

**DETERMINANTS OF AUTOMATION OF STUDENT
SUPPORT SERVICES IN KENYA METHODIST
UNIVERSITY, NAIROBI COUNTY**

JOEL NG'ANG'A ITUBE

**A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A
MASTER OF ARTS DEGREE IN PROJECT PLANNING AND
MANAGEMENT OF THE UNIVERSITY OF NAIROBI**

2019

DECLARATION

This research project report is my original work and has not been presented for a degree at any other University for examination.

Signature.....Date:.....

Joel Ng'ang'a Itube

L50/63815/2013

This research project report has been submitted for examination with my approval as the University supervisor.

Signature.....Date:.....

Dr. Anne Aseey

Senior Lecturer, Open Distance Learning and e-Learning Campus

University of Nairobi, Kenya

DEDICATION

This research project report is dedicated to my loving wife Faith Kamau, sons Prince Lawrence and Darrell Ng'ang'a Junior, who have been a source of inspiration and for giving me the moral support and strength when I thought of giving up. Thank you for your wonderful work.

ACKNOWLEDGEMENT

I wish to thank different stakeholders who made this project a success. First, my heartfelt gratitude goes to my supervisor, Dr. Anne Asee, Open Distance Learning and E-Learning Campus, for her professional advice, encouragement and guidance.

My appreciation also goes to the management of different schools of Kenya Methodist University for allowing me to gather data from students during classes. To all the lecturers that allowed me to collect data during their class sessions — I cannot thank you enough.

To all the study respondents, your invaluable support enabled me to successfully complete the research work.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
TABLE OF CONTENTS.....	v
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
ABBREVIATIONS AND ACRONYMS	x
ABSTRACT	xi
CHAPTER ONE.....	1
INTRODUCTION	1
1.1 Background to the Study	1
1.2 Statement of the Problem	2
1.3 Purpose of the Study.....	4
1.4 Objectives of the Study	4
1.5 Research Questions	5
1.6 Significance of the Study	5
1.7 Delimitation of the Study	6
1.8 Limitations of the Study	6
1.9 Assumptions of the Study.....	7
1.10 Definition of Significant Terms	7
1.11 Organization of the Study.....	8
CHAPTER TWO.....	9
LITERATURE REVIEW	9
2.1 Introduction	9
2.2 Automation of Student Services.....	9
2.3 The Influence of Perceived Usefulness and Ease-of-use on Automation	10
2.4 The Influence of Technological Factors on Automation.....	12
2.5 The Influence of Self-competence on Automation	14
2.6 The Influence of Perceived Organizational Support on Automation	16
2.7 Theoretical Review.....	18
2.7.1 Technology Adoption Model	18
2.7.2 Diffusion of Innovation Theory	19

2.8 Conceptual Framework	20
CHAPTER THREE	23
RESEARCH METHODOLOGY	23
3.0 Introduction	23
3.1 Research Design	23
3.2 Target Population	23
3.3 Sample Size	23
3.4 Sampling Techniques	25
3.5 Data Collection Instrument	25
3.6 Piloting of the Instrument.....	25
3.6.1 Validity of the Questionnaire	26
3.6.2 Reliability of the Questionnaire	26
3.7 Methods of Data Collection.....	27
3.8 Data Analysis Techniques	27
3.9 Ethical Considerations.....	29
CHAPTER FOUR	30
DATA ANALYSIS,PRESENTATION AND INTERPRETATION.....	30
4.1 Introduction	30
4.2 Questionnaire Response Rate	30
4.3 Demographic Characteristics of the Respondents.....	30
4.3.1 Respondents' Gender Profile.....	30
4.3.2 Respondents Age Profile	31
4.3.3 Respondents Academic School Profile	31
4.3.4 Respondents Year of Study Distribution.....	32
4.3.5 Respondents' Level of Study Profile.....	33
4.4. Automation of Student Support Services	33
4.5 Descriptive Statistics for Perceived Usefulness	35
4.6 Descriptive Statistics for Perceived Ease of Use.....	37
4.7 Descriptive Results for IT Infrastructure and Internet Skills	38
4.8 Descriptive Results of Self-competence.....	39
4.9 Descriptive Results of Organizational Support	41
CHAPTER FIVE.....	44
SUMMARY OF FINDINGS, DISCUSSIONS ,CONCLUSIONSAND	
RECOMMENDATIONS	44
5.1 Introduction	44

5.2 Summary	44
5.2.1 Automation of Student Support Services	44
5.2.2 Perceived Usefulness	44
5.2.3 Perceived Ease of Use	45
5.2.4 IT Infrastructure and Internet Skills	45
5.2.5 Self-competence	45
5.2.6 Perceived Organizational Support.....	46
5.3 Discussions	46
5.4 Conclusions	49
5.5 Recommendations of the Study.....	49
5.5.1 Recommendations for Policy and Practice.....	49
5.5.2 Recommendations for Further Research	50
REFERENCES	52
Appendix 1: Letter of Introduction.....	58
Appendix 2: Questionnaire for the Students/Users	59
Appendix 3: Interview Guide for the ICT officers, Registrar of Academics and Lecturers	63
Appendix 4: Research Permit from NACOSTI.....	65

LIST OF TABLES

Table 3.1: Sample Size Composition	24
Table 3.2: Reliability Statistics.....	27
Table 3.3: Operationalization of the Variable’s Measurement	28
Table 4.1: Respondents Gender Distribution	30
Table 4.2: Respondents’ Age Profile	31
Table 4.3: Distribution of Respondents by Academic School	31
Table 4.4: Analysis of Respondents’ Year of Study	32
Table 4.5: Analysis of the Respondents Level of Study Profile	33
Table 4.7: Descriptive Analyzes of Automation of Student Support Services	35
Table 4.7: Descriptive Analyzes of Perceived Usefulness of Student Support Systems	36
Table 4.8: Descriptive Analyzes of Perceived Ease of Use of Student Support Systems	37
Table 4.9: Descriptive Analyzes of IT Infrastructure and Internet Skills	38
Table 4.11: Descriptive Results of Self-competence	40
Table 4.12: Descriptive Results of Organizational Support.....	42

LIST OF FIGURES

Figure 2.1: Conceptual framework for the determinants of automation of student support services	21
--	----

ABBREVIATIONS AND ACRONYMS

ATM	Automated Teller Machine
CUE	Commission for University Education
DOI	Diffusion of Innovation
KeMU	Kenya Methodist University
ICT	Information Communication Technology
IT	Information Technology
TAM	Technology Adoption Model
UTAUT	Unified Theory of Acceptance and Use of Technology

ABSTRACT

Automation provides an organization with a competitive edge and increases chances of customer satisfaction. Computerized benefits have enormously propelled, assuming a noteworthy job in enhancing the models of administration in higher learning organizations. Days are a far gone when students would sit tight for quite a long time before getting their outcomes, school charges or some other money related exchanges would set aside opportunity to finish, enrollment of units would be hard time and feedback would not be there. Students would now be able to do this whenever it might suit them by utilizing their telephones or over the web from the solace of their homes. Moreover, because of the enormous development of the cell-phone industry most higher learning institutions have wandered into the undiscovered chance and have collaborated with cell-phone network suppliers provide services to their customers. However, as the need for adoption of information and communication technologies to enhance services delivery to students, Universities in Kenya—both public and private are still finding it a challenge to fully automate the student support services. Thus, the purpose of this study was to examine the determinants of automation in institutions of higher learning. Specifically, the study sought to establish the influence of perceived ease of use, perceived usefulness, self-competence, and organizational support on automation of student support services. A Cross-sectional descriptive research design was used in this study. The study sample was drawn from 4 academic schools of Kenya Methodist University (KeMU). The sample size of 240 students was selected using stratified random sampling technique and convenience sampling technique. The key informants of the study were the ICT officers and registrar of academics. The study used a structured questionnaire and interview schedule as instruments for data collection. The validity and reliability of the instrument were assessed before the actual collection of data. The study combined both quantitative and qualitative data analysis methods. Quantitative data were analyzed using Statistical Package for Social Sciences (SPSS) using descriptive statistics. Qualitative data was analyzed using content analysis technique. The study findings revealed that students as users of automated support services in KeMU perceive the services as useful and important. The automated student support services enhance students' effectiveness for their school-related services. With regard to perceived ease of use, the study found out that the automated student support services are easy to use and understandable. On IT infrastructure and internet skills, the study found out that the University has inadequate resources in form of computers for use by students. The study further found that, the University has for long being using archaic computers and that communication lines are not always clear. With regard to self-competence, the study found that students are not fully able to utilize automated student support services and the management commitment to effective automation of student support services is inadequate. Therefore, the study recommends that there is need for the University management to invest in IT infrastructure and internet skills of the students. Also, the study recommends the University management to invest in the purchase of current generation computers in order to maximize on the benefits of the available automated student support services.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Studies conducted in various parts of the world have illustrated the importance of automated services in organizations. Consequently, this has led to various conceptualizations of the notion of automation. For instance, Kellerman (2018) recently pointed out where in the study by that automation has to do with execution of a task by a machine (mostly computer) of a function which was previously performed by humans. This is corroborated by Brown, Ly, Pham and Sivabalan (2019) who define automation as a device or system that can be used to accomplish either partially or fully a function that was previously carried out by partially or fully by a human operator.

Computerized benefit has enormously propelled, assuming a noteworthy job in enhancing the models of administration conveyance in higher learning organizations. Days are a distant memory when students would sit tight for quite a long time before getting their outcomes, school charges or some other money related exchanges would set aside opportunity to finish, enrollment of units would be hard time and feedback would not be there. They would now be able to do this whenever it might suit them by utilizing their telephones or over the web from the solace of their homes. Moreover, because of the enormous development of the cell phone industry most higher learning institutions have wandered into the undiscovered chance and have collaborated with cell phone network suppliers to offer administrations to their customers (Okiro & Ndung'u, 2013).

Fruitful usage and administration of student supportive networks is fundamentally in view of its appropriation (Duygu & Sevgi, 2013). There are different issues that are preventing achievement of this development appropriation in higher learning institutions. As per Elloumi (2004), mind-boggling expense of innovation, poor choices, rivalry, and the nonappearance of a business methodology are some of the hindrances that influence selection of student support benefits in numerous colleges in developing nations. A critical number of Universities in Kenya are utilizing E-learning administration framework as a stage to give students internet learning. This empowers the students to acquire their training in parallel with pursuing their own objectives and keeping up their own vocations, without a need to go to classes and be subjected to an inflexible timetable (Borstorff & Lowe, 2007). These activities are anyway being influenced by numerous limitations that are debilitating to cut down the technological advancement and automation in these institutions.

Because of the development of innovation and utilization of PCs, the inquiry emerges concerning what variables may influence automation in higher learning institutions. Expecting that utilizing new innovations may enhance the working of higher learning organizations, this study tries to investigate how perceived usefulness, perceived ease of use, self-competence, and organizational support would influence automation of student support services. The research may contribute to an understanding of the variables that influence automation.

