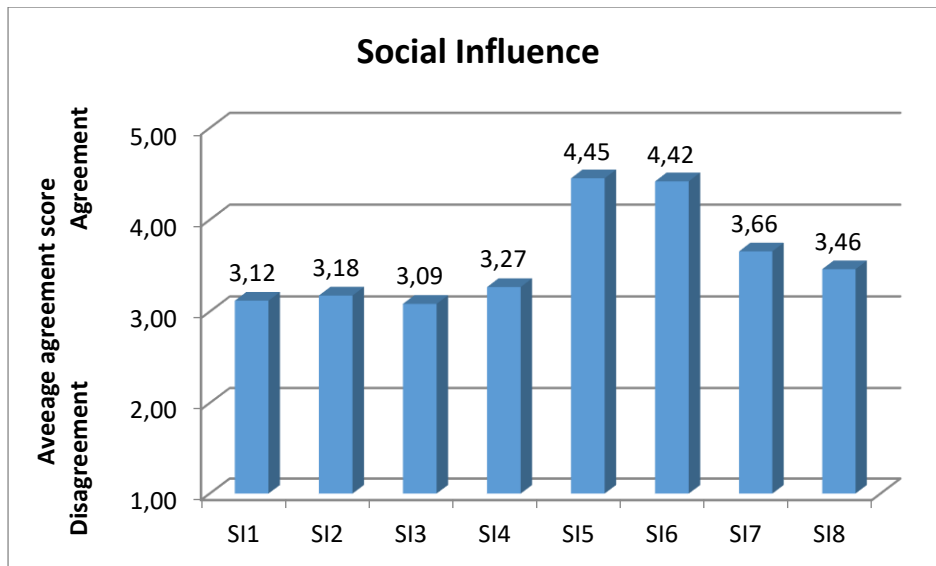


Figure 4-7 : Mean for questions within the variable SI

4.4.5 Behavioural Intention

BI refers to an individual belief that he or she might use the system in future (Akbar (2013)). In this study BI measures the intention of BIS2 students at MUT to use Blackboard in the near future. The variable BI has 6 questions that the participants responded to.

Table 4-35 shows the results of the statement: I intend to use Blackboard in future. The results reveal that 81 participants agree (33.9% completely agree and 40.4% fairly agree), while 9 participants disagree (1.8% completely disagree and 6.4% fairly disagree) and 16 (14.7%) participants are neutral.

Table 4-35 : I intend to use Blackboard in future (BI1)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	2	1.8	1.9	1.9
Fairly disagree	7	6.4	6.6	8.5
Neutral	16	14.7	15.1	23.6
Fairly agree	44	40.4	41.5	65.1
Completely agree	37	33.9	34.9	100.0
Total	109	100.0	100.0	

Table 4-36 displays the results of the statement: I recommend my friends to use Blackboard. The results reveal that 85 participants agree (35.8% completely agree and 40.4% fairly agree), 8 participants disagree (3.7% completely and fairly disagree) and 16 (14.7%) participants are neutral.

Table 4-36 : I recommend my friends to use Blackboard (BI2)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	4	3.7	3.7	3.7
Fairly disagree	4	3.7	3.7	7.5
Neutral	16	14.7	15.0	22.4
Fairly agree	44	40.4	41.1	63.6
Completely agree	39	35.8	36.4	100.0
Total	197	100.0	100.0	

Table 4-37 shows the results of the statement: I am confident that Blackboard will help any student using it. The results shows that 81 participants agree (39.4% completely agree and 34.9% fairly agree), 7 participants disagree (2.8% completely disagree and 3.7% fairly disagree) and 19 (17.4%) participants are neutral.

Table 4-37 : I am confident that Blackboard will help any student using it (BI3)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	3	2.8	2.8	2.8
Fairly disagree	4	3.7	3.7	6.5
Neutral	19	17.4	17.8	24.3
Fairly agree	38	34.9	35.5	59.8
Completely agree	43	39.4	40.2	100.0
Total	109	100.0	100.0	

Table 4-38 demonstrates the results for the statement: I intend to continue using Blackboard. The results are: 78 participants agree (34.9% completely agree and 36.7% fairly agree), 9 participants disagree (4.6% completely disagree and 3.7% fairly disagree) and 19 (17.4%) participants are neutral.

Table 4-38 : I intend to continue using Blackboard (BI4)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	5	4.6	4.7	4.7
Fairly disagree	4	3.7	3.8	8.5
Neutral	19	17.4	17.9	26.4
Fairly agree	40	36.7	37.7	64.2
Completely agree	38	34.9	35.8	100.0
Total	109	100.0	100.0	

Table 4-39 depicts the results for the statement: my performance in BIS 2 will make me use Blackboard in future. The results show that 79 participants agree (33.9% completely agree and 38.5% fairly agree) while only a few participants disagree – 6 (1.8% completely disagree and 3.7% fairly disagree) and 22 (20.2%) participants are neutral.

