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STUDENTS' PERCEPTIONS AND USE OF THE SAKAI LEARNING
MANAGEMENT SYSTEM IN THE UNIVERSITY OF GHANA.

BY

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DECLARATION

I sincerely declare that this thesis is my own work and was supervised by Dr. Ebenezer Ankrah and assisted by Dr. Musah Adams. All the sources used have been duly acknowledged.

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DEDICATION

This study is dedicated to all members of the Darko family, Precious Boateng, all lecturers and students at the Department of Information Studies, and all my friends and loved ones for their unflinching support and progressive encouragement.

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TABLE OF CONTENTS

Declaration	i
Dedication	ii
Acknowledgement.....	iii
Table of Contents	iv
List of Tables	x
List of Figures	xii
Abstract	xiii
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.1.1 The Distance Education System in the University of Ghana.	4
1.1.2 Overview of Sakai Learning Management Systems in University of Ghana, Legon	6
1.2 Statement of the Problem.	9
1.3 Purpose of the Study	11
1.4 Objectives of the Study	11
1.5 Central Hypotheses	12
1.6 Theoretical Perspective	12
1.6.1 Technology Acceptance Model (TAM)	13
1.7 Scope of the Study.....	15
1.8 Significance of the Study.	16

1.9 Research Environment	17
1.9.1 University of Ghana.....	17
1.9.2 College of Education	18
1.9.3 Department of Distance Education.....	18
1.10 Ethical Consideration	19
1.11 Organisation of Work	20
CHAPTER TWO: LITERATURE REVIEW	22
2.1 Introduction	22
2.2 Concept of Electronic Learning	23
2.2.1 Categories of Electronic Learning	24
2.2.2 Learning Management Systems.....	25
2.2.3 Sakai Learning Management System (LMS)	27
2.3 Awareness of the Sakai LMS and its Tools.	29
2.3.1 Awareness of the Sakai LMS	29
2.3.2 Awareness of the Sakai LMS Tools.	32
2.4 Attitude and Intention to Use the Sakai LMS.	37
2.4.1 Attitude to Use the Sakai LMS.....	37
2.4.2 The Intention to Use the Sakai LMS	43
2.4 Computer Literacy Skills and Perceived Ease of Use of the Sakai LMS	44
2.5 Usefulness of the Sakai LMS.....	49

2.6 Extent of use of the Sakai LMS	55
2.7 Challenges in the Use of the Sakai LMS.....	59
2.7.1 Inadequate Training	59
2.7.2 Lack of ICT Infrastructure.....	60
2.7.3 Lack of Computer Skills.....	61
2.7.4 Lack of Internet Access	62
2.7.5 System Error (Failure)	63
2.7.6 Lack of Awareness.	64
2.7.7 System log in Failure.....	64
2.7.8 Unstable Power Supply	65
2.7.9 Complex System Interface.....	65
CHAPTER THREE: METHODOLOGY	65
3.1 Introduction	66
3.2 Research Design.....	66
3.3 Selection of Subjects	67
3.3.1 Population of the Study	68
3.3.2 Selection of Sample	69
3.3.2.1 Sample Size.....	69
3.4 Sampling Technique.....	72
3.5 Instrumentation.....	72

3.5.1 Data Collection Instrument	73
3.5.2 Pre-Testing.....	76
3.5.3 Validity and Reliability of the Instruments.....	76
3.5.3.1 Validity.....	76
3.5.3.2 Reliability.....	76
3.5.4 Data Collection Procedure	78
3.6 Analysis and Presentation of Data.	79
CHAPTER FOUR: ANALYSES AND PRESENTATION OF DATA	81
4.1 Introduction	81
4.2 Demographics Data of Respondents.	82
4.2.1 Gender	82
4.2.2 Age.....	83
4.3 Awareness of the Sakai LMS and its Tools	84
4.3.1 Awareness of the Sakai LMS	85
4.3.3 Awareness of the Sakai LMS Tools.	87
4.4 Students' Attitudes and Intention to Use the Sakai LMS.	88
4.4.1 Attitudes towards the Use of the Sakai LMS.	89
4.4.2 Students' Intention to Use the Sakai LMS.	93
4.5 Computer Literacy Skills and Perceived Ease of Use of the Sakai LMS.	95
4.5.1 Computer Literacy Skills.....	96

4.5.2 Perceived Ease of Use of the Sakai LMS.	103
4.7 Perceived Usefulness of the Sakai LMS.	106
4.7.1 Perceived Contribution of the Sakai LMS on Academic Work.	109
4.8 Extent of Use of the Sakai LMS.....	110
4.8.1 Frequency of Use of the Sakai platform.....	111
4.8.1 Instructors/Tutors Influence on the Extent of Use of the Sakai Platform	112
4.8.2: Respondents Reasons and the Frequency of Use of the Sakai Platform	113
4.9 Challenges in the Use of the Sakai LMS.....	115
4.10 Hypothesis Testing.....	117
4.10.1 Hypothesis one	118
4.10.2 Hypothesis Two	121
CHAPTER FIVE: DISCUSSION OF MAJOR FINDINGS.....	125
5.1 Introduction	125
5.2 Awareness of the Sakai LMS and its Tools.	125
5.3 Students' Attitudes Towards the Use and Intention to Use the Sakai LMS.	129
5.4 Computer Literacy Skills and Perceived Ease of Use of the Sakai LMS.	133
5.5 Perceived Usefulness of the Sakai LMS	136
5.6 Extent of Use of the Sakai LMS.....	138
5.7 Challenges in the Use of the Sakai LMS.....	141
5.8 Theoretical Interpretations of the Findings	144

CHAPTER SIX: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS	146
6.1 Introduction	146
6.2 Summary of Findings	146
6.2.1 Awareness about the Sakai LMS and its tools.	146
6.2.2 Students’ Attitudes towards the Use of the Sakai LMS and Intention to Use the Sakai LMS.	147
6.2.3 Relationship between Computer Literacy Skills and Perceived Ease of use of the Sakai LMS.	147
6.2.4: Perceived Usefulness of the Sakai LMS	148
6.2.5: Extent of Use of the Sakai LMS.....	148
6.2.6 Major Challenges Distance Learning students faced when using the Sakai LMS	149
6.3 Conclusion.....	149
6.4 Recommendation.....	150
6.5 Areas further studies.....	152
BIBLIOGRAPHY	153
APPENDIX A: QUESTIONNAIRE	178
APPENDIX B: LETTER OF INTRODUCTION	183