1.2 Statement of the Problem

Kenya Methodist University (KeMU) is a fully chartered Christian University that was established in the year 1997 by the Methodist Church in Kenya in line with their 1906 Policy on Education. The Subsequent approval by the then Commission for Higher Education

(CHE) led to the creation of academic programs, research as well as postgraduate training. Since then, The University has witnessed significant growth in both student and staff population. As expected, this has generated huge volumes of data that necessitates the need for ICT resources in order to effectively manage and utilized for the betterment of the organization. Consequently, this has led to the organization to make all efforts in order to adopt the best technologies so as to enhance proper management of organizational data resulting from various transactions. More importantly, this happens to be in line with the requirements laid down by the Commission for University Education (CUE) to adopt ICT that are aimed at enhancing service delivery to the students even as both Public and Private Universities have had a challenge of full automation of the student support service (CU, 2017). In addition, the commission is committed towards making sure that the standards are maintained in higher education sector and more importantly The commission is committed towards making sure that the standards in higher education are maintained and the sector produces employable graduates that can meet the industrial requirements.

There has been considerable evidence in both information and technology and management literature with regards to the benefits associated with automation of student support services in institutions of higher learning especially universities for instance a study conducted recently in Nigeria, a study conducted recently by Egoeze, Misra, Maskeliūnas and Damaševičius (2018), it was clearly pointed out in the conclusion about the importance of adoption of ICT In the day-to-day management of student records in institutions of higher learning. Substantive scholarly literature has pointed out the importance of adoption of new technology in day-to-day management of institutions of higher learning. For instance, in a survey conducted in Bangladesh by Ahmed (2014), which adopted the methodological

approach of survey by dissemination of posts and messages coordinated to the university administrators, the results of the study indicated that their inadequacies in terms of library assets, automation practices over access to online assets and IT offices in the universities among others.

Moreover, results indicated that Universities are still reluctant in adopting the latest technology applications, albeit the use of computers and network technologies being high. So far, studies on automation of student services have focused more on the library services in both the developed and developing nations such as Kenya. Whilst this is the case, studies focusing on automaton of student support services in all operations of the Universities in Kenya are still elusive; more specifically in private Universities where funding is through students' payment of fees. Due to this realization, this research therefore intended to examine the determinants of automation of student support services in private Universities in Kenya; a case of Kenya Methodist University, Nairobi campus.

1.3 Purpose of the Study

The purpose of the study was to examine the determinants of automation of student support services in universities in Kenya using a case of Kenya Methodist University, Nairobi campus.

1.4 Objectives of the Study

The study was guided by the following objectives:

- (i) To determine how perceived usefulness and ease of use influence automation of student support services at the Kenya Methodist University.

- (ii) To establish the influence of technological factors LIKE (IT Infrastructure and internet skills) on automation of student support services at the Kenya Methodist University.
- (iii) To investigate the influence of self-competence on automation of student support services at the Kenya Methodist University.
- (iv) To examine the influence of organizational support on automation of student support services at the Kenya Methodist University.

1.5 Research Questions

To address the objectives, the study sought to respond to the following research questions:

- (i) What is the influence of perceived usefulness and ease of use on automation of student support services at the Kenya Methodist University?
- (ii) What is the influence of technological factors (IT Infrastructure and internet skills) on automation of student support services at the Kenya Methodist University?
- (iii) What is the influence of self-competence on automation of student support services at the Kenya Methodist University?
- (iv) What is the influence of organizational support on automation of student support services at the Kenya Methodist University?

1.6 Significance of the Study

The findings of the study are beneficial to different stakeholders. First and foremost, the findings of the study may provide the top management of Kenya Methodist University with a superior comprehension of the manner by which they can bolster the students learning. For example, by focusing on perceived usefulness, perceived ease of use, self-competence

and organizational support, results of the study are useful to the management when developing strategies towards efficient and effective automation of student support services.

To the Government of Kenya through the Commission for University Education, the findings of the study are useful in strategy development with regard to automation of student support services in higher learning institutions.

To the students of Kenya Methodist University, the study findings can help to improve their interactions with the University through enhanced student support services. Also, students will benefit from the study by taking an active role towards advancement of student support services in the University.

For researchers and academicians, the study findings would add to the existing body of knowledge thereby acting as a reference point for further studies.

1.7 Delimitation of the Study

The study concentrated on the determinants of automation of student support services in KeMU Nairobi campus. Specifically, the study focused on the influence of perceived usefulness and ease of use, technological factors, self-competence and organizational support on automation of student support services. In addition, the survey was conducted in Kenya Methodist University located within Nairobi County in the Central Business District and accredited by CUE.

1.8 Limitations of the Study

The study has limitations. Foremost, the use of cross-sectional descriptive research design meaning that, the influence of the study variables on automation of student services could only be established during the study. The study investigated the influence of four postulated variables (perceived usefulness and ease of use, technological factors, self-competence, and

organizational support) on automation of student support services. Thus, findings of the study are only interpreted from the influence of these four variables. Moreover, the study was carried out in Kenya Methodist University – Nairobi campus, which present issues with generalization of the study findings.

1.9 Assumptions of the Study

The study assumed that all respondents were cooperative during the data collection exercise. In addition, the study assumed that the respondents were willing to contribute to the study in a way of filling the questionnaires and gave truthful and accurate information which could meet the purpose and objectives of the study.

1.10 Definition of Significant Terms

For the purpose of the study the following terms are used in the following context:

Automation – used in the study to refer to a procedure, strategy, or arrangement of working or controlling a procedure by electronic gadgets, decreasing human intercession to a base.

Organizational support – in the study, it has been used to refer to the support management of KeMU provides to ensure that systems that are put in place and run efficiently and effectively.

Self-competence – operationalized to mean individual students’ convictions that they have the competence expected to perform and prevail in the use of laid down student support systems.

Student Support Services– operationalized as a comprehensive and individualized facilities that provide student-centred and welcoming learning environment, reflecting values of excellence, diversity, and mutual respect within the universities.

Perceived ease of use – in the context of this study, it refers to the level to which students believe it is easy to use installed support systems in the University.

Perceived usefulness – this refers to the level at which KeMU students believe that using technological support systems would improve their academic life at the University.

1.11 Organization of the Study

This project comprises of chapters: chapter one, two, three, four, and five. Following chapter five is a reference section listing the work cited. Chapter one discusses the study background, problem statement, study purpose, research objectives and questions. Additionally, it outlines the significance, delimitations and limitations. At the end of the chapter, the definitions of significant terms as operationalized in the study is given. Chapter two discusses the literature review. Chapter three deals with the research methodology that was used to collect relevant data for this study in line with the set research questions. In chapter four, the results of data analysis and the resultant discussion are provided. Chapter five discusses the summary of the major findings, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter gives a discussion of related literature in line with the study objectives. First, the chapter discusses a preview of theories underpinning the study. Subsequently, the chapter provides a review of the empirical studies guided by the study specific objectives. Moreover, the chapter illustrates a conceptual framework that guided the study and ends with knowledge gaps.

2.2 Automation of Student Services

Substantive number of scholarly publications in ICT literature has highlighted the importance of automation of various processes in organization especially so as to improve the aspect of efficiency and effectiveness in task performance. In particular, it has been demonstrated that institutions of higher learning can greatly benefit by use of automation processes. This was recently evidenced in a survey conducted in the US by Dickinson (2018) where the findings of the study is to stressed more on ensuring that there is efficient allocation of resources to ensure adoption of ICT infrastructure.

Automation has been the most talked about concept in academia. Over the last few years, automation has brought about many changes in virtually all aspects of our lives, work and education. Automation – the distribution of digitized services is often justified as an inevitable part of the new knowledge-based society. Automation is transforming universities in a big way, bringing with it several benefits which are; (1) better performance by the students, (2) simplifying and streamlining all the tasks, (3) better communication

between the students and the University management, (3) easy and smooth access to services, (4) timetable management, and (5) full tracking of the students.

Higher education institutions, like any other organizations, run on interactions between departments, individuals and students. The interactions are usually complex in nature and include a variety of objectives such as student enrolment, budget management, managing daily operations. Doing these tasks manually would consume a lot of time and be prone to numerous human errors. In higher education, several services have been automated such as those provided by the registrar, research, staff development, alumni relations, careers, counselling, finances, and safety. By implementing computerized systems, universities are able to enhance the student experience. However, universities as institutions of higher education have faced several challenges especially related to students' satisfaction when it comes to their interactions with their University.

2.3 The Influence of Perceived Usefulness and Ease-of-use on Automation

Comer, Gibson, Zou, Rosenman and Dixon (2018) define perceived usefulness as the degree to which a person believes that using a particular information system can enhance their job performance. Sharma, Singh and Awasthi (2018) on the other hand defined perceived usefulness as the degree to which an individual expects that using the innovation will be useful in achieving a goal. Studies conducted in various parts of the world have demonstrated the importance of perceived usefulness in the process of adoption of automation of processes in organizations. For instance, in a study focusing on self-driving cars Nees (2016) highlighted the importance of perceived usefulness as a key determinant in the adoption of automation in the motor vehicle industry. Similarly, another study conducted in India by Upadhyay, Khandelwal, Nandan and Mishra (2018) was able to

establish that the degree to which a person believes that using a particular system would enhance their job performance. Recently, a survey conducted in China by Wang and Li (2019) justified the idea of perceived usefulness especially due to the fact that it is an important determinant of information systems usage behaviour.

In addition to perceived usefulness, perceived ease-of-use is yet another important factor that determines adoption of automation in organizational setting. Accordingly, various conceptualizations have been presented in empirical literature with regard to the notion of perceived ease-of-use. For instance, Muchran and Ahmar (2019) define perceived ease of use as a measure in which a person believes that a computer can be easily understood and used. This affirms the definition by Nugroho, Dewanti and Novitasari (2018) who contend that perceived ease of use is the degree to which someone believes that an information technology is easy to be understood. Accordingly, studies have shown a consistent linkage between perceived ease of use and adoption of information systems in organizations. For instance, a study conducted in the recent past by Daud, Farida and Razak (2018) laid much emphasis on the aspect of perceived ease-of-use as an important determinant in adoption of information systems in organizations.

Various empirical studies have been carried out in different parts of the world to demonstrate the importance of perceived usefulness and perceived ease of use as key determinants of adoption of technology in organizations. For instance, Rawashdeh (2015) study with the purpose of examining the Jordanian bookkeeper's social expectation of utilizing the Internet Banking administrations and centred around the view of the clients as far as helpfulness and convenience of web banking uncovered that perceived usefulness was a noteworthy indicator of reception of web banking services. The study findings supported

the tenets of Technology Acceptance Model (TAM) and additionally confirming its strength for foreseeing the conduct expectation of the appropriation of Internet Banking by the Jordanian certified bookkeepers.

Al-Ajam and Nor (2013) conducted a study on factors impacting on intentions to embrace web banking benefits and revealed that perceived usefulness was a key driver towards adoption. Cheah, Teo, Sim, Oon, and Tan (2011) investigated factors affecting Malaysian mobile banking adoption. They found out that perceived usefulness was a significant predictor of mobile banking adoption – where individuals perceived system usefulness, adopting it was not an issue. Another study conducted by Al-Suqri (2014) in Sultan Qaboos University in Oman focusing on perceived usefulness, ease-of-use and acceptance of library e-books by faculty members revealed that respondents who saw that e-books were less demanding to utilize tended to utilize them more, indicating that perceived usefulness of a system will make individuals want to use such a system more.