Table 4-39 : My performance in BIS 2 will make me use Blackboard in future (BI5)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	2	1.8	1.9	1.9
Fairly disagree	4	3.7	3.7	5.6
Neutral	22	20.2	20.6	26.2
Fairly agree	42	38.5	39.3	65.4
Completely agree	37	33.9	34.6	100.0
Total	109	100.0	100.0	

Table 4-40 illustrates the results for the statement: the influence that I get from other people will make me use Blackboard in future. The responses are: 68 participants agree (23.9% completely agree and 39.4% fairly agree), 14 participants disagree (5.5% completely disagree and 7.3% fairly disagree) and 24 (22.0%) participants are neutral.

Table 4-40 : The influence that I get from other people will make me use Blackboard in future (BI6)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	6	5.5	5.6	5.6
Fairly disagree	8	7.3	7.5	13.1
Neutral	24	22.0	22.4	35.5
Fairly agree	43	39.4	40.2	75.7
Completely agree	26	23.9	24.3	100.0
Total	109	100.0	100.0	

Table 4-41 shows the results for the statement: The ease of use will make me use Blackboard in future. 72 participants agree (29.4% completely agree and 36.7% fairly agree) while 10 participants disagree (4.6% participants completely and fairly disagree) and 24 (22.0%) participants are neutral.

Table 4-41 : The ease of use will make me use Blackboard in future (BI7)

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Completely disagree	5	4.6	4.7	4.7
Fairly disagree	5	4.6	4.7	9.4
Neutral	24	22.0	22.6	32.1
Fairly agree	40	36.7	37.7	69.8
Completely agree	32	29.4	30.2	100.0
Total	109	100.0	100.0	

Figure 4-8 demonstrate the responses in percentages for all questions of the variable BI. **BI1:** 33.9% completely agree, 40.4% fairly agree, 14.7% neutral, 6.4% fairly disagree and 1.6% completely disagree. **BI2:** 35.8% completely agree, 40.4% fairly agree, 14.7% neutral, 3.7% fairly disagree and 3.7% completely disagree. **BI3:** 39.4% completely agree, 34.9% fairly agree, 17.4 % neutral, 3.7% fairly disagree and 2.8% completely disagree. **BI4:** 34.9% completely agree, 36.7% fairly agree, 17.4% neutral, 3.7% fairly disagree and 4.6% completely disagree. **BI5:** 33.9% completely agree, 38.5% fairly agree, 20.2% neutral, 3.7% fairly disagree and 1.8% completely disagree. **BI6:** 23.9% completely agree, 39.4% fairly agree, 22.0% neutral, 7.3% fairly disagree and 5.5% completely disagree. **BI7:** 29.4% completely agree, 36.7% fairly agree, 22.0% neutral, 4.6% fairly disagree and 4.6% completely disagree.