LIST OF TABLES

Table 3.1: Study Population.....	69
Table 3.2: Population and Proportionate Sample Size by Programme	72
Table 3.3: Construct Number of Items Cronbach Alpha (α)	78
Table 4.2: Channel of Awareness of the Sakai LMS.....	86
Table 4.3: Awareness of the Sakai LMS Tools.	87
Table 4.4 Attitudes towards the Use of the Sakai LMS.....	90
Table 4.5: Overall Attitudes towards the Use of the Sakai LMS.....	92
Table 4.6: Respondents' Preferred Mode of Instruction.....	94
Table 4.7: Respondents' Willingness to Log on to the Sakai Platform.	95
Table 4.8: Navigating on the Sakai Platform.....	101
Table 4.9: Overall Impression on Navigating on the Sakai Platform	103
Table 4.10: Perceived Ease of Use of the Sakai LMS.	104
Table 4.11: Overall Impression on the Perceived Ease of Use the Sakai LMS.....	105
Table 4.12: Perceived Usefulness of the Sakai LMS.....	107
Table 4.13: Overall Impression on the Perceived Usefulness of the Sakai LMS.	109
Table 4.14: Respondents Frequency of Use of the Sakai platform period	111
Table. 4.15: Respondents Reasons and the Frequency of Use of the Sakai Platform	113
Table 4.16: Challenges Respondents encounter when using the Sakai Platform.	116

Table: 4.17 Relationship between Students' Computer Literacy Skills and the Perceived Ease of Use of the Sakai LMS	119
Table 4.18: Chi-Square Tests.....	120
Table: 4.19 Symmetric Measures	120
Table 4.20: Relationship between Students' Perceived Usefulness of the Sakai LMS and the Extent of Use of the Sakai LMS	122
Table 4.20: Relationship between Students' Perceived Usefulness of the Sakai LMS and the Extent of Use of the Sakai LMS	122
Table 4.21: Chi-Square Tests.....	123
Table 4.22: Symmetric Measures	123

LIST OF FIGURES

Figure 1.1 Technology Acceptance Model (TAM) 14

Figure 4.1: Gender Respondents..... 83

Figure 4.2: Knowledge and Skills to Use a Computer and other Related Technology 97

Figure 4.3: Level of Computer Skills 98

Figure 4.4: Respondents' Perceived Contribution of the Sakai LMS on Academic Work. 110

Figure 4.5: Instructors/Tutors Influence on the Use of the Sakai platform 112

Abstract

The increasing demand of students enrollments is leading to undesirable student-lecturer ratios which ultimately results in turning away of qualified applicants, has sparked numerous higher institutions especially those that runs distance programmes to adopt at least one learning management system. This study investigated the perceptions and use of the Sakai LMS among Distance Learning students of the University of Ghana. It investigated students' awareness of the Sakai LMS and its tools, students' attitude and intention to use the Sakai LMS, the relationship between computer literacy skills and perceived ease of use of the Sakai LMS of the students, perceived usefulness of the Sakai LMS to the students, the extent of use of the Sakai LMS System by the students, and some major challenges the students face when using the Sakai LMS. Also, some hypotheses were tested in the bid to find out relationships among variables. The study is useful to three critical categories of people; education practitioners, management of Distance Education, policy makers, learning management system developers.

The study was based on the Technology Acceptance Model (TAM). It study adopted the survey methodology with a sample size of 230 of level 300 Distance Learning students of the University of Ghana, Accra campus. Convenience sampling was adopted, data were gathered using a questionnaire and were analysed using SPSS.

The study revealed a universal awareness by the students of the Sakai LMS mostly through their tutors and the orientation programme. However, some of the Sakai tools were not utilised as the results of lack of awareness of them; there was moderate positive attitudes towards the use of the Sakai LMS and most students did not have intention to use the Sakai LMS due to some perceived challenges. Further, the study revealed moderate perceived ease of use and perceived usefulness

of the Sakai LMS. The extent of use of the Sakai LMS was relatively low due to some perceived challenges such as inadequate training on how to use the Saka platform, system errors and inability to access the Sakai platform at the point of need, difficulty to get access to the internet, slow internet connectivity etc. Chi-square test revealed that computer literacy skills was significantly associated with the perceived ease of use of the Sakai LMS, whilst perceived usefulness of the Sakai platform was not significantly associated with the extent of use.

It was recommended the Distance Education unit should provide adequate orientation and training to students, instructors and tutors on the Sakai tools. Also, there should be the provision of effect support system, bandwidth for internet connectivity, linking Sakai to social media, and redesigning of the Sakai interface to make it more interactive.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The proliferation of Information and Communication Technology (ICT) is an epitome of the rapidly changing world, and this has changed the dynamics of teaching and learning in almost every corner of the globe. This brought about the origin of the so-called “digital revolution”. The inception and the evolution of the web and internet eventually led to the introduction of electronic learning which is popularly known as e-learning. This has brought about many Learning Management Systems (LMS) opportunities which perform phenomenal roles in the quest for most academic institutions especially tertiary institutions to achieve their academic goals. In view of this, myriads of academic institutions have adopted what Lang and Pirani (2014) have captioned as synchronous and asynchronous learning management systems. Synchronous, on one hand, means learning can take place at the same time, thus learners can be at different places and access the same materials online and also take part in a discussion forum simultaneously. For instance, a lecturer or instructor can arrange a lesson session on a learning management system platform which will require students to bring out their submissions and interact with each other digitally. On the other hand, asynchronous means that, irrespective of the geographical location, one can sit in his or her comfort zone and still have access to information resources to meet the information needs; learning can take place anywhere provided there is an availability of internet connection with the required bandwidth, communication gadgets and the requisite skills.

In the view of Lippert (as cited in Govender, 2010), the inclusion of a learning management system in teaching and learning provides an instructional perspective, which allows students to

proceed and learn at their own pace. According to Patil (2012), a learning management system is a type of software that is designed to deliver, track, and manage online training and education. In the view of Ellis (as cited in Ansong, 2015, p.21), learning management systems are software programs used for the administration, documentation, tracking, reporting and delivery of electronic educational technology (also called e-learning) courses or training programs. Pappas (2016) posits that a learning management system can be referred to as an integral part of the learning design and development process, especially if you have a large audience and a great deal of subject matter to deliver. According to Lang and Pirani (2014, p.1), “a learning management system is the integral, behind-the-scenes player in a student’s learning experience, serving as the course hub for management of subject mastery”. Some widely used learning management systems include Sakai, Edmodo, Moodle, Blackboard, SuccessFactors and SkillSoft. These discoveries have provided a common platform where lecturers / instructors, tutors, students, Teaching Assistants (TAs), and Graduate Assistants (GAs) can interact digitally.

According to Lipperts (as cited in Govender, 2017, p.6), “learning management system was initially established in Canada when the Department of Education sought to achieve a significant improvement in the pass rates of all students”. It was revealed that most students acquired computer literacy and explorative skills through the use of the learning management system. Learning management systems are now pervasive in almost every higher educational institution, thereby bridging the gap between lecturer-students interaction. Learning management systems started to gain a strong foothold in most tertiary institutions when electronic learning-also known as E-learning penetrated almost every corner of the globe. Dube and Scott (2014) stated that E-learning is a technology based method with time and space independence and facilitated by

learning management systems, computer programs used to create, manage, deliver and retrieve learning content such as Sakai. Numerous institutions, according to Graves (2001), are adopting e-learning technologies for two purposes:

- 1) To enhance the flexibility of traditional classroom-based face to face courses with web access to syllabi, materials and discussions or
- 2) As a sole channel of distance education modality that eliminates or reduces on-ground classroom time.