2.4 The Influence of Technological Factors on Automation

There is considerable evidence in scholarly literature with regard to how organizational factors play a critical role in ensuring successful automation of various procedures in organizational settings. For instance, in a study conducted in industrial setting by Merchant and Ahire (2017), the findings of the study put emphasis on the importance of technology factors especially connection to internet as an important determinant of adoption of automation in such organizations. Such findings were also corroborated by Xu, Ou and Fan (2017) who presented the argument that automation processes play an important role in enabling institutions to make good decisions but even more importantly, with the support of proper internet connectivity. Furthermore, Gupta, Qian, Bhushan and Luo (2018)

advocate for the use of information systems that are enabled by the internet so as to effectively implement automation and with the end result of having an improvement in the performance of the organization especially on the aspect of supply chain.

Moreover, in an empirical survey conducted in Nigeria by Aremu and Shahzad (2015), the findings of this study clearly gave an indication that mechanisms of decision-making in organizations can be greatly improved with ensuring provision of resources such as proper internet connectivity in order to guarantee automation of various processes in the organization. Furthermore, a number of studies carried out in several developing countries by Achargui and Zaouia (2016) stressed on the importance of ensuring availability of internet in organizations especially so as to enable faster adoption of technologies such as Enterprise resource systems (ERP).

In addition to a number of empirical studies carried out in various other places house indicated the importance of technology factors in the efforts to adopt technologies in organization. For instance, Chatzoglou and Chatzoudes (2016) did an investigation on factors influencing E-business reception in SMEs in Greece. They appropriated surveys to 600 organizations and accumulated 161 usable polls. Different inferential statistical models such as Exploratory factor analysis and structural equation modelling (SEM) were utilized to test theories. In their investigation they found organization size, IT framework and web aptitudes as the most significant predictors of electronic business. In addition, organization size was the most significant influencer of e-business.

Yet another survey conducted by Bordonaba-Juste, Lucia-Palacios, and Polo-Redondo (2012) focused majorly on influencers and significances majorly on influencers and significances of adopting electronic business models by the European retailers where the

findings of the study indicated that it infrastructure and internet skills are key determinants of adoption of e-business. This corroborated what was observed earlier by Durbhakula and Kim (2011) who after carrying out a national survey of factors affecting adoption of e-business established that innovation measurements is an essential for advancement of electronic business of a country and furthermore ICT foundation was dependable on essential factors for improvement of a business in organizations.

Aharony (2015) directed an exploratory examination on factors influencing the appropriation of distributed computing by data experts. The exploration was directed in Israel amid the second semester of the 2013 scholastic year and enveloped two gatherings of data experts: administrators and data authorities. Scientists utilized seven surveys to accumulate individual subtle elements, PC fitness, demeanours to distributed computing, social expectation, receptiveness to encounter, psychological examination and self-viability. The examination found that the conduct goal to utilize distributed computing was affected by a few of the TAM factors, individual attributes and PC fitness/abilities. Consequently, this and many more studies provide sufficient evidence of why the present study focused on various technological factors and why they are important in efforts to ensure automation of student services in the selected University.

2.5 The Influence of Self-competence on Automation

The issue of self-confidence is one that has been widely acknowledged in information systems literature as an important determinant in the process of adoption of automation in organizations. In a study conducted in the UK manufacturing and service sector by Jayawickrama, Liu and Smith (2016), the findings of the study gave an indication that improvement in the knowledge competence with regards to issues of ICT plays a key role

in ensuring successful adoption of automation processes in organizations. Furthermore, it was also established by Santos, Santana and Elhimas (2018) that team members in a project management kind of setup needs to have proper skills and competencies with regards to use of ICT especially having established that this had a significant influence on adoption of automation processes.

Yet another important issue as far as self-confidence is concerned is having prior experience of utilization of information systems technology in organization. This was evidenced in a recent empirical survey conducted by Yang, Unhelkar, Li and Shah (2017) who was able to establish that the idea of user experience plays an important role especially in the efforts to adopt automation processes in organizations. In addition to that, another study conducted in the recent past by Fröhlich, Baldauf, Meneweger, Erickson, Tscheligi, Gable, & Paternò (2019) affirmed this position by this position by stressing on the importance of prior user experience in order to effectively adopt automation for various transactions in an organization.

Furthermore, there have been several studies that have highlighted issues such as availability of ICT assistance as an important determinant of automation processes in organizations. For instance, a survey conducted recently in the education sector by Ivanovna and Sabirjanovich (2017) highlighted the fact that IT support is crucial when it comes to adoption of automation efforts to manage educational institutions. This position was recently corroborated by Gottge, Menzel and Forslund (2018) who found out that ICT support plays an important role in ensuring the process of automation of operational activities which have the end result of reducing administrative tasks.

Coeurderoy, Guilmot, and Vas (2014) led an investigation with the point of clarifying elements influencing innovative change selection and concentrated on a survival examination of a data framework execution. Utilizing the Unified Theory of Acceptance and Use of Technology show as a state of flight, they broke down the effects of eight factors assembled in four classifications: the apparent traits of progress (execution hope and exertion anticipation), social impact (peer impact and administrator impact), encouraging conditions (starting preparing and help work area) and individual qualities (receptivity to change and self-viability). Based on a 15-month longitudinal investigation of a work process framework execution in a media communications association, the outcomes feature that execution anticipation, manager impact and self-adequacy affect the speed of technological change selection. As a contextual investigation, discoveries of this examination may just be substantial in the specific association in which it is produced showing a need to research the impact of self-competence on computerization of student support benefits in a University setting.

2.6 The Influence of Perceived Organizational Support on Automation

Perceived organizational support is yet another important factor that has been pointed out in various management and ICT literature as an important determinant of automation in organizations consequently this has led to various conceptualizations of the notion of organizational support. For instance, Cao, Chen, Tian and Diao (2016) define organizational support as the sense in which employees believe that the organization values their contribution and cares about their well-being.

A survey conducted on South African small and medium Enterprises (SMEs) by Gono, Harindranath and Özcan (2016) pointed out the critical role played by top management

support as one of the critical determinants of adoption of ICT in organizations. In East Africa, a survey conducted in Tanzania by Okey and Sam (2019) stressed on the importance of organizational support especially in order to effectively implement various ICT infrastructures in organizations. Zheng, Wang, Doll, Deng and Williams (2018) on the other hand hold the opinion that organizational support can be viewed in terms of the training opportunities that are given to the employees especially with regards to ensuring that they are equipped with the right skill set in order to adopt automation processes in the organization.

In a survey conducted by Mitchel, Kavanagh, and Tracey (2013) the findings of the study indicated that organizations which engenders supportive service climate fosters employees' self-competence towards their work. Several studies have found perceived organizational support as a significant predictor of technology adoption (Garg & Dhar, 2015). DonHee Lee, Sang, David, and Soong (2010) carried out a study on the influence of firm's support on ERP usage. They utilized a review poll to test the proposed model where an aggregate of 700 surveys were conveyed to clients in little and medium endeavours that had actualized ERP frameworks in Korea and 209 reactions were utilized for investigations. Structural Equation Modelling was utilized to test the exploration theories. Their research results demonstrated that the firm support is a vital factor for perceived usefulness and perceived usability. Notably, their study found that organizational support was positively associated with factors of technology adoption model.

2.7 Theoretical Review

By definition, a theory refers to a set of norms or propositions that attempts to provide plausible explanation of cause and effect relationships among a group of observable phenomena. A theoretical framework introduces and describes the theory that explains why the research problem exists. This section discusses the theories under which the study is anchored. Specifically, the study focuses on the theory of Technological Adoption Model (TAM) and Diffusion of Innovation (DOI).

2.7.1 Technology Adoption Model

Technology Acceptance Model is among the theoretical developments that have been advanced in information systems literature with the aim of pointing out how the process of adoption of technology can be slowly absorbed into organizations. Munoz-Leiva, Climent-Climent and Liébana-Cabanillas (2017) contend Technology Acceptance Model was introduced especially with the aim of making predictions regarding and utilization of information technologies and systems by identifying key features that help to drive the process. This is also affirmed in yet another recent survey conducted in Nigeria by Ajibade (2018) Who presented an argument that technology acceptance model is appropriate in helping to understand how The process of adoption of technology in organizations occur. This position was further corroborated in a recent survey by Ding, Saide, Siti Astuti, Muwardi, Najamuddin, Jannati and Herzavina (2019) who were able to establish the fact that understanding technology acceptance model is critical in having an overview of how technology is slowly adopted in organizations by different workers. In Nigeria in an empirical survey conducted in Nigeria by Haruna and Kassim (2019) stress much on the fact that technology is critical in helping to understanding the process of adoption of technology by individuals and organizations. The theory therefore was critical in the present

study, especially in order to enable understand how technology is slowly adopted by individuals and organizations in order to improve effectiveness efficiency and effectiveness in the organization.

Closely related to the concept of technology acceptance model is the idea of perceived usefulness as well as perceived ease of use Which according to Asiri (2019) is the degree to which a person believes that using a particular system would enhance their job performance. a recent empirical survey conducted by Camilleri and Camilleri (2019) was able to establish that one of the important determinants of adoption of computers in organizations is the attitude of individuals especially with the realization that Making use of the technology is likely to be without any trouble. Sharma and Mishra (2015) have argued that the model's strength exist in its simple nature since it has two constructs only, i.e. perceived usefulness and perceived ease of use, that are used when explain users' acceptance of the system. Moreover, TAM proposes that behavioural intention to use directs usage of a computer, which influences how an individual would react to a system. TAM posits that the effect of determinants on technology acceptance is manifested in user's attitude and beliefs, where beliefs indicate instrumentality related to attitudes and action that are purely affective (Erasmus, Rothmann, & Van Eeden, 2015). These variables are vital and lead to usage intentions of a system by users. Thus, TAM provides a platform that explains issues distressing automation acceptance, such as task compatibility, compulsory usage, and experience (Ghazizadeh, Leen, & Boyle, 2012).

2.7.2 Diffusion of Innovation Theory

This is yet another important Theory in the efforts to understand how the process of adoption of technologies in organization occurs. Accordingly, Redza, Nordin and Saad (2017) was

able to point out that the theory is premised on the notion that new findings can easily be disseminated to the members of a given organization especially in a given social system. Barrientos and Andrade (2017) on the other hand was of the opinion that Diffusion Innovation Theory happens when communication process through certain channels over a given period of time among members of a given social system and where participants create and share information especially relating to mutual experiences.

Studies have illustrated the importance of a theory in understanding implementation of ICT policy in organizations. Emani, Peters, Desai, Karson, Lipsitz, LaRocca, and Williams (2018) stress on the importance of the theory especially with the realization that the theory can be effective in understanding how the organization can realize faster implementation of ICT infrastructure in the organizations. Even more importantly is addressing the question of how the theory can suit in the context of the current study especially in order to help answer the research questions in the study. Consequently, the theory was crucial for the present study especially so as to help have an understanding of how information flow place an important role in ensuring sound adoption of automation in organizations.

2.8 Conceptual Framework

Figure 2.1 illustrates the study conceptual framework that shows the relationship between the independent variables and the dependent variable.