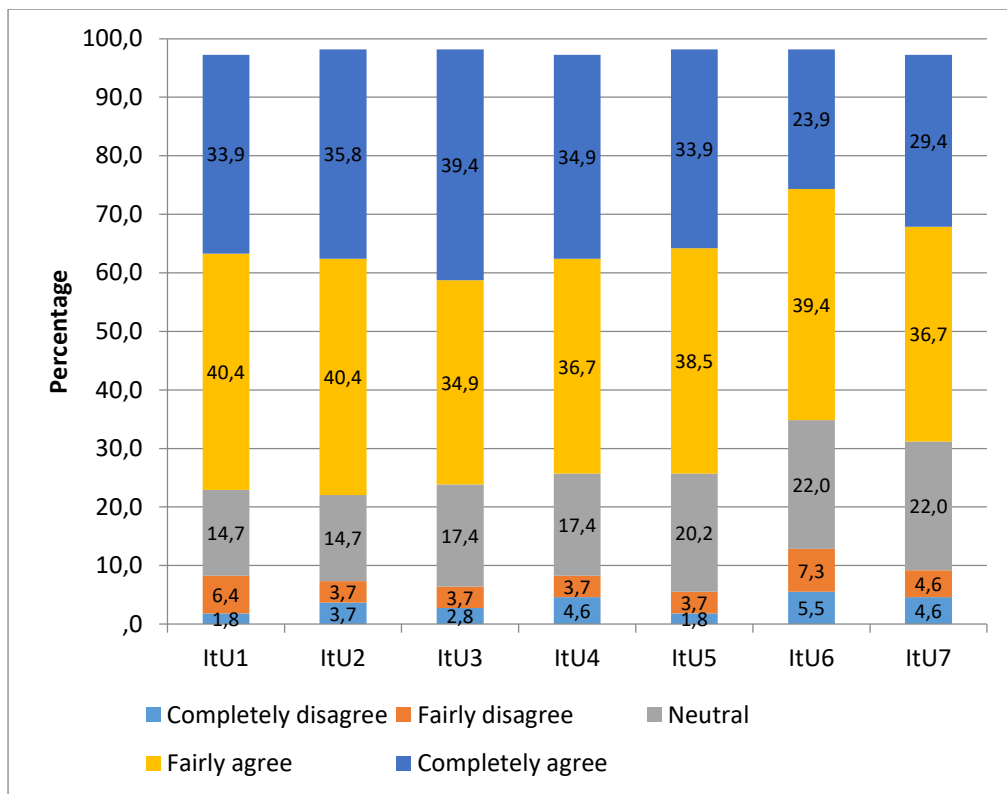


Figure 4-8 : Participants' response in percentages for the variable BI

Table 4-42 demonstrates the results for a one sample statistic for variable BI. The values for mean and standard deviation for each question are listed in the table. The table reveals that each question has a mean greater than the central mean score. Therefore, there is a positive significant agreement in all questions.

Figure 4-9 illustrates the mean for each question within the variable BI. Also, BI has questions with the highest mean as compared to other variables. Question BI3 has the highest mean and BI3 question is: I am confident that Blackboard will help any student using it. Question BI6 has the lowest mean and BI6 question is: the influence that I get from other people will make me use Blackboard in future.

4.5 Summary

In this chapter 109 questionnaires were analysed. Descriptive and inferential statistical techniques are used. Before the statistical procedures were performed internal consistency was established and the Cronbach's alpha value for the four constructs is close to 1.0. Therefore, there was internal consistency. Descriptive statistics were performed using a table to display frequencies for each question as well as one sample t-test to demonstrate the mean and standard deviation for each question. To make inferences about the population, a multiple regression analysis was applied on the data collected. All the questions for the variable PE revealed a positive significant agreement. In the variable PEOU all questions

showed a positive significant agreement except for questions PEOU6, PEOU8 and PEOU9. All questions for the variable SI revealed a positive significant agreement (refer to table 4-34). SI has questions that have the highest mean score (refer to figure 4-7). In the variable BI all questions showed a positive significant agreement and almost all questions have the highest mean score.

Table 4-42 : One sample statistic for BI.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
BI1 I intend to use Blackboard in future.	106	4.01	.971	.094
BI 2 I recommend my friends to use Blackboard.	107	4.03	1.004	.097
BI3 I am confident that Blackboard will help any student using it.	107	4.07	.993	.096
BI4 I intend to continue using Blackboard	106	3.96	1.059	.103
BI5 My performance in BIS 2 will make me use Blackboard in future.	107	4.01	.937	.091
BI6 The influence that I get from other people will make me use Blackboard in future.	107	3.70	1.092	.106
BI7 The ease of use will make me use Blackboard in future	106	3.84	1.061	.103

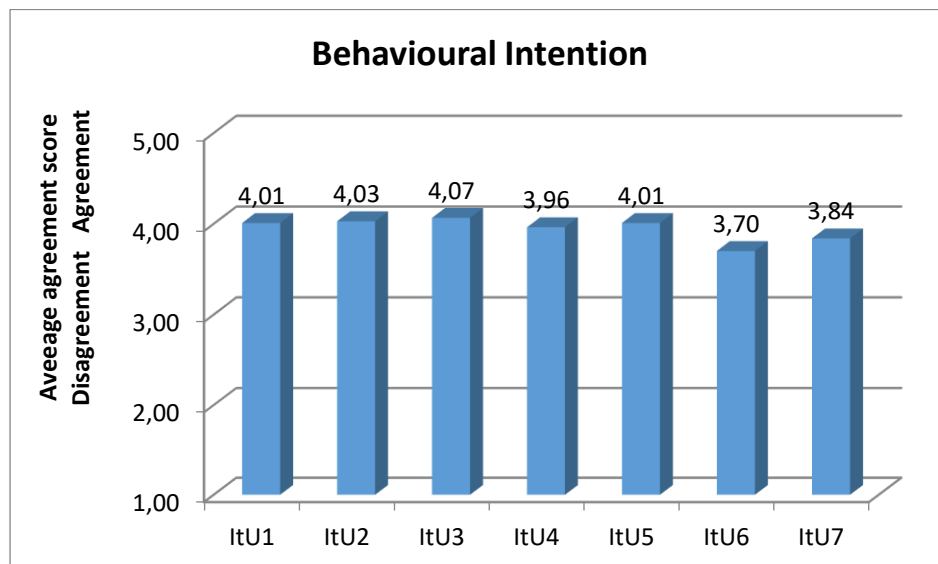


Figure 4-9 : Mean for questions within the variable BI

Chapter 5

FINDINGS AND RECOMMENDATIONS

5.1 Introduction

Results presented in chapter 4 are discussed in this chapter and are linked to the literature. More specifically, this chapter explores the factor that influence the BI to use Blackboard LMS by BIS2 students at MUT. A Model Summary, Analysis of Variance (ANOVA) and Coefficient tables are used for data presentation. The Model Summary table consists of the R square, Adjusted R square, and Durbin-Watson values. According to Field (2008) R square measures how much of the variability in the outcome is accounted for by the predictor. The Adjusted R square must be the same, or close to, the values of R square. The Durbin-Watson value tells whether the assumption of the independent variable is acceptable. If the value of Durbin-Watson is close to 2 the independent variable is acceptable (Field, 2008). The ANOVA tests whether the model is significant at predicting the outcome. The Coefficient table consists of the parameters of the model.