In addition, “business training departments use LMSs to deliver online training, as well as to automate recordkeeping and employee registration” (Ansong, 2015, p.21).

In Ghana and other developing countries, there has been an exponential growth in students enrollment which has led to a mismatch of students and the available educational infrastructure and resources. This has sparked many tertiary institutions adopt and implement educational models such as learning management system in order to admit large applicants who qualify for admission (Tagoe & Abakah, 2014).

Retrospectively, its name has been changed through development and has been used interchangeably with Electronic Learning Systems (ELS), Virtual Learning Environments (VLE), Curriculum Development Systems (CDS) , Content Management Systems (CMS), Instructional Improvement Systems (IIS), Knowledge Management Systems (KMS), Instructional Management Systems (IMS), Integrated Learning Systems (ILS), Course Management Systems (CMS), and Collaborative Learning Environments (CLE). Many educators agreed that instruction is not what

we should manage through a technology solution, rather, educators must focus more systemically on the main goal: Learning and the management thereof (Suorsa & Eskilsson 2014).

The original intent for adopting a learning management system was to supplement the traditional face-to-face mode of teaching and learning, thereby, bridging the gap between lecturers/instructors and students, especially in distance learning. The growth in student enrolments and the limited number of instructors and lecturers has given rise to the need for ICT based teaching and learning such as learning management systems. Thus, the online platform provides opportunity for the virtual classroom which makes it possible for students to study outside their traditional learning environment. This initiative is most evident in many schools which offer distance learning opportunities to their applicants. For instance, University of Ghana has adopted the Sakai Learning Management System (Sakai LMS) to complement the traditional face-to-face teaching and learning. It has been wholly accepted at the Department of Distance Education as a mode of teaching and learning to supplement the weekend face-to-face tutorials programme

1.1.1 The Distance Education System in the University of Ghana.

Distance Education was formerly known as “correspondence education” in Ghana which provides the avenue for workers and professionals to upgrade themselves (Renwick as cited in Edumadz, Ogoe, Essilfie, Edumadze, Graham, & Osei-Gyasi, 2017). According to Sherry (as cited in Mnyanyi & Mbwette, 2009, p.2) , “Distance Education (DE) is a learning process in which the teacher and the learner are separated in terms of space and time; communication between the two is mediated by print media or ICT; and learning is under the control of the learner rather than the teacher.”

In affirmation, Sherry (as cited in Larkai, Ankomah-Asare and Nsowah-Nuamah (2016, p.3) maintained that that, distance learning or education occurs when there is a separation of teacher and learner in space and/or time, volitional control of learning is by the student instead of the instructor and the communication between the two is noncontagious and mediated by print or some form of technology. Many of the institutions studied see distance education as being beneficial, as it provides opportunity for a large number of qualified applicants who do not get admission into the face-to-face regular programmes due to limited facilities, to have access to tertiary education. It also provides an opportunity for students who double as workers to be able to actively get involved in class activities.

The increasing demand for education over the years has led tertiary education providers and regulators to introduce interventions to increase access so as to meet the growing demand for tertiary education. There is a lot of qualified applicants which the University of Ghana is unable to admit to the regular programmes, because of this, some are given the choice to enroll as distance students and at worst, some are not even admitted at all. This issue has been attributed to the limited facilities in most tertiary institution (Mensah & Owusu-Mensah 2012). Distance education ensures a higher degree of flexibility to enable learners meet the competing priorities of work, home, and school and also, gives adults the greatest possible control over the time, place and pace of education. This has accelerated the introduction of various kinds of learning management system such as Sakai LMS which was introduced by University Ghana, Legon (Agbofa, 2012).

1.1.2 Overview of Sakai Learning Management System in University of Ghana, Legon

The use E-learning system is not a new idea at the University of Ghana, Legon. In responding to changing trends in internet adoption to enhance teaching, learning and research, the University of Ghana, secured a Chinese Government loan in 2012 that provided the basic infrastructure to support ICT-base teaching and learning (Oheneba-Sakyi & Amponsah, 2018). Part of the project was aimed to extend e-learning to all regional centres of then Institute of Continuing and Distance Education now School of Continuing and Distance Education as well as to fully equip all computer laboratories and video conferencing centres (Ansong, 2015). University of Ghana initially introduced the Knowledge Environment for Web-based Learning (KEWL) which is a web-based learning system but unfortunately, a low adoption rate was recorded. Out of the numerous lecturers at the University of Ghana only 27 of them used the KEWL three years after its introduction (Dadzie, 2009). In an attempt to remedy this situation, the Sakai LMS was introduced to serve as a mobile learning model and to reinforce the university's vision of becoming a world-class research university within the next decade.

Again, the Sakai LMS was acquired because the entire university could use it (University of Ghana, 2013). The Sakai LMS better handles a large number of users; with about three hundred adoptions worldwide (Caminero, 2013). Oheneba-Sakyi and Amponsah (2018) outlined ten (10) reasons why University of Ghana adopted Sakai LMS: it is hosted by longisight with 24/7 support; characterized by flexibility and easiness; a true power of the community model; a pool of knowledge from world-class universities, examples being Oxford, Harvard, MIT, Michigan, UCT, Cambridge, UNISA, Stanford, Indiana, NYU, Duke, Rutgers; empowers IT professionals; denotes stability and scalability, cost control, build for educators by educators; a complete system for learning, teaching, research & collaboration; add online elements to traditional face-to-face

courses; and to develop complete online courses with no face-to-face or few meetings (Blended Learning; Flipped Classroom; Distance Education) which was highlighted as the ultimate purpose of the adoption of the Sakai LMS.

The Sakai LMS is an open-source of endless possibilities, a course management and collaborative learning tool that serves faculty, students and staff digitally. The Sakai LMS was implemented at the University of Ghana, Legon in the 2013/2014 academic year, after it had been tested for one year. It was then at the Department of Distance Education, the Department of Adult Education, and the Business School . It was rolled out completely in the 2015/2016 academic year, and many departments and courses have been enrolled in the system. The Sakai LMS is increasingly being used by some faculty members in departments and schools across all the four colleges of the University for the delivery of instructional materials, course content, and assessment (Oheneba-Sakyi & Amponsah, 2018).

The critical importance of the Sakai LMS can be evident at the University of Ghana, where some lecturers and course instructors are now utilising it to teach and share course materials which include lecture notes, video tutorials, links and also use for online discussion. Sakai LMS has myriads of phenomenal features as follows: it is used for class announcement, quizzes, online video tutorials, plagiarism checking, conducting interim assessments and students group discussions. Another interesting feature of Sakai LMS is the fact that, students can access their results instantly with the aid of the gradebook which generates scores of students. In addition, it has a calendar for viewing deadlines, distributes and collects data from course members etc.