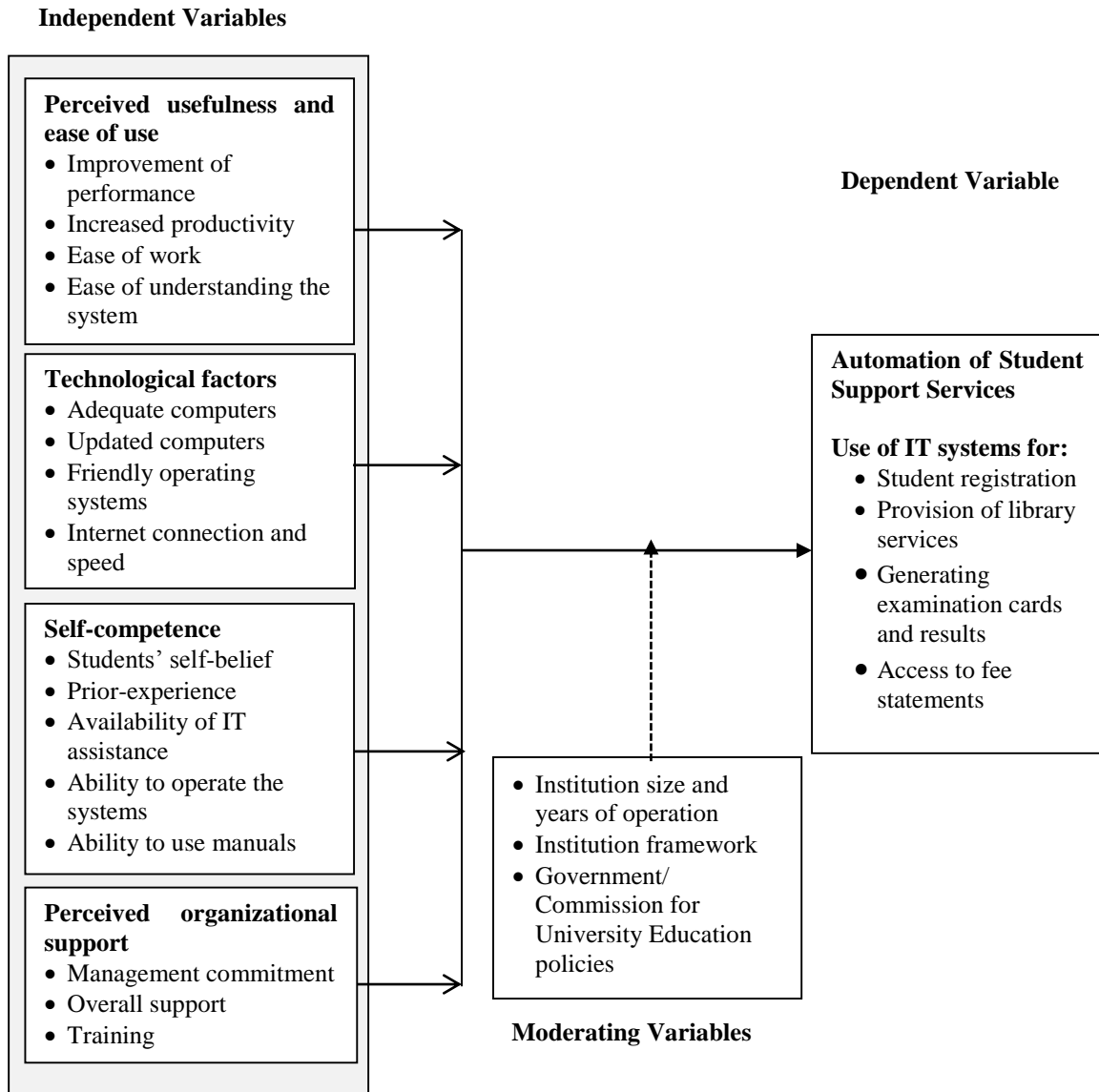


Figure 2.1: Conceptual framework for the determinants of automation of student support services

The framework proposes that, perceived usefulness, perceived ease-of-use, self-competence and perceived organizational support exert a direct positive influence on effective automation of student support services. Other variables are the moderating variables which influence the relationship between the identified factors influencing uptake of effective automation of student support services.

2.9 Summary of Literature and Knowledge Gaps

Review of literature have indicated that automation of systems is beneficial to the operations of any organization and is influenced by a myriad of factors. Specifically, review of literature has revealed that perceived usefulness, perceived ease of use, internet skills and self-competence influence automation. However, majority of studies have focused more on organizations dealing with commercial goods. Studies that have been done in higher learning institutions focused on library services automation. Thus, this study sought to establish the determinants of automation of student services and focused on all the areas of the University service provision rather than just the library using KeMU as a case study. Also, majority of studies on automation of student support systems were conducted in developed nations which have more elaborate technological systems. Kenya is a developing state and the factors that drives automation of student support services in higher institutions of learning are different from those of the developed countries. Therefore, this study sought to fill this gap through investigating the influence of automation of student support services in KeMU.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The chapter discusses the methodology that was used while conducting the survey. Particularly, the chapter discusses the research design, target population, sample size and sampling techniques, methods of data analysis and interpretations.

3.1 Research Design

The study adopted a descriptive cross-sectional research design to collect, analyze and interpret data. This design was useful while explaining the influence of the investigated independent variables (perceived usefulness, perceived ease of use, self-competence, and organizational support) on the dependent variable (automation of student support services) at the time of research, without manipulation of the variables (Mugenda & Mugenda, 2003). Moreover, cross-sectional studies are quick and relatively simple (Salkind, 2003)

3.2 Target Population

The study targeted all registered students in KeMU as users of automated services at the University. The Kenya Methodist University has a total population of 2,400 registered students – a number obtained from the office of the registrar in the University as at July 2018. Moreover, the study targeted the University ICT officers, registrar of academics and lecturers as key informants.

3.3 Sample Size

The first aspect of sampling was to establish the sample size, which was determined by Yamane formula. This approach has been used widely in a number of studies to determine the sample size for surveys. For instance, a study conducted recently by Handoko (2019) pointed out the importance of the approach in the determination of sample size. The

approach was also recently utilised in a survey in South East Nigeria by Okoro, Okeke, Chukwuji, Olelewe and Nwachukwu (2018) to objectively come up with the sample size for the survey on Extend of School Access Programs that contribute to Computer Education Studies. the formula was therefore shown below:

$$N = \frac{N}{1 + N(e^2)} = \frac{2400}{1 + 2400(0.0612^2)} = 240$$

Where:

N Target population

n Sample size

e level of precision

The next approach was to use stratified sampling where proportionate sampling procedure was used where every value of the target population was divided by the total number of target population and multiplied by 240 in order to get the second column with the figures of the sample size. This can be summarised using the following formula as shown below:

$$n_i = \frac{N_h}{N} \times n = \frac{471}{2400} \times 240 = 47 \text{ (for the first strata)}$$

Hence the values were filled in the sampling table below:

Table 3.1: Sample Size Composition

School	No. of students per school	Students' Sample size
Science and Technology	471	47
Medicine	232	23
Education and Social Sciences	921	93
Business and Economics	674	67

Staff members	102	10
Total	2400	240

3.4 Sampling Techniques

The study adopted a stratified sampling technique to select the students using schools as the strata. The Kenya Methodist University has 4 schools (Science and Technology, Medicine, Education and Social Sciences, and Business and Economics) which acted as the strata. Subsequently, the researcher employed convenience sampling technique in order to select the required number of participants from each stratum for data collection. To select ICT officers and the registrar of academics in the University, purposive sampling technique was used. These participants provided key information on factors affecting automation of student support services in the University.

3.5 Data Collection Instrument

The primary data for this study was collected using self-completed questionnaires. The survey comprised both structured and unstructured questions designed to collect data on the study variables. The questionnaire was filled by the selected students in the four academic schools. The research opted for a self-completed questionnaire because it is cheap and quicker to administer, eliminates interviewer's effects as respondents provide responses in the absence of the interviewer, and is convenience for respondents because they can complete it when they want and at the speed that they want to go. In addition, interview schedules were used to gather related information from the ICT officers and the registrar of academics in KeMU.

3.6 Piloting of the Instrument

The questionnaire was pretested in KeMU Nairobi campus in order to ensure its validity. To complete the pretesting exercise, data in line with the study objectives were collected

from 20 respondents who were excluded from the actual data collection exercise. Pretesting helped to fine tune the questions for easier understanding by the participants. It also enabled the researcher to approximate the number of minutes it would take a respondent to complete the questionnaire, which was between 10-15 minutes. Moreover, the researcher was able to adjust the questions that were found to be amorphous before the questionnaires were administered for the final data collection exercise. In addition, the respondents' important comments were gathered during the pre-testing exercise and were used to fine-tune the questionnaire. The pretesting also indicated the need to conduct the present study as data collected during this exercise revealed that the constructs were valid and reliable.

3.6.1 Validity of the Questionnaire

Validity refers to the issue of whether or not a construct in the questionnaire measures the concept on which it was designed (Bryman & Bell, 2015). Thus, content validity technique was used to assess the validity of the questionnaires. This technique was ascertained using supervisor's recommendations on how adequately the survey instrument was able to collect data on the study constructs.

3.6.2 Reliability of the Questionnaire

One of the key considerations when utilizing research instruments used to ensure that they made the conditions of reliability. Bocarnea, Henson, Huizing, Mahan and Winston (2018) Define reliability as the internal consistency of the research instrument across all the items of a given scale. Studies have shown that reliability coefficient of 0.7 and above is high enough to ensure that the instruments of data collection meet the requirement of internal consistency (Barman, Pal, Ganguly & Biswas, 2018). Accordingly, reliability analysis was carried out on all the study constructs namely perceived usefulness, perceived ease of use,

IT infrastructure and internet skills, self-competence, organizational support constructs and Automation of student support services (Table 3.2).

Table 3.2: Reliability Statistics

Constructs	No. of Items	Cronbach's Alpha Coefficient
Perceived usefulness	4	0.818
Perceived ease of use	4	0.790
IT infrastructure and internet skills	10	0.905
Self-competence	9	0.885
Organizational support	8	0.914
Automation of student support services	9	0.854

Results presented in Table 3.2 show that all constructs had Cronbach's Alpha above the threshold of 0.70 demonstrating adequate reliable for data analysis and reporting.

3.7 Methods of Data Collection

The data was collected from the selected students during class sessions. First, the permission to carry out the study in the University and Departments from the Principal of KeMU Nairobi campus and Chair of Departments was obtained. Consequently, permission to collect data from students during class sessions was sought from lecturers in session. Upon receiving the permission from the lecturers, the purpose of the study was explained to students in class and they were requested to contribute to the study by way of completing the questionnaires. Selected students were offered time to fill in the surveys after which the filled questionnaires were collected.

3.8 Data Analysis Techniques

To analyze data, collected questionnaires were examined for completeness of the data. Following this step, the questionnaires were coded and cases entered into the Statistical

Package for Social Sciences (SPSS v.20) for data analysis. In SPSS, the dataset was cleaned in order to ensure that responses from each questionnaire were entered correctly. To address the study research questions, descriptive statistics comprising frequencies, percentages, means and standard deviations were utilized. According to Sekaran (2010), descriptive statistics describe the phenomena of interest. Table 3.3 demonstrates the operational definition of the study variables and the analysis plan for each objective.