Inferential statistics were performed on the collected data and analysed so as to provide a solution to each research question and draw conclusions for the population. The findings of this study will allow the researcher to make recommendations for MUT lecturers, students and other interested parties at the university. Future research directions are also discussed.

5.2 Discussion on Research Questions (RQ)

5.2.1 Research Question One

RQ 1: What is the influence of PE on the BI to use Blackboard LMS by BIS2 students at MUT?

The variable PE is used in this study to measure the extent to which BIS2 students at MUT consider that using Blackboard LMS will improve their performance in the subject. According to Irick (2008) for PE to have an effect, firstly there must be a fit between a task's characteristics and the technology's characteristics. In this study task characteristics is the work that BIS2 students have to perform, and technology characteristics are the functionality of Blackboard LMS that they are using.

The results reveal that BIS2 students at MUT find Blackboard LMS useful. 71% of respondents agreed that using the assessment tool in Blackboard LMS to answer examination question will enable them to answer the questions easily. 62% of respondents found that the course management tool in Blackboard LMS contains important course material that will make them perform well in the study of BIS2. 59% of respondents found that the announcement tool in Blackboard LMS provided up-to-date information

that will help them in the study of BIS2. Therefore, the study showed that students perceive that using Blackboard allows them to accomplish tasks more rapidly.

Table 5-1 shows the Model Summary for PE that was conducted to determine if the variable PE is significantly related to BI. To determine the strength of the linear relationship between the independent variable PE and dependent variable BI, the R-Square value for the model is .242 which is relatively high. 24.2% of the total variability in BI is explained by PE. The Adjusted R square value is close to the R square value and therefore the model is acceptable. The Durbin-Watson value 1.984 is close to 2, therefore, the assumption of the independent variable is acceptable.

Table 5-1 : Model Summary table for PE

Model Summary^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.492 ^a	.242	.235	.71914	1.984
a. Predictors: (Constant), PE					
b. Dependent Variable: BI					

Table 5-2 shows the ANOVA results for the variable PE. The independent variable PE accounts for 24.2 % (refer to table 5-1) of the variance of BI, $F(1,105) = 33.583, p < .0005$. Therefore, the model improves the ability to predict that PE has a positive significant influence on the BI of the students to use Blackboard LMS.

Table 5-2 : ANOVA table for PE

ANOVA^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	17.368	1	17.368	33.583	.000^a
	Residual	54.302	105	.517		
	Total	71.669	106			
a. Predictors: (Constant), PE						
b. Dependent Variable: BI						

Table 5-3 demonstrate the results of the influence of PE on BI. The results reveal that PE is a predictor of BI, ($\beta = .496, p < .0005$). The results generally confirm earlier research on PE. In a study conducted by Tan (2013) to explore the factors that affect students' acceptance of an English E-learning website

R square value. The value for Durbin-Watson is 1.992 which is close to 2 and therefore the assumption of independent variable is acceptable.

Table 5-4 : Model summary table for PEOU

Model Summary^b						
Model	R	R Square	Adjusted R Square	R	Std. Error of the Estimate	Durbin-Watson
1	.379 ^a	.144	.135		.76457	1.992
a. Predictors: (Constant), PEOU						
b. Dependent Variable: BI						

Table 5-5 depicts the ANOVA results for the variable PEOU. The independent variable PEOU accounts for 14.4% (refer to table 5-4) of the variance of BI, $F(1,105) = 17.603$, $P < .0005$. Therefore, the model has the ability to predict that PEOU has an influence on BI to use Blackboard LMS by BIS2 students at MUT.

Table 5-5 : ANOVA table for PEOU

ANOVA^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.290	1	10.290	17.603	.000^a
	Residual	61.379	105	.585		
	Total	71.669	106			
a. Predictors: (Constant), PEOU						
b. Dependent Variable: BI						

Table 5-6 shows the results of the influence of PEOU on BI. PEOU is a predictor of BI, ($\beta = 0.458$, $p < .0005$). The results of this study concur with the two studies that were conducted by Tarhini et al. (2013). One of the study was empirically validating TAM. The other study was exploring the extent to which the variable PEOU affect students' intention to adopt and use e-learning systems. The results of the two studies revealed that PEOU had a positive significant effect on BI, with $\beta = 0.194$, $p < 0.01$.