Currently, the Department of Distance Education uses the Sakai platform to supplement its traditional face-to-face learning which takes place at the various learning centers during weekends. Instructors use the platform to interact with students and to share relevant course materials and other related information. In addition, the department conducts Interim Assessment (IA) using the platform. According to Oheneba-Sakyi and Amponsah (2018), the Sakai LMS has made it possible for the University's Distance Education programme to transition from paper-based modules to a multi-mode format where web-based (online) courses have been integrated with the face-to-face meeting, facilitated by assistant lecturers and tutors.

In general, the Sakai LMS has continued to gain acceptance among many tertiary institutions and some second cycle institutions for a vast arrays of reasons which includes;

1. Making it possible for students to learn as if they are in their traditional classroom with an instructor. This helps support blended delivery.
2. Helping curriculum, instructional resources, assessment strategies, student data, and staff proficiencies .
3. Being considerably cheaper since it saves learners from travelling, buying expensive course materials, online training site rentals, and is very convenient.
4. Providing a common platform where students can have discussions and post comments on subjects.
5. It makes the assessment of students easier and faster especially when dealing with a large class size.

According to Alhassah (2014), the Sakai LMS will greatly enhance teaching and learning processes in universities, since it will eliminate many barriers to the traditional way of learning such as having to be physically present and spending on printouts. The system will encourage more

engagement, between lecturers and students, and amongst students. It will greatly ease the work of lecturers, students and researchers alike since certain learning processes that are time-consuming for them are automated and instant in the system.

1.2 Statement of the Problem

For the past decade, most public universities in Ghana have had the unpleasant duty of turning away a large number of qualified applicants every year as a result of their inability to admit even half of their applicants. This is evidenced in the number of students admitted to the various tertiary institutions in Ghana, precisely the University of Ghana. This has led to the disparity in student-lecturer ratio, where lecturers/instructors take more students than expected (Agbofa, 2012).

In its quest to reduce this challenge at least to its barest minimum, the management of the University of Ghana implemented the Sakai LMS as a viable tool to supplement the conventional face-to-face mode of teaching and learning. This initiative is coupled with perceived benefits such as the provision of quality education, time and place independence, easy course material accessibility, flexibility and convenience. Unfortunately, the system has been underutilised (Ansong, 2015).

The value and relevance of every electronic learning platform will be evidenced by the extent of its use. According to Chen (2011), most learning management systems used in learning are not utilised to their full potentials. Again, Suorsa and Eskilsson (2014) revealed in their study that the learning management systems which are often adopted for students use are underutilised and in many cases ignored by the intended end users. In the same vein, Liyanagunawardena (2008, p.1) found out in a study that, every time an assignment or a new resource material was made available

on the learning management system platform, only a few students were often aware. Sakai e-learning platform at NUST was underutilised by undergraduate students in the Faculty of Communication and Information Science (Choga, 2015). Underutilization of the Sakai LMS was evident when a random and preliminary investigation by the researcher indicated that at various intervals of checking students who are online on the Sakai platform, an average of not more than 5% of the total students in the faculty were found at all intervals. In the same study, to measure the students' attitudes and perceived usefulness of the Sakai LMS, the researcher sought to understand what motivates students to use the Sakai LMS. Most respondents indicated that they only use the system when they are instructed by their lecturers or instructors to do so.

The researcher solicited the views of some undergraduate Distance Learning students from the University of Ghana about the use of the Sakai LMS and it was revealed that despite the numerous functionalities and perceived phenomenal benefits of the Sakai LMS, most students shun away from using the system and rather rely on colleagues who visit the platform for information. The only time that most students access the system is when they are compelled to submit an assignment, write their Interim Assessments (IAs) or quizzes using the system. Hence, the system has been underutilised.

Numerous studies have been conducted on the impact of the various learning management systems on teaching and learning in higher educational institutions. Also, numerous studies on learning management systems focus on adoption and acceptance by intended end users but very limited studies have been conducted on the end users' perceptions and use of the Sakai LMS.

Moreover, since the time of the implementing the Sakai LMS in the University of Ghana, little research has been conducted on the students' perception and its use. Based on this background, the researcher found it imperative to conduct this study in order to find out the perceptions of students, and also to find out why individuals do not elect to use the Sakai LMS. This piece of research would therefore contribute to filling this knowledge gap.

1.3 Purpose of the Study

The purpose of the study was to determine the perceptions and use of the Sakai LMS among Distance Learning students of the University of Ghana and to come out with some recommended strategies to improve the use of the Sakai LMS.

1.4 Objectives of the Study

The objectives of the study were:

1. To determine students' awareness of the Sakai LMS and its tools.
2. To determine students' attitude towards and intention to use the Sakai LMS.
3. To examine the relationship between computer literacy skills and perceived ease of use of the Sakai LMS.
4. To investigate the perceived usefulness of the Sakai LMS to Distance Learning students.
5. To investigate the extent of use of the Sakai LMS by Distance Learning students.
6. To ascertain the major challenges Distance Learning students faced when using the Sakai LMS.
7. To make recommendations based on the findings of the study

1.5 Central Hypotheses

In order to measure the above objectives, the following hypotheses were formulated to be tested.

1. Students' computer literacy skills will correlate their perceived ease of use of the Sakai LMS.
2. Students' perceived usefulness of the Sakai LMS will correlate the extent of use of the Sakai LMS.

1.6 Theoretical Perspective

A theory for a study guides the entire study, an organizing model for the research questions and for the data collection procedure (Creswell, 2013). Again, "a theoretical framework is analogous to the frame of the house just as the foundation supports a house, a theoretical framework provides a rationale for predictions about the relationship among variables of a research study" (Mehta, 2013, p.3). Radhakrishna (2007) also asserts that almost all research studies in social and behavioral science regardless of disciplines or programmes require a rationale or base for conducting research. This rationale or base is often called theoretical framework. A typical theoretical framework provides a schematic description of relationships between and among independent, dependent, moderator, control, and extraneous variables so that a reader can easily comprehend the theorised relationships. At the onset of any research, it is important to consider relevant theories underpinning the knowledge base of the phenomenon to be researched and by addressing simple questions, the researcher can begin to develop a loosely-structured theoretical framework to guide the study (McDonald, 2014).

For the researcher to be able to fathom the rationale behind students' perceptions and use of the Sakai LMS, which is the focus of the study, a theory needs to be adopted. To be able to understand why students perceive a system in a certain way, there is the need to be able to understand the origins of their views. By understanding the factors affecting user acceptance, the researcher can uncover the reasons behind their perceptions by using a theory(s) which includes the variables of interest.