Table 3.3: Operationalization of the Variable’s Measurement

Objectives	Variables	Indicators	Level of scale	Tools of analysis
To determine how perceived usefulness influence automation of student support services at the Kenya Methodist University	Independent: perceived usefulness and ease of use Dependent: Automation	Improvement of performance Increased productivity Ease of work	Ordinal scale	Frequencies, Percentages, Means, Standard deviations
To establish the influence of technological factors (IT infrastructure and internet skills) on automation of student support services at the Kenya Methodist University	Independent: technological factors Dependent: Automation	IT infrastructures Internet skills	Ordinal scale	Frequencies, Percentages, Means, Standard deviations
To investigate the influence of self-competence on automation of student support services at the Kenya Methodist University	Independent: Self-competence Dependent: Automation	Believes of students towards the use of the system	Ordinal scale	Frequencies, Percentages, Means, Standard deviations

To examine the influence of organizational support on automation of student support services at the Kenya Methodist University	Independent: perceived organizational support Dependent: Automation	Management commitment Overall support	Ordinal scale	Frequencies, Percentages, Means, Standard Deviations
--	--	--	---------------	--

3.9 Ethical Considerations

During the study, informed consent was sought from the respondents through a consent letter accompanying each question. In addition, selected participants were informed of their voluntary participation in the study. Moreover, participants were notified that they could withdraw from the study willfully without any harm or penalty levelled against them. In addition, to ascertain confidentiality of the information collected, participants were requested not to include their names on the questionnaires. Data collected from the study respondents was used solely for the purpose of this study and not in any other way.

CHAPTER FOUR

DATA ANALYSIS,PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter discusses the results and interpretation of the data analyzed in line with the study objectives which were to, (1) determine how perceived usefulness and ease of use influence automation of student support services, (2) establish the influence of technological factors on automation of student support services, (3) investigate the influence of self-competence on automation of student support services, and (4) examine the influence of organizational support on automation of student support services.

4.2 Questionnaire Response Rate

In the study, 240 questionnaires were distributed to selected participants. All questionnaires were filled and returned as participants were required to fill and submit them during class sessions. However, of all the returned questionnaires, 16 questionnaires were found to have missing data and were discarded yielding 93.3% (n = 224) useable ones.

4.3 Demographic Characteristics of the Respondents

This section presents the results of the respondents' demographic characteristics comprising of gender, age, academic school, year of study, and level of study. The findings presented in subsequent sections:

4.3.1 Respondents' Gender Profile

The findings of the respondents' gender presented in Table 4.1.

Table 4.1: Respondents Gender Distribution

Categories	Frequency	Percentage (%)
Male	115	51.3 %
Female	109	48.7%

Total	224	100.0%
--------------	------------	---------------

The study findings revealed that majority (51.3%) of the respondents were male and female respondents accounted for 48.7%. This demonstrate almost equal proportions of both male and female respondents in the study sample. Therefore, opinions captured in the study were from a sample with an almost equal number of female and male students.

4.3.2 Respondents Age Profile

Table 4.2 presents the results of the analysis of data collected on the respondent's age.

Table 4.2: Respondents' Age Profile

Categories	Frequency	Percentage (%)
18-25 years	77	34.4%
26-33 years	124	55.4%
34-41 years	21	9.4%
42-49 years	2	0.9%
50 years and above	0	0.0 %
Total	224	100%

According to the findings in Table 4.2, 55.4% of the respondents were students aged between 26 and 33 years. This was followed by those who were aged between 18- and 25-years accounting for 34.4% of all respondents. The distribution of the respondents' age indicates that nearly 90% of all the respondents were between 18 and 33 years, thus were youthful.

4.3.3 Respondents Academic School Profile

In this question, the respondents were requested to indicate their academic schools in the University and the findings are shown in Table 4.3.

Table 4.3: Distribution of Respondents by Academic School

Categories	Frequency	Percentage (%)
Business and Economics	62	27.7%
Medicine and Health Sciences	21	9.4%
Science and Technology	48	21.4%

Education and Social Sciences	93	41.5%
Total	224	100%

As shown in Table 4.3, majority of (41.5%) of all the respondents were drawn from the School of Education of Social Sciences followed by those in the School of Business and Economics accounting for 27.7%. The respondents that were drawn from the School of Medicine and Health Sciences and Science and Technology accounted for 9.4% and 21.4% respectively. This information indicates that all the academic schools were well represented in the study. The values of the number of respondents were proportionate to the number of students in each academic school with the highest number in the school of education and social sciences followed by the school of business.

4.3.4 Respondents Year of Study Distribution

The findings of the respondents' year study shown in Table 4.4.

Table 4.4: Analysis of Respondents' Year of Study

Categories	Frequency	Percentage (%)
1 st year	54	24.1%
2 nd year	56	25.0%
3 rd year	48	21.4%
4 th year	44	19.6%
5 th year	22	9.8%
Total	224	100%

Based on the findings, the year of study distribution of the study respondents demonstrates majority of students were in the 2nd and 1st year of study accounting for 25% and 24% respectively. These results demonstrated that majority of participants in the study were freshmen and women in the University who must have undergone orientation of the available students' support systems available in KeMU.

4.3.5 Respondents' Level of Study Profile

The respondents were requested to indicate their level of study. The findings on the analysis of students' level of study exhibited in Table 4.5.

Table 4.5: Analysis of the Respondents Level of Study Profile

Categories	Frequency	Percentage (%)
Certificate	31	13.8%
Diploma	36	16.1%
Undergraduate	112	50.0%
Masters	27	12.1%
Ph. D	18	8.0%
Total	224	100%

From the findings, majority of the respondents' (50.0%) were studying undergraduate degree programmes, 16.1% were studying diploma programmes, and 13.8% were studying certificate programmes. The number of respondents studying masters and doctorate degrees decreased accounting for 12.1% and 8.0% respectively. These findings pointed to the nature of low number of students studying graduate studies when compared to those studying undergraduate programmes in Universities in Kenya. In addition, the findings implied that respondents were well knowledgeable to respond to the questionnaires and hence higher chances of reliable data.

4.4. Automation of Student Support Services

The study participants were requested to indicate their level of agreement with regard to whether the University had automated students' support services. The findings with regard to the automation of student support services presented in Table 4.6. As indicated in Table 4.6, the aggregate mean of all items used to measure automation of student support services was 4.26 with a standard deviation of 1.0143. This implies that on average the respondents affirmed that the University has indeed automated the student support systems. The less

than 1.00 standard deviations indicate that there were minimal variations in the responses provided by the respondents.

Table 4.7: Descriptive Analyzes of Automation of Student Support Services

Statements	Mean	SD
The University has automated registration for courses/units	4.32	0.8412
I can access programmes information online	4.56	0.7418
The University provides teaching and examination timetables online	4.26	0.9659
I can access information regarding co-curricular activities online	4.03	1.2568
I can access my registered units and examination results online through my student portal	4.23	0.9588
The University has enabled online chaplaincy services	4.12	1.1745
I can access University important dates online	4.51	0.7196
The University has digitized systems of issuing transcripts and certificates	4.03	1.2389
The University has digitized all library services	4.26	0.9234
Composite Mean	4.26	1.0143

Notes = 224, *SD* = Standard Deviation

Specifically, respondents' level of agreement was high on access to programmes and courses' information online ($M = 4.56$, $SD = 0.7418$). In addition, respondents indicated that that they could access University important dates online ($M = 4.51$, $SD = 0.7196$) and registration for courses was automated ($M = 4.32$, $SD = 0.8412$). Likewise, respondents agreed that the University provided teaching and examination timetables online ($M = 4.26$, $SD = 0.9659$) and all library services were digitized ($M = 4.26$, $SD = 0.9234$).

4.5 Descriptive Statistics for Perceived Usefulness

The study respondents were requested to rate their level of agreement regarding their perceived usefulness of the support systems in KeMU. Table 4.7 exhibits the frequencies, percentages, means and standard deviations of the responses from the respondents. The overall mean for all items used to measure perceived usefulness is 3.99 with a standard

deviation of 1.2951 indicating that respondents affirmed perceived usefulness as a determinant of automation of automation of student support services. As presented, respondents agreed that using the support systems improves performance of their school-related tasks ($M = 4.12$, $SD = 1.0835$). Likewise, respondents agreed that using student support systems increases productivity for their school-related tasks wherever they were required to accomplish ($M = 3.96$, $SD = 1.2634$).

Table 4.7: Descriptive Analyzes of Perceived Usefulness of Student Support Systems

Statements	Mean	SD
Using the support systems improves performance for my school-related tasks	4.12	1.0835
Using the support systems increases productivity for my school-related responsibilities	3.96	1.2634
Using the support systems enhances my effectiveness for my school-related tasks	3.85	1.4682
Using the support systems would make my school-related tasks effective and easier	4.03	1.3208
Composite Mean	3.99	1.2951

Notes. N = 224, SD = Standard Deviation

In addition, respondents agreed that using the support systems enhance their effectiveness for their school-related tasks ($M = 3.85$, $SD = 1.4682$). Along similar lines, respondents agreed that using the support systems would make their school-related tasks effective and easier ($M = 4.03$, $SD = 1.3208$). The qualitative results from the analysis of data collected from ICT officers indicated similar patterns. For example, one ICT had this to say:

“The students’ support services are useful to all students. In fact, all students rely on the automated services in order to accomplish their academic goals.”

4.6 Descriptive Statistics for Perceived Ease of Use

The respondents were requested to rate their level of agreement on items of perceived ease of use and the findings presented in Table 4.8.

Table 4.8: Descriptive Analyzes of Perceived Ease of Use of Student Support Systems

Statements	Mean	SD
Interacting with the support systems does not require a lot of my mental effort	2.98	1.4652
I find the support systems to be easy to use	4.56	0.7596
My interaction with the support systems is clear and understandable	4.85	0.4538
It would be easy for me to become skilful at using the support systems	4.53	0.8179
Composite Mean	4.23	1.1990

Notes. N = 224, *SD* = Standard Deviation

As indicated in Table 4.8, the overall mean is 4.23 with a standard deviation of 1.1990 demonstrating that respondents affirmed that perceived ease of use is a determinant of automation of student support services at KeMU. Nevertheless, looking at the individual items of the construct, the respondents disagreed that interacting with student support systems does not require a lot of their mental effort ($M = 2.98$, $SD = 1.4652$). This demonstrated that it really required a lot of mental concentration for students to interact with the support systems available at KeMU. However, majority of respondents found the support systems easy to use ($M = 4.56$, $SD = 0.7596$) and pointed out that interacting with the systems was easy and understandable ($M = 4.85$, $SD = 0.4538$). Moreover, the respondents agreed that it would be easy for them to become skilful at using the support systems ($M = 4.53$, $SD = 0.8179$). These results corroborated well with those from the ICT

officers who indicated that students did not have problems utilizing the available automated support services.

4.7 Descriptive Results for IT Infrastructure and Internet Skills

The third research question sought to establish the influence of IT infrastructure and users' internet skills on effective automation of student support systems at KeMU. Results presented in Table 4.9.