Table 5-6 : Coefficients table for PEOU

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.388	.374		6.376	.000		
	PEOU	.458	.109	.379	4.196	.000	1.000	1.000

a. Dependent Variable: BI

The study finds that PEOU has a positive significant influence on BI to use Blackboard LMS by BIS2 students at MUT. Similar findings were established by Šumak et al. (2011), in their study testing the effect of PEOU on BI to use Moodle.

5.2.3 Research Question Three

RQ 3: How does SI affect the BI to use Blackboard LMS by BIS 2 students at MUT?

The variable SI was used in this study to measure the degree to which BIS2 students at MUT perceive that important others believe they should use Blackboard LMS. The results reveal that 98% of respondents indicated that their lecturer wants them to use Blackboard, while, 51% of respondents showed that their friends want them to use Blackboard LMS. Again, a large majority of 95% respondents indicated that their lecturer encourages them to use Blackboard, while 52% of respondents say that their friends want them to use Blackboard LMS.

The model summary for SI illustrated in table 5-7, shows that the R-square value is .286. Since, the R-square value is high, the strength of the linear relationship between the independent variable SI and dependant variable BI can be determined. Also, the model is acceptable since the value of adjacent R square is close to the value of R square. The Durbin-Watson value is 2 which means the assumption for this independent variable is acceptable.

Table 5-7 : Model summary table for SI

Model Summary^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.535 ^a	.286	.279	.69813	2.039
a. Predictors: (Constant), SI					
b. Dependent Variable: BI					

The ANOVA results depicted in table 5-8 for the variable SI, shows that the independent variable SI accounts for 28.6% (refer to table 5-7) of the variance of BI, $F(1,105) = 42.048$, $p < .0005$. Therefore, the model has the ability to predict that SI has a positive significant influence on BI to use Blackboard LMS by BIS2 students at MUT.

Table 5-8 : ANOVA table for SI

ANOVA^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	20.494	1	20.494	42.048	.000^a
	Residual	51.176	105	.487		
	Total	71.669	106			
a. Predictors: (Constant), SI						
b. Dependent Variable: BI						

Table 5-9 shows the results of the influence of the variable SI on BI. SI is a significant predictor of BI, ($\beta = .547$, $p < .0005$). The results concur with a study that was conducted by Tarhini et al. (2013). In all three different studies SI was found to have a positive significant influence on BI.

Table 5-9 : Coefficient table for SI

Coefficients^a								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.973	.309		6.387	.000		
	SI	.547	.084	.535	6.484	.000	1.000	1.000
a. Dependent Variable: BI								

5.2.4 Research Question Four

RQ 4: Which of the three constructs (PE, PEOU and SI) has the most influence on the BI to use Blackboard LMS by BIS2 students at MUT?

Table 5-10 demonstrates that the model for this study is acceptable since the adjusted R square value is close to the R square value. To determine the strength of the linear relationship between the independent variables PE, PEOU, SI and dependent variable BI, the R-Square value for the model is .404 which is relatively high.

Table 5-10 : Model summary for BI

Model Summary^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.635 ^a	.404	.386	.64413	2.145
a. Predictors: (Constant), SI, PEOU, PE					
b. Dependent Variable: BI					

Table 5-11 displays the ANOVA results of the variable BI. The table shows that the three independent variables PE, PEOU and SI account for 40.4% (refer to table 5-10) of the variance of BI, $F(3,103) = 23.245$, $p < .0005$. Therefore, the model has the ability to predict that PE, PEOU and SI have a significant influence on BI to use Blackboard LMS by BIS2 students at MUT.

Table 5-11 : ANOVA table for BI

ANOVA^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	28.934	3	9.645	23.245	.000^a
	Residual	42.736	103	.415		
	Total	71.669	106			
a. Predictors: (Constant), SI, EOF, PE						
b. Dependent Variable: BI						

Table 5-12 shows the results of the influence of PE, PEOU and SI on BI. SI is the strongest significant predictor of BI ($\beta = .367$, $p < .0005$); followed by PE ($\beta = .260$, $p = .004$) then PEOU ($\beta = .270$, $p = .006$). The results are at variance with the study conducted by Sundaravej (2010) to validate the UTAUT

model. The study discovered that PE was the most significant variable influencing BI, and SI was the least significant variable influencing BI.

Table 5-12 : Coefficients table for BI

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.809	.394		2.054	.043		
	PEOU	.270	.096	.224	2.805	.006	.910	1.099
	PE	.260	.089	.258	2.919	.004	.741	1.350
	SI	.367	.089	.359	4.110	.000	.759	1.317

a. Dependent Variable: BI

5.3 Limitations of the Study

The study was conducted in one University of Technology therefore the findings cannot be generalized. It can however be extended to the whole Department of Accounting. The study cannot stipulate BIS 2 students' at MUT's actual use of Blackboard LMS since the actual use of the system was not measured. Also, the impact of moderators on the factors that influence the BI of BIS 2 students at MUT was not undertaken in this study. Since new Blackboard LMS tools were introduced to BIS2 students, the effect of those tools needs to be investigated.