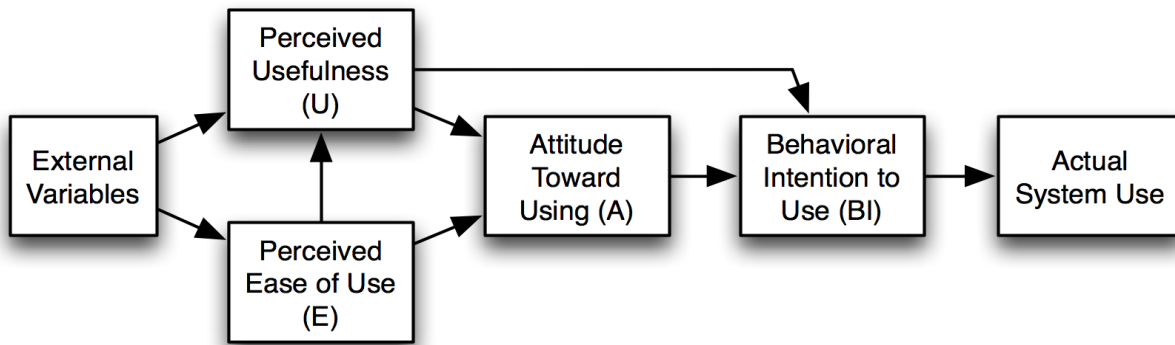
The researcher adopted the Technology Acceptance Model (TAM) for this study.

1.6.1 Technology Acceptance Model (TAM)

Davis, Bagozzi and Warshaw (1989) are the brains behind the Technology Acceptance Model (TAM). The model posits that when users come into contact with new technology, a number of factors influence their decision about how and when they will use it. According to Suorsa and Eskilsson (2014), TAM is noted as one of the most influential extensions of Ajzen and Fishbein's Theory of Reasoned Action (TRA). "The goal of the TAM is to provide an explanation of the determinants of computer acceptance that is general; capable of explaining user behaviour across a broad range of end-user computing technologies and user populations, whilst at the same time being both parsimonious and theoretically justified" (Davis, Bagozzi & Warshaw, 1989, p. 6). TAM has been used extensively in literature especially when it comes to understanding user acceptance and usage of new technology. The original intent of the TAM was to help understand user acceptance of a new technology, particularly learning management system. "The system features and characteristics serve as variables to determine whether a system will be accepted or rejected", Davis noted (as cited in Suorsa & Eskilsson, 2014, P. 6). According to Davis (1989), Perceived Usefulness (PU) and Perceived Ease of Use (PEU) have been theorised as the two main

factors which determine how an individual perceives a system and how it will be put to use with less effort.

Figure 1.1 Technology Acceptance Model (TAM)



Source: Technology Acceptance Model (TAM). (Davis, Bagozzi & Warshaw, 1989)

Perceived Usefulness (PU)

According to Davis (1989, p. 320), “Perceived usefulness (PU) is defined as the degree to which a person believes that using a particular system would enhance his or her job performance”. In relation to this study, if students perceive that using the Sakai LMS will bring improvement in their studies, then there is a likelihood that students will tend to appreciate and use the system more often otherwise, they will shun away from using it.

Perceived Ease of Use (PEOU)

“Perceived Ease of Use (PEOU) is the degree to which a person believes that using a particular system would be free from effort” (Davis, 1989, p. 320.). According to Davis (as cited in James, 2010, p.83), “Perceived ease of use is the ease with which a new technology can be used”. In the context of this study, this implies that, if the intend respondents see the Sakai LMS as an easy- to-

use system, they will continue to use it. However, if the respondents find the system complex to use then they will shun away from using it. In view of this, “any system which is more easy to use, will attract more users. Irrespective of how easy one perceives a system to be but still lacks some functionalities, it might not be attractive to the user” (Suorsa & Eskilsson 2014). In the works of Juhary (2014), to some level, users can cope with some difficulty when using the system provided it provides services that are critical to their needs.

Attitude

Attitude refers to the general feeling of favourableness or unfavourableness about performing a behavior. Attitude determines the behaviour which in turn influences the actual acceptance. In relation to this study, perceived usefulness and perceived ease of use of a system influences attitude towards it. If users of the Sakai LMS perceive that it as easy to use and useful then they will develop positive attitude towards it.

Behavioral Intention (BI)

Behavioral intention (BI) is defined as a “person's perceived likelihood or subjective probability that he or she will engage in a given behavior” (Committee on Communication for Behavior Change in the 21st Century, 2002, p. 31).

Actual System Use

Actual system use refers to the extent at which users utilise a system. This is influenced by the behavioural intention to use a system.

1.7 Scope of the Study.

The study focused on students from the Department of Distance Education, under the College of Education, University of Ghana, Legon. The Distance Education programme is being run in all the 10 regions of Ghana, but this study was limited to the Greater Accra Region. This is because the students in Accra comprise about 90% of the entire population of the Distance Learning students (University of Ghana Handbook, 2017). Also, the same module is being used in all the 10 regions. Furthermore, the choice was fueled by the limited time and resources. The level 300 students who had been enrolled under all the programmes that the distance unit offers were used for the study. The paramount reason for the choice of the level 300 students is because, they were the first batch of students who were required to use the Sakai platform to supplement the weekend face-to-face tutorials. Hence, they have continuously used the platform for three years and therefore possessed rich information that was critical for this study. The level 400 students were not considered because the Sakai platform was not part of their study structure, therefore they do not have information about the system. Also the level 100 and 200 students were not considered because they have not used the system for long and therefore do not have much experience with the Sakai platform as compared to the level 300 students.

1.8 Significance of the Study.

The study is significant in numerous ways. It is expected that the findings of this study would help to know the perceptions and the extent of use of the Sakai LMS among Distance learning students of the University of Ghana, Legon. Also, the findings from this study would help the management of University of Ghana to determine whether the original purpose for the implementation of Sakai LMS has been accomplished or in the quest to its intended purpose. Again, this study highlights

the major challenges that students encounter when using the system. This would give a clear picture for management to find possible solutions as well as for the system upgrade.

In addition, it would also enable policy makers, stakeholders, learning management system developers and education practitioners make an informed decision pertaining to the Sakai LMS.

Finally, the findings would contribute to knowledge in academia and pave the way for further research studies to be carried out to ensure continuous improvement of the Sakai LMS and for future reference.

1.9 Research Environment

This section gives a brief overview of the environment where the research was conducted.

1.9.1 University of Ghana

The study was conducted at the University of Ghana, in the Greater Accra Region. It is the largest university, and Ghana's premier university. It was founded in 1948 as the University College of the Gold Coast on the recommendation of the Asquith Commission on Higher Education in the then British colonies. "The University of Ghana is the highest ranked university in Ghana and the 7th best in Africa" (Amoah, 2016, p.1). The University of Ghana is known to be the first tertiary institution in Ghana that has introduced the Sakai as part of its methodology in teaching and learning (Oheneba-Sakyi & Amponsah, 2018). The mission of the university is to develop world-class products with the intent of meeting national development needs and associated global challenges through the provision of quality teaching and learning using the appropriate methodology and knowledge dissemination. The University has four colleges which comprise; the College of Health Sciences, the College of Basic and Applied Sciences, the College of

Humanities and the College of Education. These colleges comprise a number of schools, research institutes and centres, libraries, administrative offices and other support services (University of Ghana Handbook, 2017).

1.9.2 College of Education

The College of Education consist of three (3) schools namely; School of Information and Communication Studies, School of Continuing and Distance Education as well as School of Education and Leadership. The School of Continuing and Distance Education is made up of the Department of Adult Education and Human Resource Studies, the Department of Distance Education and the University of Ghana Learning Centers. (University of Ghana Handbook, 2017).