Table 4.9: Descriptive Analyzes of IT Infrastructure and Internet Skills

Statements	Mean	SD
The University has enough computers for use by students	2.98	1.4924
The University has good and current computers	2.76	0.9949
Communication lines are always clear and full of content	2.91	1.5627
All computers for use by students are all operating	2.88	1.6462
The computers have friendly operating systems	4.01	1.6857
The internet connection is faster	4.03	1.1318
All computers are connected to the internet	3.56	1.2550
The University has back-up power generators to support the computers in case of power black-out	4.12	1.5997
I feel confident using the support systems	4.23	1.0171
I consider myself to have adequate internet skills to use the student support systems	4.21	0.9622
Composite Mean	3.57	1.4859

Notes. N = 224, SD = Standard Deviation

As indicated, the respondents disagreed with KeMU has enough computers for use by students ($M = 2.98$, $SD = 1.4924$), the University has good and current computers ($M = 2.76$, $SD = 0.9949$), communication lines are always clear and full of content ($M = 2.91$, $SD =$

1.5627), and all computers for use by students are operating ($M = 2.88$, $SD = 1.6462$). However, respondents indicated that available computers have user-friendly operating systems ($M = 4.01$, $SD = 1.6857$), internet connection is faster ($M = 4.03$, $SD = 1.1318$), all computers are connected to the internet ($M = 3.56$, $SD = 1.2550$) and power back-ups are available in case of power failure ($M = 4.12$, $SD = 1.5997$). In addition, the respondents were confident with their ability to use the support systems ($M = 4.23$, $SD = 1.0171$) and felt they had adequate internet related skills to use the available systems ($M = 4.21$, $SD = 0.9662$). This demonstrated adequacy of internet skills to use available support systems. Results from ICT officers indicated that there were certain barriers that hindered effective automation of student support services. One ICT officer reported that:

“Communication to students especially from respective departments was wanting. Also, the University need to invest heavily on procuring computers of the current generation in order to fully maximize on the automated student support services.”

4.8 Descriptive Results of Self-competence

Table 4.10 exhibits the descriptive results of the analysis of the respondents' self-competence responses.

Table 4.11: Descriptive Results of Self-competence

Statement	Mean	SD
Nobody was there to help me	2.34	1.4463
I have not experienced a support system before	4.56	0.8641
I could refer to the usage manuals only	2.41	1.6637
I had seen another person utilizing it before	2.92	1.6606
I could seek the help of another person in case of a problem	2.89	1.6478
Another person assisted me to operate the system	4.13	1.1100
Composite Mean	3.21	1.6615

Notes. N = 224, SD = Standard Deviation

According to the findings in Table 4.10, the respondents disagreed that nobody was there to help them ($M = 2.34$, $SD = 1.4463$). This indicate that students were receiving the requisite support from the University to be able to use the available support systems. Moreover, the respondents agreed that they had no prior experience about how a support system operates ($M = 4.56$, $SD = 0.8641$) which underlines the necessity of the University support to help them *get along* well.

In addition, the respondents disagreed that they could only refer to the usage manuals ($M = 2.41$, $SD = 1.6637$) indicating that they were able to operate the support systems without reference to the usage manuals. The respondents equally disagreed to have seen another person utilize the support system before ($M = 2.92$, $SD = 1.6606$). In addition, the respondents could not seek the help of another person in case of a problem ($M = 2.89$, $SD = 1.6478$), though other respondents agreed to have received help from another person to operate the system ($M = 4.13$, $SD = 1.1100$).

4.9 Descriptive Results of Organizational Support

Table 4.11 demonstrates the means and standard deviations of the analysis of responses from the respondents with regard to organizational support.

Table 4.12: Descriptive Results of Organizational Support

Statements	Mean	SD
The ICT officers are innovative	4.23	0.9622
The ICT officers have a good attitude towards the support systems	4.12	0.9994
The University management is committed and support the student systems	2.95	1.6830
Management rectifies the systems promptly whenever they fail	2.88	1.6499
I believe the management of the University is supportive	2.01	1.4110
The kind of training provided to me was comprehensive enough to use the systems	2.03	1.4108
My level of understanding substantially improved after going through the training program to use the systems	2.16	1.4873
The training gave me confidence in the use of the systems	2.21	1.4829
Composite Mean	2.82	1.6459

Notes. N = 224, *SD* = Standard Deviation

As indicated, the respondents' level of agreement was high on the innovativeness of the University ICT officers ($M = 4.23$, $SD = 0.9622$) followed by the ICT officers have a good attitude towards the support services ($M = 4.12$, $SD = 0.9994$). However, the respondents disagreed that the training they had received on the use of support systems gave them the confidence ($M = 2.21$, $SD = 1.4829$). Moreover, respondents indicated that the University management is not committed and does not support the student automated services ($M = 2.01$, $SD = 1.11$). Likewise, the respondents did not believe that the management of the University is supportive ($M = 2.01$, $SD = 1.16$). Along similar lines, respondents disagreed that the training provided was comprehensive enough to enable them use the automated support services ($M = 2.03$, $SD = 1.10$), and the level of understanding substantially improved following the training programme on the use of the automated support services

received a low rating ($M = 2.16$, $SD = 1.4873$). Additionally, the respondents indicated that the management of the University does not rectify or correct the support systems promptly in case of failures ($M = 2.88$, $SD = 1.6499$). Analysis of the data collected from the ICT officers revealed that, the management of the University needed to do more in areas of adding more officers and facilitating periodical training.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS ,CONCLUSIONSAND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the study, presents the research conclusions and the recommendations of the study.

5.2 Summary

The key objective of the study was to establish the factors influencing effective automation of student support services—a case study of Kenya Methodist University.

5.2.1 Automation of Student Support Services

The study found out that the means for all the items used to indicate effective automation of student support services ranged from 4.03 to 4.56 specifically, the study found out that students had access to programmes and course information online as shown by the mean of 4.56. In addition, the study findings revealed that the students were able to access the University important dates online ($M = 4.51$), and registration of courses was automated ($M = 4.32$). The study also found out that the University provided teaching and examination timetables online ($M = 4.26$) and that all library support services were digitized ($M = 4.26$).

5.2.2 Perceived Usefulness

The study found out that 32% and 45% of the respondents agreed and strongly agreed that using the automated support services improved performance of their school-related tasks as shown by the mean of 4.12. In addition, the study found out that 28% and 31% agreed and strongly agreed that using the automated student support services increased productivity for their school-related tasks whenever they were required to accomplish. Along the similar

lines, the study found out that 28% and 33% of the respondents agreed and strongly agreed that using the automated student support services enhanced their effectiveness for their school-related services. In addition, the study found out that 34% agreed and 41% strongly agreed that using the automated student support services would make their school-related tasks effective and easier as shown by the mean of 4.03.

5.2.3 Perceived Ease of Use

The study found out that 42% of the respondents disagreed that interacting with automated student support services did not require a lot of their mental effort as shown by the mean of 2.98. In addition, the study indicated that the respondents found the automated support services ease to use ($M = 4.56$) and interacting with the support systems was easy and understandable ($M = 4.85$).

5.2.4 IT Infrastructure and Internet Skills

The study found out that the University has inadequate computers for use by students ($M = 2.98$), uses old computers ($M = 2.76$), and that communication lines are not always clear and full of content ($M = 2.91$). The study also found out that all the computers for use by the students were in good operating conditions ($M = 2.88$). However, the study found out that the available computers are installed with friendly operating systems ($M = 4.01$), are connected to the internet ($M = 3.56$), and power back-ups are available in case of power failure ($M = 4.12$). Likewise, the study found out that the students believed they had adequate internet related skills to use the available automated student support services as shown by the mean of 4.21.

5.2.5 Self-competence

The study found out that 55% of the respondents disagreed that nobody was there to assist them ($M = 2.34$), although 64% reported that they did not have prior experience about how a support system operates ($M = 4.56$). Additionally, the study found out that there were no manuals for use by the students ($M = 2.41$). However, the study found out that respondents were assisted by another person to use the automated student support services ($M = 4.13$).

5.2.6 Perceived Organizational Support

The study found out that the ICT officers were innovative ($M = 4.23$) and had positive attitude towards automation of student support services ($M = 4.12$). However, the study found out that the University management was not committed and does not support effective automation of student support services as shown by the mean $M = 2.01$. Along the similar lines, the study found out that the training provided was inadequate ($M = 2.03$).

5.3 Discussions

This section presents the discussion of the study findings in line with the objectives of the study. More importantly, this drew comparisons with similar empirical studies that have focused on various determinants of adoption of technology in organisations. Consequently, the first objective of the study focused on how the issues of perceived usefulness and ease of use can in one way or the other influence adoption of automation processes in the selected University. From the results, it was established that 28% and 33% of the respondents agreed and strongly agreed respectively to the fact that automated student support services enhanced the effectiveness for school related services. Accordingly, these findings corroborated what was observed earlier on by Upadhyay *et al.* (2018) who pointed out the fact that a belief that a particular system will enhance the performance mostly act as a motivator for an individual make use of the technology. The same idea was also recently

collaborated in a study conducted in China by Wang and Li (2019) whose study findings indicated that information systems use behavior is mostly driven by what the prospective users feel that the system is going to be useful in some way.

Yet another important aspect as far as the present study is concerned was the issue of ease-of-use. In line with this, it was found out that the idea that automated student support services would make their school-related tasks effective and easier yielded a high value of the arithmetic mean, $M = 4.03$. Firstly, such findings corroborate the findings of a study conducted in Oman by Al-Suqri (2014) who after conducting an empirical survey on use of E-books by faculty members in Sultan Qaboos University stressed on the importance of ease-of-use as a determinant of adoption of technology in organizations. Such position was also recently collaborated in a study conducted by Daud, Farida and Razak (2018) who after carrying out an empirical survey were able to establish that perceived ease-of-use plays an important role as a determinant of adoption of a given technology in an organization.

Moreover, yet another objective of the study was to establish how it infrastructure and internet skills act as determinants of adoption of technology in the selected University. From the study findings, it was found out that the issue of connectivity to the internet scored $M=3.56$. Moreover, it was a found out from the analysis of the findings that the students believed they had adequate internet related skills in order to use the available automated student support system with a value of $M = 4.21$. The findings therefore were in agreement with what was observed earlier by Ahire (2017) whose findings indicated that internet connectivity is an important determinant of adoption of automation in organisations. Furthermore, the findings on the aspect of internet connectivity corroborate what Gupta,

Qian, Bhushan and Luo (2018) who stressed on the importance of internet connectivity especially as an important determinant of technology adoption in internet-driven information systems observed earlier.

The next objective of the study was to establish whether self-competence was a determinant of adoption of technology in the selected University. From the descriptive analysis, it was established that the notion that the respondents were helped by another person in order to use automated student support services yielded $M = 4.13$. This assistance in order to improve their skill-set in using automation processes corroborates the findings of an empirical survey conducted in the UK manufacturing industry by Jayawickrama, Liu and Smith (2016) who pointed out that an improvement in a knowledge and skills in making use of ICT system is an important determinant of adoption of technology in an organization. Similarly, the findings of the study were in agreement with what was observed recently by Santos, Santana and Elhimas (2018) who stressed on the importance of relevant skill sets as an important determinant of adoption of a given technology in organizations.

The fourth and last objective of the study sought to establish the influence of perceived organisational support on automation processes in the selected University. Consequently, after conducting descriptive analysis it was found out that the issue of university management not being committed to support automation of student support services scored $M = 2.01$. Obviously, this lack of sufficient support is what maybe a challenge to efficiently make use of the available student support system. This is in line with what was observed in an empirical survey conducted in Korea by DonHee *et al.* (2010), where the findings of the study indicated that proper support from the organisation plays an important role as a

determinant of adoption of a technology. Furthermore, the findings of the study corroborate what was observed in an empirical survey conducted in Tanzania by Okay and Sam (2019) where it was clearly articulated that organizational support plays a critical role in ensuring success of implementation of a given technology in an organization.