5.4 Recommendations

5.4.1 Students

The findings of this study highlighted that students perceive they will perform well in the study of BIS2 if they use Blackboard LMS. A substantial number of participants (66.1%) indicated that they find Blackboard useful in their study of BIS2. The study also reveals that BIS2 students perceive Blackboard as easy to use. Therefore, the number of students who are utilizing Blackboard should increase enabling many students to also experience the benefit of using the system. The following are some of the benefits of using Blackboard by BIS2 students at MUT as indicated by participants:

“Passing my module”

“Helping me with test and exams”

“Improve marks”

“Getting knowledge needed on time”

“Saves time as I do not need to go to a library for book”

These comments by participants imply that Blackboard could be made mandatory at the University because of the positive impact it has on students. Students should voluntarily make use of Blackboard without being told or encouraged by lecturers. However, 52.2% of participants indicated that they become confused and frustrated when they use Blackboard. When participants are asked if they have experience of using a similar system, 40.4% agreed and 39.4% disagreed. Since MUT is located in a peri-urban area and most of the students are from historically disadvantage communities, students should attend training and ideally this should be provided by lecturers. The study reveals that when students undertake training of a LMS the use increases (Nair & Patil, 2012).

5.4.2 Lecturers

The findings of this study show that people who are important to students have an impact on the students' behaviour to use Blackboard. 44.9% participants indicated that their friends think that they should use Blackboard. 37.6% indicated that their friends want them to use Blackboard. 54.1 % of the participants indicated that their friends encourage them to use Blackboard. 52.3% participants indicated that their friends have been helpful in the use of Blackboard.

The study also revealed that lecturers have the highest influence on the use of Blackboard by BIS2 students at MUT. 89.9% participants indicated that their lecturer wants them to use Blackboard. 87.2% participants indicated that their lecturer encourages them to use Blackboard. 65.1% participants indicated that their lecturer has been helpful in the use of Blackboard. Since the results indicate that SI has the highest impact on BI to use Blackboard LMS by BIS2 students at MUT, it is recommended that lecturers should implement blended learning in their courses and that Blackboard will be used as a preferred technology to enhance teaching and learning.

5.4.3 University

The results show that 72.1% participants agree that learning to use Blackboard would be easy for them. Therefore, the university should provide training for Blackboard LMS. The study by Nair and Patil (2012) reveals that the frequency of usage increased after the University College of Oman introduced training of the LMS.

The university should also consider the students' intention to use Blackboard in their planning. The following are some of the responses that are given by participants when they were asked if they intend to use Blackboard in future:

“Blackboard makes it easy to access to an information and it became easier to do task with Blackboard and submit the task very easily”

“Blackboard carries very useful information that will help me gain a lot of experience”

“Yes I will intend to use Blackboard in future if I can continuing learning and teaching because Blackboard is n easy way to learn and it has information.”

“Yes because it help me to get more information about Blackboard and get better understanding how to use Blackboard.”

Most of the students indicated that they experience difficulties in accessing Blackboard. The following are some of the things that respondents had to say:

“Sometimes the system becomes down so we are not able to access Blackboard”

“Sometimes hard to find free labs.”

“It is not easy because to get access to Blackboard you must be on campus”

“it is not easy to login because the school is having shortage of computers labs”

“We are evening students we are disadvantage of using Blackboard, during the day the labs are having classes and in the evening we attending”

“it is not easy to gain access but finding information you require may take some time”.

Although, the study was not about the accessibility of Blackboard, these comments show that students have serious concerns about this matter. Access to Blackboard LMS could therefore be made available in residences so that students could use it after hours. This could be facilitated if a university policy on Blackboard LMS were established stipulating issues such as access, use and downtime responses.

5.5 Directions for Future Research

Although the study proved that PE, SI, PEOU are predictors for BI, this should not be considered as final since moderating variables were not considered in the study. Future research might focus on including age, gender, experience and voluntariness of use. It should also be further investigated why SI was shown to be the strongest predictor.

5.6 Summary

The solutions for each research question are presented in this chapter. In research question 1 the results revealed that PE is a predictor of BI, ($\beta=.496$, $p<.0005$). PE has a positive significant influence on BI to use Blackboard LMS by BIS2 students at MUT. The results for research question 2 reveal that PEOU is a predictor of BI, ($\beta=.458$, $p<.0005$). PEOU has a positive significant influence on BI. Research question 3 depicts that SI is a predictor of BI, ($\beta=.547$, $p<.0005$). SI has a positive significant influence

on BI to use Blackboard LMS at MUT. Research question 4 shows that PE, PEOU and SI are predictors of BI.

SI was found to have the most influence, followed by PE, then PEOU. Therefore, new knowledge is established about understanding the variables PE, PEOU and SI, with respect to how these influence BI to use Blackboard LMS by BIS2 students at MUT. Hence, the results provide solutions to the research questions. The outcomes of this study are indicated through the recommendations. The limitations of the study are also discussed and future research that could be done in this area is suggested.