1.9.3 Department of Distance Education

The Department of Distance Education, which is under the School of Continuing and Distance Education has the vision to pursue academic programme activities towards the realisation of the potential growth that exists for investing in the expansion of adult, continuing and distance education programmes. This is to extend the reach of the University student population, in a format which the conventional face-to-face classroom learning cannot provide. In light of this vision, the mission of the Department of Distance Education is to deliver the academic programmes of the University in the distance mode to create access for qualified applicants who will otherwise not get admitted into the on-campus programme as a result of limited space, and also for those who cannot be enrolled on the regular programme because of their work and other peculiar reasons.

The Distance Education programme is currently available at the following University of Ghana Learning Centers where students are supported with regular face-to-face interactions on weekends. These are Accra, Tema, Bolgatanga, Cape Coast, Koforidua, Kumasi, Sekondi-Takoradi, Sunyani, Tamale, Tsito and Wa . Those in Accra have their tutorial classes on the University of Ghana Accra City Campus. It is a branch of University of Ghana that runs regular programmes for students who are admitted (University of Ghana Handbook, 2017).

Students from all the learning centers interact with their instructors using the Sakai LMS. They download lecture notes, slides, recorded lecture videos and access relevant information on the Sakai LMS. Also, the platform is being used to conduct Interim Assessments (IA) and quizzes.

1.10 Ethical Consideration

“Ethical issues in research are defined as behavior that conforms to standards of conducting a research” (Fraenkel & Wallen, 2000). Researchers are expected to comply with various professional ethical codes and regulations while undertaking a research study and this help to determine what is considered acceptable and unacceptable on the part of the research.

Researchers need to protect their research participants, gain their trust, promote the integrity of research study, guard against misconduct and impropriety that might reflect on their organizations or institutions as well as coping with new challenging problems. It is one of the crucial factors that every researcher needs to take into consideration. In view of this, the respondents were duly informed about the original intent of the study.

The confidentiality, anonymity and the rights for respondents to withdraw from taking part in answering the questionnaires were considered. However, the researcher did encourage respondents to take part in the research. As a matter of principle, ethical considerations were kept in mind at every stage of the study. Again, as academic work demands, all literary materials that were used in the study were dully acknowledged to prevent plagiarism. Finally, the researcher did strictly adhere to the University of Ghana code of conduct governing research studies.

1.11 Organisation of Work.

This study is arranged into six (6) chapters as elaborated below.

Chapter One (1) focuses on the introduction to the study which encapsulates; the background of the study, statement of the problem, purpose of the study, objectives of the study, theoretical perspective, scope of the study, significance of the study, research environment, ethical consideration and organisation of work .

Chapter Two (2) is the literature review, which focuses on relevant related literature pertaining to the topics of the study. The topics were discussed from a world point of view, African and Ghanaian point of view under the sub heading: concept of e-learning, awareness of the Sakai LMS and its tools, Students' attitudes towards the use of the Sakai LMS and intention to use the Sakai LMS, Computer literacy skills and perceived ease of use of the Sakai LMS, perceived usefulness of the Sakai LMS to distance education students, the extent of use of the Sakai LMS and the challenges in the use of the Sakai LMS.

Chapter Three (3) elucidates the methodology that was followed for the research study which includes; the research design, selection of the subjects, population of the study, sample size, sampling technique, data collection instrument, pre-testing, data collection procedure, analysis and presentation of data.

Chapter Four (4) is the presentation and analysis of data.

Chapter Five (5) is the discussion of major findings.

Chapter Six (6) provides the summary of the findings, conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The mode of course delivery is gradually changing as many academic institutions are now adopting at least one of the numerous learning management systems as a supplement to the traditional mode of teaching and learning. It is therefore pertinent to research in the area of e-learning to bring to light the ongoing dialogue. According to Neuman (2011), a literature review is based on the assumption that knowledge accumulates and that people learn from and build on what others have done. A literature review is an act of reviewing other authors' researches which are very pertinent to the area of your area of studies (Boote & Beile, 2005). Generally, a literature review should describe, evaluate and clarify and summarises related literature of what other authors have brought to bear and it shares with readers the results of other research studies that have been reported.

The study captured wider perspective (world point of view), also African point of view as well as Ghanaian point of view. The chapter commenced with an overview of the literature which pertains to the conceptual understanding of electronic learning, learning management system and the Sakai LMS, in relation to its genesis, definitions, service types, functional features and service. Furthermore, a rigorous review was conducted on Sakai LMS to reveal current knowledge gaps and lead-ins for future research with regard to the research methodologies, topics, theories and the various perspectives of the research. Precisely, the following themes are captured in the literature review based on the objectives of this research such as; concept of e-learning, awareness of the Sakai LMS and its tools, attitudes and intention to use the Sakai LMS, computer literacy skills and perceived ease of use of the Sakai LMS, perceived usefulness of the Sakai LMS to distance

education students, the extent of use of the Sakai LMS and the challenges in the use of the Sakai LMS.

2.2 Concept of Electronic Learning

The term electronic learning which is also called e-learning was originated in the early 90's, when the internet was emerging and penetrating to different areas across the world. The "big idea" was that it would provide the platform for students to access the on their course at the comfort of their home or at any where convenient. That is the well-known motto of "learning everywhere and at every place", which originated a trend that was given the name of e-Learning" (Ansong, 2015). According to Noh, Isa, Saman & Isa (2012) many higher learning institutions across the globe are gradually supplementing the mode of teaching and learning with e-learning platforms with the ultimate goals of delivering services which the conventional mode of teaching and learning cant provides and also to harness quality education to their students.

There has been myriads of controversies regarding how best e-learning can be defined as the results a lots of researchers have viewed e-learning with varied lenses. Ansong, (2015, p.16) defined e-learning as "a complexity of elements which makes researchers and practitioners suggest different definitions with respect to the technologies involved, their extent of integration into learning processes and how learning occurs among participants in terms of time". An e-Learning system is a mode of teaching and learning which is flexible and convenient based on internet connectivity with the paramount reasons of alleviating the issue of saddled with the increased students enrollments and inadequate teachers and learning facilities (Pituch & Lee, 2006; Selim, 2007). In

the view of Ferrer & Alfonso (as cited in Suorsa & Eskilsson , 2014, p.1), “E-learning is defined as the use of internet to access learning content and resources, interacting with instructors and other students, in order to gain knowledge”. “E-learning is usually defined as a type of learning supported by information and communication technology (ICT) via the internet, intranets, extranets or many others to improve the quality of teaching and learning” (Tagoe, 2012, p.1). However, after several debates over the best definition that is suitable for e-learning, a consensus was reached in Europe upon the use of a unified definition for e-learning, which was understood as the application of new multimedia technologies and the internet in education, in order to improve its quality by enhancing access to resources, services, the exchange of information and cooperation (Simonova, 2010 as cited in Ansong, 2015).

2.2.1 Categories of Electronic Learning

In the works of Hrastinski (2008), initial category of e-learning was synchronous forms and asynchronous forms of online learning. These are now known as the basic categories of e-learning (Yakaraju, 2014).