5.4 Conclusions

The study concludes that students—as users of automated support services in KeMU perceive the services as useful and important. The automated student support services enhance students' effectiveness for their school-related services. With regard to perceived ease of use, the study concludes that the automated student support services are easy to use and understandable. On IT infrastructure and internet skills, the study concludes that the University has inadequate resources in form of computers for use by students. The study further concludes that, the University has for long being using archaic computers and that communication lines are not always clear. With regard to self-competence, the study concludes that students are not fully able to utilize automated student support services. The study further concludes that the University management commitment to effective automation of student support services was inadequate. Furthermore, the study concludes that training conducted to help students utilize automated support services effectively was not adequate.

5.5 Recommendations of the Study

5.5.1 Recommendations for Policy and Practice

1. Automated student support services enhance students' effectiveness for their school-related services. Thus, the study recommends that there is need for the University management to invest in IT infrastructure and internet skills of the students.

2. The study recommends that there is need for the University management to invest in the purchase of current generation computers in order to maximize on the benefits of the available automated student support services.
3. The findings indicate that students are not able to utilize the available automated support services, thus the study recommends the management of the University to ensure that students are inducted and oriented at the point of entry with regard to available automated support services.
4. As they continue with their academics, the study recommends management of KeMU to ensure that students are taken through periodical training in order to hone their skills on usage of available automated support services.
5. The success and effectiveness of automated support services at the University relies heavily on the top management support. Therefore, the study recommends management of KeMU to fully provide the much-needed support in order to ensure effectiveness of automated student support services.

5.5.2 Recommendations for Further Research

There are several recommendations for further research. First, the study used descriptive cross-sectional research design. Thus, changes in effective automation of the student support services are not considered in the study. Therefore, the study recommends use of a descriptive longitudinal research in order to track changes. Second, the study was carried out in one University, thus results cannot be generalized to other Universities in Kenya. Thus, there is need for further research that would enlarge this scope to enhance generalization of the study results. Lastly, further studies should use more robust models to

examine the relationships that exist between the study independent variables and the dependent variables.

REFERENCES

- Achargui, A. A., & Zaouia, A. (2016). Traditional, Web-based or Internet-enabled ERP systems adoption for SMEs in Developing Countries. In *2016 5th International Conference on Multimedia Computing and Systems (ICMCS)* (pp. 676-680). IEEE.
- Aharony, N. (2015). An exploratory study on factors affecting the adoption of cloud computing by information professionals. *The Electronic Library*, 33(2). <https://doi.org/10.1108/EL-09-2013-0163>
- Ahmed, S.M. (2014). Use of electronic resources by the faculty members in diverse public universities in Bangladesh. *The Electronic Library*, 31, 290-312.
- Ajibade, P. (2018). Technology Acceptance Model Limitations and Criticisms: Exploring the Practical Applications and Use in Technology-related Studies, Mixed-method, and Qualitative Researches. *Technology*.
- Al-Ajam, A. S., & Nor, K. (2013). Influencing factors on behavioral intention to adopt Internet banking service. *World Applied Sciences Journal*, 22(11), 1652-1656.
- Al-Suqri, M. N. (2014). Perceived usefulness, perceived ease-of-use and faculty acceptance of electronic books. *Library Review*, 63(4/5). <https://doi.org/10.1108/LR-05-2013-0062>
- Aremu, A. Y., & Shahzad, A. (2015). Enterprise Resource Planning (ERP) Intention to Use for Decision Making Purpose in Higher Education Institutions in Nigeria. *International Journal of Management and Social Sciences Research (IJMSSR)*.
- Asiri, M. J. (2019). Do Teachers' Attitudes, Perception of Usefulness, and Perceived Social Influences Predict Their Behavioural Intentions to Use Gamification in EFL Classrooms? Evidence from the Middle East. *International Journal of Education and Practice*, 7(3), 112-122.
- Bandura, A. (1995). *Self-efficacy in changing societies*. Cambridge: Cambridge University Press
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY, US: W H Freeman/Times Books/ Henry Holt & Co.
- Barman, S., Pal, S., Ganguly, S. S., & Biswas, S. K. (2018). Parenting children with cancer: Impact assessment on quality of life using World Health Organization quality of life

- tool-BREF tool. *International Journal of Medical Science and Public Health*, 7(3), 225-229.
- Barrientos, A. H., & Andrade, Y. D. (2017). Modelling and Simulation of Complex Adaptive System: The Diffusion of Socio-Environmental Innovation in the RENDRUS Network. *Computer Simulation*, 1.
- Bocarnea, M. C., Henson, J., Huizing, R. L., Mahan, M., & Winston, B. E. (2018). Validity and Reliability of the Nine Scales. In *Evaluating Employee Performance through Christian Virtues* (pp.147-151). Palgrave Macmillan, Cham.
- Borstorff, P.C., & Lowe, S.K. (2007). Students Perceptions and Opinions Toward E-learning in the College Environment. *Academy of Educational Leadership Journal*, 11 (2), 13-29.
- Bryman, A., & Bell, E. (2015). *Business Research Methods*. Oxford University Press.
- Camilleri, A., & Camilleri, M. A. (2019). The Students' Perceived Use, Ease of Use and Enjoyment of Educational Games at Home and at School. In *Camilleri, AC & Camilleri, MA (2019). The Students' Perceived Use, Ease of Use and Enjoyment of Educational Games at Home and at School. 13th Annual International Technology, Education and Development Conference. Valencia, Spain (March, 2019). International Academy of Technology, Education and D.*
- Cao, X., Chen, L., Tian, L., & Diao, Y. (2016). The effect of perceived organizational support on burnout among community health nurses in China: the mediating role of professional self- concept. *Journal of Nursing Management*, 24(1), E77-E86.
- Cheah, Teo, Sim, Oon, & Tan (2011). Factors Affecting Malaysian Mobile Banking Adoption: An Empirical Analysis. *International Journal of Network and Mobile Technologies*, 2(3), 149-160.
- Comer, K. F., Gibson, P. J., Zou, J., Rosenman, M., & Dixon, B. E. (2018). Electronic Health Record (EHR)-Based Community Health Measures: An Exploratory Assessment of Perceived Usefulness by Local Health Departments. *BMC public health*, 18(1), 647.
- Daud, A., Farida, N., & Razak, M. (2018). Impact of customer trust toward loyalty: the mediating role of perceived usefulness and satisfaction. *Journal of Business and Retail Management Research*, 13(2).

- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
- de Ruyter, K., & J. Semeijn (2001). Forging buyer-seller relationships for total quality management in international business: The case of the European cement industry. *Total Quality Management*, 13(3), 403–17.
- Dickinson, L. (2018). Are Our Institutional Models Contributing to Student “Failures”? *Explorations in Adult Higher Education*, 80.
- Ding, Z., Saide, S., Siti Astuti, E., Muwardi, D., Najamuddin, N., Jannati, M., & Herzavina, H. (2019). An adoption of acceptance model for the multi-purpose system in university library. *Economic Research-Ekonomska Istraživanja*, 32(1), 2393-2403.
- Egoeze, F., Misra, S., Maskeliūnas, R., & Damaševičius, R. (2018). Impact of ICT on Universities Administrative Services and Management of Students’ Records: ICT in University Administration. *International Journal of Human Capital and Information Technology Professionals (IJHCITP)*, 9(2), 1-15.
- Emani, S., Peters, E., Desai, S., Karson, A. S., Lipsitz, S. R., LaRocca, R., ..., & Williams, D. H. (2018). Perceptions of adopters versus non-adopters of a patient portal: an application of diffusion of innovation theory. *BMJ Health & Care Informatics*, 25(3), 149-157.
- Erasmus, E., Rothmann, S., & Van Eeden, C. (2015). A structural model of technology acceptance. *SA Journal of Industrial Psychology*, 41(1), 01-12.
- Fröhlich, P., Baldauf, M., Meneweger, T., Erickson, I., Tscheligi, M., Gable, T., ..., & Paternò, F. (2019, April). Everyday Automation Experience: Non-Expert Users Encountering Ubiquitous Automated Systems. In *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems* (p. W25). ACM.
- Garg, S., & Dhar, R. (2015). Effects of Leader-Member Exchange (LMX), affective commitment and psychological empowerment on hotel employees’ extra-role customer service: A mediated moderation analysis. *International Journal of Hospitality and Tourism Administration*.
- Ghazizadeh, M., Lee, J.D., & Boyle, L.N. (2012). Extending the technology acceptance model to assess automation. *Cognitive, Technology & Work*, 14(1), 30-49.

- Gono, S., Harindranath, G., & Özcan, G. B. (2016). The adoption and impact of ICT in South African SMEs. *Strategic Change*, 25(6), 717-734.
- Gottge, S., Menzel, T., & Forslund, H. (2018, June). AN EXPECTED PURCHASING 4.0 PROCESS. In *The UI Annual NOFOMA Conference* (p. 97).
- Gupta, S., Qian, X., Bhushan, B., & Luo, Z. (2018). Role of cloud ERP and big data on firm performance: a dynamic capability view theory perspective. *Management Decision*.
- Haruna, S., & Kassim, N. M. (2019). Conceptual Framework on Factors That Influencing the Intention of Accounting Staff To Use ECollection System in State-Owned Tertiary Institutions in Nigeria. *Global Business & Management Research*, 11(2).
- Ivanovna, M. L., & Sabirjanovich, K. A. (2017). Educational Management in University on the Basis of Database Management System. *DEStech Transactions on Social Science, Education and Human Science*, (eiem).
- Jayawickrama, U., Liu, S., & Smith, M. H. (2016). Empirical evidence of an integrative knowledge competence framework for ERP systems implementation in UK industries. *Computers in Industry*, 82, 205-223.
- Merchant, H. K., & Ahire, D. D. (2017). Industrial automation using IoT with raspberry pi. *International Journal of Computer Applications*, 168(1), 44-46.
- Mitchel, J., Kavanagh, M., & Tracey, J. (2013). Got support? The impact of supportive work practices on the perceptions, motivation, and behaviour of customer-contact employees. *Cornell Hospitality Quarterly*, 54(2), 161–173.
- Moon, J.W., & Kim, Y.G., 2001. *Extending the TAM for a World-Wide-Web context*. *Information and Management*, 38, 217-230.
- Muchran, M., & Ahmar, A. S. (2019). Application of TAM model to the use of information technology. *arXiv preprint arXiv:1901.11358*.
- Mugenda, O., & Mugenda, A. (2003). *Research Methods Quantitative and Qualitative Approaches*. Nairobi: ACTS Press.
- Munoz-Leiva, F., Climent-Climent, S., & Liébana-Cabanillas, F. (2017). Determinants of intention to use the mobile banking apps: An extension of the classic TAM model. *Spanish Journal of Marketing-ESIC*, 21(1), 25-38.
- Nees, M. A. (2016, September). Acceptance of self-driving cars: An examination of idealized versus realistic portrayals with a self-driving car acceptance scale.