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APPENDIX A: Gate Keeper's letter



**Mangosuthu
University of Technology**

19 October, 2015

Ms. I.Z.T. Sibaya

ICT Department

Ms. Sibaya

It is my pleasure to inform you that permission to conduct survey titled: "*Exploring student's perception of Blackboard Management System at Mangosuthu University of Technology.*" amongst MUT students has been granted.

Permission to conduct the survey is granted on the condition that any changes to the project must be brought to the attention of the MUT Research Ethics Committee as soon as possible.

Good luck with your research.

Yours faithfully,

A handwritten signature in cursive script, appearing to read 'Anette Mienie', with a long, sweeping underline.

Dr. Anette Mienie

Director: Research

031 9077354/7450

anette@mut.ac.za

APPENDIX B: Ethical clearance



31 July 2018

Ms Immaculate Zola Thembeka Sibaya (953012274)
School of Management, IT & Governance
Westville Campus

Dear Ms Sibaya,

Protocol reference number: HSS/0098/016M

New Project Title: Factors influencing students' intention to use Blackboard learning management system at Mangosuthu University of Technology, Durban

Approval notification – Amendment Application

This letter serves to notify you that your application for an amendment dated 24 July 2018 has now been granted **Full Approval** as follows:

- **Change in Title**

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study must be reviewed and approved through an amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

Best wishes for the successful completion of your research protocol.

Yours faithfully

.....
Professor Shenuka Singh (Chair)
Humanities & Social Sciences Research Ethics Committee

/pm

cc Supervisor: Dr Rontala Prabhakar
cc Academic Leader Research: Professor Brian McArthur
cc School Administrator: Ms Angela Pearce

Humanities & Social Sciences Research Ethics Committee

Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: ximbap@ukzn.ac.za / snymanm@ukzn.ac.za / mohunp@ukzn.ac.za

Website: www.ukzn.ac.za



APPENDIX C: Research Instrument



UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF MANAGEMENT STUDIES

Dear Respondent,

MCom (ISTN) Research Project

Mrs Mariette Snyman

Humanities and Social Science Ethics (HSSREC) Research Office,
Govan Mbeki Building, Westville Campus, Private Bag X54001, DURBAN 4000

Tel: 031 260 8350 Snymanm@ukzn.ac.za

Researcher: Ms. IZT Sibaya (031-907 7467)

Supervisor: Dr P. Rontala (033-260 5643)

I, **IMMACULATE ZOLA THEMBEKA SIBAYA** an **MCom (ISTN)** student, at the **SCHOOL OF MANAGEMENT STUDIES**, of the University of Kwazulu Natal. You are invited to participate in a research project entitled **EXPLORING STUDENTS' PERCEPTION OF BLACKBOARD LEARNING MANAGEMENT SYSTEM AT MANGOSUTHU UNIVERSITY OF TECHNOLOGY**. The aim of this study is to: **Explore Business Information Systems 2 students' perception on the use of Blackboard Learning Management System at Mangosuthu University of Technology**

Through your participation I hope to understand **how Business Information Systems 2 students view the use of Blackboard Learning Management System at Mangosuthu University of Technology**. The results of the survey are intended to contribute to the **development of E-learning at Mangosuthu University of Technology**.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this survey. Confidentiality and anonymity of records identifying you as a participant will be maintained by the **SCHOOL OF MANAGEMENT STUDIES, UKZN**.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me or my supervisor at the numbers listed above.

The survey should take you about 30 minutes to complete. I hope you will take the time to complete this survey.

Sincerely

Investigator's signature _____ Date _____



CONSENT

I.....(full names of participant)
hereby confirm that I understand the contents of this document and the nature of the research project,
and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

SIGNATURE OF PARTICIPANT

DATE

.....

Part 1: Demographics

- a) Is about your general details
- b) Please put an **X** in **one** correct box

1. Are you enrolled as:

Day student (3 year program) Evening student (3 year program)

Day student (4 year program) Evening student (4 year program)

2. Your gender:

Female Male

3. Your age:

Under 20 21-25 26-30 31 and above

Part 2: Performance Expectancy

- a) These questions measure the degree to which Blackboard has helped you to perform well in Business Information Systems 2 (BIS2)
- b) Please make a X in one box indicating your level of agreement with each statement below:

	Completely disagree	Fairly disagree	Neutral (neither disagree nor agree)	Fairly agree	Completely agree
1. I find blackboard useful in my study of BIS 2.					
2. Using Blackboard enables me to accomplish tasks more quickly					
3. If I use Blackboard, I will increase my chances of getting better mark in BIS 2					
4. Using Blackboard in BIS 2 improves my learning motivation.					