Synchronous

Synchronous means, an online learning system that can be accessed by two or more people at the same time. In the context of this study, synchronous means that students and learners can interact or access electronic learning resources and interact with at the same time from different locations. This kind of e-learning has been describe as real time learning. Synchronous e-learning creates a

virtual classroom where communication occurs at the same time between students and instructors and where information is accessed instantaneously. For instance, students or learners can ask questions for instructors and lecturers to answer instantly via mobile, video conference, Internet or chat (Yakaraju, 2014).

Asynchronous

Asynchronous means that, irrespective of the geographical location, one can access an online learning management system. According to Horton (2006) asynchronous learning allows instructors and learners to be online at different times, or proceed in an entirely self-paced mode with no instructor presence. In this case, learners can complete their course at their own convenient time with the support of the internet, this kind of learning is also known as self-paced learning or pause and resume learning (Yakaraju, 2014). On the contrary, “most online learning these days are mediated by Learning Management Systems (LMSs), which now come standard with both synchronous and asynchronous communication tools. “Increasingly, online courses include a mix of synchronous and asynchronous activities” (Ansong, 2015, p. 31). Based on this background, it may be unqualified and highly unproductive to categorise an online course as being either synchronous or asynchronous, which as a matter of fact a mix of elements is used (Lowenthal, Wilson & Parrish, 2009).

2.2.2 Learning Management Systems.

In the view of Lucian (2016), learning management system is a software tool designed to manage student interventions and hence provide access to online learning opportunities for both students

and teachers. In the view of Hobbs (as cited in Mahoney, 2008, p.1) “as Learning Management System (LMS) automates many of the processes associated with learning. It is a management software package enabling the delivery of learning content, resources and activities and also handles the associated administration tasks”.

Due to the proliferation of e-learning, learning management systems have been in vogue for the past decades and its phenomenal benefits as far as teaching and learning is concerned cannot be overemphasized. Learning management systems has been widely used in tertiary institutions because of its phenomenal benefits in terms of flexibility in learning time and enable instructors and students to interact digitally especially in distance education (Hamuy, 2009). According to Burrell-Ihlow, Angeli, Salisbury and Ellis (as cited in Govender, 2010), it is gradually gaining root in most academic institutions as the most effective way of teaching and learning, fast dissemination of information. According to Hawkins and Rudy (as cited in Lonn, Teasley & Krumm, 2009) it was reported that, over 90% of higher education have at implemented one or more learning management system to allow instructor and students to disseminate instructional materials , make class announce , upload and download assignments and course materials more easily. For instance, it can clearly be indicated that, the number of students who are enrolled in the various institutions are actually increasing at an increasing rate. This was confirmed in a study which was conducted by Tagoe (2012) in which it was revealed that, in Ghana and other developing countries, due to the continuous increase in students enrollment and with the limited available educational infrastructure and resources, many has at least adopted a learning management system to reduce the situation of turning away of qualified applicants from being admitted to pursue their chosen programmes.

Learning management systems are classified into three main categories: proprietary systems which are considered as commercial, examples; Blackboard and Desire2Learn, also, free/open source systems, these are available online for free but may be customized to suit the interest of the adopter example; Sakai and Moodle. (Lucian, 2016).

2.2.3 Sakai (LMS)

The phenomenal benefits of learning management system in teaching and learning especially in distance education cannot be overemphasised. According to Mtebe (2015, p.1), “Learning Management Systems (LMS) are now installed in the majority of higher education institutions” not only in the westernized continents but also it is evident in sub-Saharan Africa and one of the mostly used learning management system is the Sakai.

The Sakai LMS is one of the open of the open source systems which enables users such as instructors and students to be enrolled into various course site and also project site for researchers (Ansong, 2015). Sakai is an LMS that was built using a grant provided by the Mellon Foundation in 2004 when Stanford University, Michigan University, Indiana University, Massachusetts Institute of Technology University, and University of Berkeley began building a common Courseware Management System (Dube & Scott, 2014). The original intent of the collaboration was to improve teaching, learning, and research by providing a compelling alternative to propriety learning systems. The University of Michigan was the topmost university that contributed greatly to the development of the project. The project was named after famed Iron Chef Hiroyuki Sakai. This is because “ the early versions of the tool were based, in part, on the University of Michigan’s course management system” (Biggers, 2009).

According to Derakhshan (2012), as at 2009, it was recorded that, over 100 institutions were using the Sakai LMS, with about 200, 0000 users. Today, the total number of institutions have increased to over 350 educational organisations worldwide, including Columbia University, Duke University, Stanford University, Universite de Poitiers, Bradley University, University of Notre Dame, The University of North Carolina in the USA and in Africa it includes the University of Ghana, National University of Science and Technology, Bulawayo, Zimbabwe, University of Cape Town, and University of South Africa etc.

Sakai LMS is one of the most common learning management systems at present, and it is an open source system. Sakai includes course management tools, project tools, and other components, and can be connected to the library resources (Wei, Wu & Zheng, 2014). Sakai LMS and others such as Blackboard, Moodle, Desire2Learn are counted among the most popularly and widely use learning management system in education (Riddell, 2013). Similarly, according to Caminero, Hernandez & Ros (2013), the Sakai LMS is one of the most preferred open source learning management systems due to its flexibility, ease of use, popularity, and compatibility. In the same study, it was further added that the Sakai LMS better handles a large number of users with about three hundred adoptions worldwide. Mary

Furthermore, Srichanyachon (2014), added that the Sakai LMS can be used to manage curriculum, training materials, and evaluation tools. It can also be extended with modules for tracking learning activities and results such as assignments, quizzes, grading. In addition, the Sakai LMS users to learn outside the classroom. It can either support face-to-face teaching or create online courses and learning in an engaging manner.

2.3 Awareness of the Sakai LMS and its Tools.

Awareness is an indispensable factor in the implementation of every learning management system and influences the extent of its use. End users of a system will not benefit from its value if they are not aware of it. Mtebe (2015, p.1) asserts that “lack of awareness amongst users on the existence or value of LMS has an impact on LMS usage”. In view of this background, it is therefore imperative for students to be aware of the Sakai LMS as well as its tools for its intended purpose to be achieved. This section focus on related works of the Awareness of the Sakai LMS and its tools.

2.3.1 Awareness of the Sakai LMS

Reinhardt, Mletzko, Sloep & Drachsler (n.d), presented a succinct definition and description of awareness, as the act of informing and keeping reminding individuals or group of people about the existence of something. Moreover, “awareness can have impact on the individual method of operation as it triggers reflection”. In view of this concise definition and elucidation of awareness, it can be further explained in the context of this study as the keeping users informed about the existence of the Sakai LMS.

Choga (2015) undertook a study on the use of Sakai e-learning platform by undergraduate students in the faculty of communication and information science, it was revealed that All the 51 (100%) respondents responded in affirmative that their knowledge of the existence of Sakai e-learning platform at the institution and also that they all had at least once used the platform. On the contrary, Dube & Scott, (2014) undertook a study on the use of the Sakai (LMS): with 70 respondents. The

results revealed that lack of awareness of the Sakai platform greatly influence its use, statistically, only 50% of the respondents indicated awareness of the existence of the Sakai LMS.