- In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (Vol. 60, No. 1, pp. 1449-1453). Sage CA: Los Angeles, CA: SAGE Publications.
- Nugroho, M. A., Dewanti, P. W., & Novitasari, B. T. (2018, September). The Impact of Perceived Usefulness and Perceived Ease of Use on Student's Performance in Mandatory E-Learning Use. In *2018 International Conference on Applied Information Technology and Innovation (ICAITI)* (pp. 26-30). IEEE.
- Okey, A., & Sam, A. E. (2019). Web-based Application Tool for Recommendation of Open Source Software for Higher Learning Institution in Tanzania. *International Journal of Modern Education and Computer Science*, *11*(2), 33.
- Okiro, K., & Ndung'u, J. (2013). The Impact of Mobile and Internet Banking on Performance of Financial Institutions in Kenya. *European Scientific Journal*, *9*(13), 1857-7431.
- Okoro, K., Okeke, C. F., Chukwuji, C. E., Olelewe, C. J., & Nwachukwu, N. A. (2018). Evaluation of the Extent of School Access Programme's Contribution to Computer Education Studies in South-East Nigeria. *International Journal of Applied Engineering Research*, *13*(21), 15072-15077.
- Redmond, B.F. (2010). Self-Efficacy Theory: Do I think that I can succeed in my work? Work Attitudes and Motivation. The Pennsylvania State University; World Campus.
- Redza, A., Nordin, S. M., & Saad, M. S. M. (2017). The Innovative Society: A Comparison Study of Innovation Diffusion among Farmers in Malaysia Two Major Granary Area. *Global Business and Management Research*, *9*(1s), 703.
- Salkind, N. (2003). *Exploring Research* (5th ed.). Upper Saddle River, NJ: Pearson Education.
- Santos, S. C., Santana, C., & Elhimas, J. M. C. (2018). Critical Success Factors for ERP Implementation in Sector Public: An Analysis based on literature and a Real Case. In *ECIS* (p. 180).
- Sharma, G., Singh, T., & Awasthi, S. (2018). A Study on the Effect of Perceived Usefulness, Social Value and Monetary Value on Intention to Adopt Financial Services. *International Journal of Banking, Risk and Insurance*, *6*(2), 29.

- Sharma, R., & Mishra, R. (2015). A review of evolution of theories and models of technology adoption. *Indore Management Journal*, 6(2), 17-29.
- Szajna, B. (1996) *Empirical Evaluation of the Revised Technology Acceptance Model*. *Management Science*, 42, 85-92. <http://dx.doi.org/10.1287/mnsc.42.1.85>.
- Tan, M., & Teo, T. S. H. (2000). Factors Influencing the Adoption of Internet Banking. *Journal of the Association for Information Systems*, 1(1). Retrieved from <https://aisel.aisnet.org/jais/vol1/iss1/5>.
- Xu, W., Ou, P., & Fan, W. (2017). Antecedents of ERP assimilation and its impact on ERP value: A TOE-based model and empirical test. *Information Systems Frontiers*, 19(1), 13-30.
- Yang, X. J., Unhelkar, V. V., Li, K., & Shah, J. A. (2017, March). Evaluating effects of user experience and system transparency on trust in automation. In *2017 12th ACM/IEEE International Conference on Human-Robot Interaction (HRI)* (pp. 408-416). IEEE.
- Zheng, Y., Wang, J., Doll, W., Deng, X., & Williams, M. (2018). The impact of organizational support, technical support, and self-efficacy on faculty perceived benefits of using learning management system. *Behaviour & Information Technology*, 37(4), 311-319.

APPENDICES

Appendix 1: Letter of Introduction

UNIVERSITY OF NAIROBI
School of Continuing and Distance Education
School of Open and Distance Learning

Dear Sir/Madam,

My name is **Joel Ng'ang'a Itube** – a Master's student in the **School of Continuing and Distance Education** pursuing a Master of Arts in Project Planning and Management of the University of Nairobi. My study is titled: **Factors affecting automation of student support services at Kenya Methodist University**. I would like your assistance in filling the questionnaire and please note that your participation is appreciated in advance. In addition, your participation in the study is voluntary and you can refuse to participate or withdraw from the study at any stage without any risk or harm. In addition, the information gathered during this survey will remain confidential. Only the researcher will have access to the study data and information. Also note that, you will not be required to include your name on the questionnaire to ensure anonymity of the data provided.

Thank You.

Yours sincerely,
Joel Ng'ang'a Itube

Appendix 2: Questionnaire for the Students/Users

PART ONE

This part is designed to collect information on participant’s *demographic information*. You are required to respond to all questions.

1. **Gender:** *Male* *Female*

2. **Your age in years** [*tick appropriately*]

18 and 25 *26-33* *34-41* *42-49* *50 and above*

3. **Academic School:**

Business and Economics *Medicine & Health Sciences* *Science and Technology*
Education and Social Sciences

4. **Year of Study**

1st year *2nd Year* *3rd Year* *4th Year* *5th Year* *Others:* _____

5. **Level of Study**

Certificate *Diploma* *Undergraduate degree* *Master’s Degree*
Ph.D. *Others:* _____

PART TWO

This part is designed to collect information regarding **PERCEIVED USEFULNESS** with regard to student support systems in the University. You are required to answer all questions. Please note that all questions are based on a 5-point Likert scale where **5 = Strongly Agree (SA)**, **4 = Agree (A)**, **3 = Undecided (UD)**, **2 = Disagree (D)** and **1 = Strongly Disagree**

	1	2	3	4	5
Using the support systems improves performance for my school-related tasks.					
Using the support systems increases productivity for my school-related tasks.					
Using the support systems enhances my effectiveness for my school-related tasks.					
Using the support systems would make my effectiveness for my school-related tasks easier.					

Please give your views with regard to perceived usefulness of student support services

PART THREE

This part is designed to collect information on **PERCEIVED EASE OF USE** with regard to student support systems in the University. You are required to respond to all questions in a scale of 1 to 5 (*5 = Strongly Agree (SA), 4 = Agree (A), 3 = Undecided (UD), 2 = Disagree (D) and 1 = Strongly Disagree*).

	1	2	3	4	5
Interacting with the support systems does not require a lot of my mental effort.					
I find the support systems to be easy to use.					
My interaction with the support systems is clear and understandable.					
It would be easy for me to become skilful at using the support systems					

Please give your views with regard to perceived ease of use of student support services

PART FOUR

This part is designed to collect information on **IT INFRASTRUCTURE AND INTERNET SKILLS** with regard to student support systems in the University. You are required to respond to all questions in a scale of 1 to 5 (*5 = Strongly Agree (SA), 4 = Agree (A), 3 = Undecided (UD), 2 = Disagree (D) and 1 = Strongly Disagree*).

	1	2	3	4	5
The University has enough computers for use by students					
The University has good and current computers					
Communication lines are always clear and full of content					
All computers for use by students are all operating					
The computers have friendly operating systems					
The internet connection is faster					
All computers are connected to the internet					
The University has back-up power generators to support the computers in case of power black-out					
I feel confident using the support systems					
I consider myself to have adequate internet skills to use the student support systems					

Please comment on the University IT infrastructure and your opinion about your internet skills with regard to student support services _____

PART FIVE

This part is designed to collect information on **SELF-COMPETENCE** with regard to student support systems in the University. You are required to respond to all questions in a scale of 1 to 5 (*5 = Strongly Agree (SA), 4 = Agree (A), 3 = Undecided (UD), 2 = Disagree (D) and 1 = Strongly Disagree*).

<i>I could complete the required tasks using the support system if:</i>	1	2	3	4	5
Nobody was there to help me					
I have not experienced a support system before					
I could refer to the usage manuals only					
I had seen another person utilizing it before					
I could seek the help of another person in case of a problem					
Another person assisted me to operate the system					

Please comment on your self-competence with regard to student support services_____

PART SIX

This part is designed to collect information on **ORGANIZATIONAL SUPPORT** with regard to student support systems in the University. You are required to respond to all questions in a scale of 1 to 5 (*5 = Strongly Agree (SA), 4 = Agree (A), 3 = Undecided (UD), 2 = Disagree (D) and 1 = Strongly Disagree*).

	1	2	3	4	5
The ICT officers are innovative					
The ICT officers have a good attitude towards the support systems					
The University management is committed and support the student systems					
Management rectifies the systems promptly whenever they fail					
I believe the management of the University is supportive					
The kind of training provided to me was comprehensive enough to use the systems					
My level of understanding substantially improved after going through the training program to use the systems					
The training gave me confidence in the use of the systems					

Please give your opinions on organizational support with regard to student support services in the University:_____

PART SEVEN

This part is designed to collect information on **AUTOMATION OF STUDENTS' SUPPORT SERVICES**. Please tick on the provided spaces in the table below to show your level of agreement on issues pertaining automation of students' support services in the University, where **5 = Strongly Agree (SA)**, **4 = Agree (A)**, **3 = Undecided (UD)**, **2 = Disagree (D)** and **1 = Strongly Disagree**.

	1	2	3	4	5
The University has automated registration for courses/units					
I can access programmes information online					
The University provides teaching and examination timetables online					
I can access information regarding co-curricular activities online					
I can access my registered units and examination results online through my student portal					
The has enabled online chaplaincy services					
I can access University important dates online					
The University has digitized systems of issuing transcripts and certificates					
The University has digitized all library services such as access to past paper examinations, online communication with the librarian through ask-a-librarian module, access to eBooks among others.					

Thank you for your Participation

Appendix 3: Interview Guide for the ICT officers, Registrar of Academics and Lecturers

My name is **Joel Nga’ng’a Itube** – a Master’s student in the **School of Continuing and Distance Education** pursuing a Master of Arts in Project Planning and Management of the University of Nairobi. My study is titled: **Factors affecting automation of student support services at Kenya Methodist University**. I would like to ask you some questions about automation of student support services in your organization.

Please note that all information provided by you shall be treated with utmost confidentiality and results will be utilized for the purpose of this study only.

Designation _____
Gender: M / F Date: _____ Time: [start] _____ [finish] _____

Questions

- 1. Kindly indicate the ways in which your organization has automated student support services in the University _____

- 2. Please comment about the perceived usefulness with regard to student support services _____

- 3. What can you say about perceived ease of use of student support services _____

- 4. Please provide your views on the University ICT infrastructure _____

5. What can you say about your internet skills?

6. Please comment about University support of student support services_____

7. What can you say about the students' self-competence with regard to the use of support services_____

8. Please comment about the overall automation of student support services in the University:_____

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is Guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014

CONDITIONS

1. The License is valid for the proposed research, location and specified period
2. The License any any rights thereunder are non-transferable
3. The Licensee shall inform the relevant County Governor and County Commissioner before commencement of the research
4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies
5. The License does not give authority to transfer research materials
6. NACOSTI may monitor and evaluate the licensed research project
7. The Licensee shall submit one hard copy and upload a soft copy of their final report (thesis) within one of completion of the research
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice

National Commission for Science, Technology and Innovation
off Waiyaki Way, Upper Kabete,
P. O. Box 30623, 00100 Nairobi, KENYA
Land line: 020 4007000, 020 2241349, 020 3310571, 020 8001077
Mobile: 0713 788 787 / 0735 404 245
E-mail: dg@nacosti.go.ke / registry@nacosti.go.ke
Website: www.nacosti.go.ke