5. Using the assessment tool in Blackboard to answer examination questions will enable me to answer questions easily					
6. The course management tool in Blackboard has important course material that will make me perform well in my study of BIS.					
7. The announcement tool in Blackboard has up to date information that will help in the study of BIS 2.					
8. Using Blackboard improves the quality of learning.					
9. Using Blackboard makes it easy to learn.					
10. If I use Blackboard my classmate will see me as competent					

11. In order of importance to you list the positive performance you expect by using Blackboard

1.
2.
3.
4.

12. Rank order the negative performance you expect by using Blackboard

1.
2.
3.
4.

Part 3: Ease of use

- a) These questions measure the degree of ease associated with the use of Blackboard.
 b) Please make a X in one box indicating your level of agreement with each statement below:

	Completely disagree	Fairly disagree	Neutral (neither disagree nor agree)	Fairly agree	Completely agree
1. Learning to use Blackboard would be easy for me.					
2. I would find Blackboard easy to use.					
3. My interaction with Blackboard is clear and understandable.					
4. I would find it easy to get Blackboard to do what I want it to do.					
5. It is easy for me to become skilful at using Blackboard.					
6. I have experience of using similar system					
7. I have sufficient background knowledge to use Blackboard					
8. I rarely become confused when I use Blackboard.					
9. I am rarely frustrated when using Blackboard.					

10. Is Blackboard easy to use?

 Yes

 No

Please explain:

Part 4: Social Influence

- a) These questions measure the degree to which an individual think that people who are important to him or her believe that he or she should use Blackboard.
- b) Please make a X in one box indicating your level of agreement with each statement below:

	Completely disagree	Fairly disagree	Neutral (neither disagree nor agree)	Fairly agree	Completely agree
1. My friends think that I should use Blackboard.					
2. My friends want me to use Blackboard.					
3. My friends encourages me to use Blackboard					
4. My friends have been helpful in the use of Blackboard.					
5. My lecturer wants me to use Blackboard.					
6. My lecturer encourages me to use Blackboard.					
7. My lecturer has been helpful in the use of Blackboard.					
8. My classmates think that using Blackboard is a technological trend (fashionable).					

9. Do you think that people who are important to you (such as your friends, classmates, lecturers) believe that you should use Blackboard?

Yes
 No

Please explain:

Part 5: Intention to use Blackboard LMS

- a) These questions measure your intention to use Blackboard in the near future.
 b) Please make a X in one box indicating your level of agreement with each statement below:

	Completely disagree	Fairly disagree	Neutral (neither disagree nor agree)	Fairly agree	Completely agree
1. I intend to use Blackboard in future.					
2. I recommend my friends to use Blackboard.					
3. I am confident that Blackboard will help any student using it.					
4. I intend to continue using Blackboard					
5. My performance in BIS 2 will make me use Blackboard in future.					
6. The influence that I get from other people will make me use Blackboard in future.					
7. The ease of use will make me use Blackboard in future					

8. Do you intend to use Blackboard in future?

 Yes

 No

Please explain:

APPENDIX D: Statistician Report

Gill Hendry B.Sc. (Hons), M.Sc. (Wits), PhD (UKZN)

Mathematical and Statistical Services

Cell: 083 300 9896

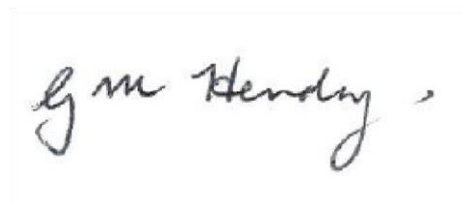
email : hendryfam@telkomsa.net

13 February 2018

Re: Assistance with statistical aspects of the study

Please be advised that I have assisted Immaculate Zola Thembeke Sibaya (Student number 953012274), who is presently studying for a MCom(IS&T) in the School of Management, IT and Governance at UKZN, with the analysis of the data for her study.

Yours sincerely

A handwritten signature in black ink that reads "Gill Hendry". The signature is written in a cursive style with a small flourish at the end.

Gill Hendry (Dr)

APPENDIX E: Language Editorial Certificate


**EDITORIAL
CERTIFICATE**

Author's: Immaculate Zola Thembeke Sibaya

Document title: Factors Influencing Students' Intention to Use Blackboard Learning Management System at Mangosuthu University of Technology, Durban

Date issued: 05/08/2018

SUPREME EDITOR

This document certifies that the above manuscript was proofread and edited by
Dr Gift Mhe (PhD, Linguistics)

The document was edited for proper English language, grammar, punctuation, spelling and overall style. The editor endeavoured to ensure that the author's intended meaning was not altered during the review. All amendments were tracked with the Microsoft Word "Changes" feature. Therefore, the authors had the option to reject or accept each change individually.

Kind regards



Dr Gift Mhe (Cell 073954 8913)



SUPREME EDITOR

APPENDIX F: Turnitin Report

Factors influencing students' intention to use Blackboard Learning Management System at Mangosuthu University of Technology, Durban

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