Furthermore, Mtebe (2015, p.7) postulated that “lack of awareness amongst users on the existence or value of learning management system has an impact on learning management usage within the institutions. If users are not aware of its existence, it is obvious that they are not going to use it”. The author further posited that most faculty members and students were not aware of the Sakai LMS themselves, more so getting students informed about its functional features and its coupled educational value provided. These observations have been confirmed by numerous authors.

Similarly, Bhalalusesa, Lukwaro & Clemence (2013) revealed from research findings at the Open University of Tanzania where 27% of the faculty members were not aware of the existence of Sakai LMS let alone introducing it to the users. Consequently, this phenomenon resulted in depriving myriads of users of utilising the Sakai LMS to its maximum .

Additionally, Ssekakubo (2011) posits that the lack of awareness amongst users might be attributed to the fact that many learning management system initiatives are normally introduced from top to bottom. “Such kinds of initiatives face more resistance than initiatives started by departments or small units within the institution”. The researcher further recommended that institutions should not also focus on creating awareness of the existence of a learning management system but also on its advantages in teaching and learning. Awareness can be created by organizing awareness workshop for departments, sharing of brochures and flyers in the quest to create awareness about

the learning management system and also request for their submission for improvement of the system.

According to Jung, Loria, Mostalghel, and Saha, (2008), many universities normally do not involve the students especially during the introduction of e-learning system. This has contributed to the low awareness of some learning management systems and ultimately led to the low adoption and utilization. However, it was recommended to create massive awareness of the existence of the learning management system, the views of students should be taken into consideration towards the incorporation of e-learning in tertiary institutions (Jung, Loria, Mostaghel & Saha, 2008; 2008; Saade, Nebebe, and & 2007).

In the research study that was conducted by Juhary (2014, p.32), the majority of the respondents testify about the lack of awareness about the tools of the Sakai Learning Management System. Some of the respondents suggested that “more awareness creation about the Sakai LMS need to be done before more users can utilize the system to its full potentials”. In the same vein, a research study that was conducted by Bhalalusea (2013), the findings that were obtained at the Open University of Tanzania indicated that 27% of the users of the Sakai Learning Management were not aware of its existence let alone getting informed about its phenomenal tools.

Furthermore, Arhinful (2016) explored the experiences of Canadian and international students concerning the adoption of the Sakai LMS. The findings showed that students were not utilizing the available support systems provided by the universities and the departments. Thus, although

there are available support systems in the departments, students did not utilise it partly because they did not know these avenues existed.

2.3.2 Awareness of the Sakai LMS Tools.

An ender user may be aware of a system but if its various tools are not known, the system will not be fully utilised. This is analogous to the Sakai LMS. Users may be fortunate to get informed about the availability of the Sakai LMS however, users will not fully benefit from the system if tools which are very critical are not made known. The Sakai LMS have myriads of tools that students, lecturers, tutors and course assistants utilise as far as teaching and learning is concerned.

The following are some of the tools:

Assignment tool

“An assignment tool that allows for giving, taking and submission of assignments online. It allows students to upload and submit assignments and projects and for instructors to grade and comment on students' submissions.

Grade book

A Gradebook allows the instructor to grade any assignment or examination and share that information with students, who view only their own scores. The system does an instant calculation and it does not only distribute the grades but also store the grades for future references.

Forum tool

A forum tool allows for discussions of topics, the creation of private or public groups etc.

Syllabus tool

A syllabus tool for a summary of courses (course outlines). Instructors may use this tool to post their syllabus as HTML or an attachment.

Test and quizzes tool

A tests and quizzes tool for taking all kinds of tests and quizzes online. It allows lecturers and instructors to conduct quizzes, interim assessments (IA), and end of semester examinations. It is normally in the form of “fill in” and multiple choice questions. One interesting aspect about this tool is the fact that it allows for questions to be randomised to prevent students from cheating.

Chat tool

A chat tool that allows for chatting between lecturers and students, among course mates and between individuals. All exchanged messages are saved automatically and viewable for all site participants. It is a synchronous conversation or asynchronous conversation.

Resource tool

A resources tool for sharing course materials like slides, handouts and books, past questions, links for documents, audio, and video tutorials.

Announcement tool

An announcement tool keeps students informed about upcoming tests/events, change of lecture times/venues , and any other information that instructors or Teaching Assistants (TA) may want to give to students.

Calendar tool

A calendar tool marks important dates of events, deadlines and any other activities pertaining to each course. It is linked to announcements, assignments, materials etc.

Email tool

An email tool is used for sending emails to lecturers, course mates or individuals

Plagiarism checker tool (Turnitin)

It has a ‘Turn it in’ tool which automatically measures the plagiarism index of a research work. It helps to “detect and fish out cheating and plagiarism in students’ or researchers’ work”.

(Ansong, 2015, p.133). The management of the University of Ghana integrated the “Turn it in” with the Sakai LMS in 2014 to check for the plagiarism index of assignments and project works of students (Oheneba-Sakyi & Amponsah, 2018).

Teaching and learning features.

These courses management and learning tools allow instructors to build and plan lessons, create and grade assignments, develop and offer tests and other assessments, and share files via a drop box.

Stephanie (n.d), investigated the specific use of Sakai tools/system such as; announcements tool, assignments tool, grade book tool, test and quizzes tool, calendar tool, syllabus other tools / uses etc. Among these tools, the resources tool appeared as the most frequently used tool. The study

revealed that the most frequently used was resource tool because the students use it to download their electronic reading materials. However, calendar appeared to be the least useful tool. This was because most of the instructors usually inform the students about deadlines of any assignments or quizzes in class hence they didn't pay attention to the function of the calendar tool. Also in the works of Choga (2015) most students became aware of the Sakai tools, for instance, it was mandatory for the students to take tests and submit assignment using the test and quizzes tools and the assignment tools respectively. Also, it is through the quizzes and tests tool that students obtained their grade, therefore, they became aware of the grade tool.

In the same vein, Soon & Fraser (2011) investigated the extent of use of the various tools of the Sakai LMS among various groups. The study showed that most of the members had similar opinions about the system. It was observed that the “calendar was not a popular tool that the postgraduate student groups could effectively use to mark events and set reminder dates in their project” and a considerable number of the respondents were not aware of the email tool.

Again, Derakhshan (2012) made an extensive research on the various features of learning management system and it was revealed that user's awareness of the features of learning management system is fueled by the lecturer or instructor involvement of the users. For instance, in the same research study, it was revealed that assignment tools had the highest level of users' awareness and it was elucidated that, the lecturers and course instructors involved the users in using the system for the daily activities as far as teaching and learning is concerned. These findings were in accord with what Soon and Fraser (2011) discovered in a research study on knowledge sharing and knowledge exchange in distance education online group work. It was revealed that

regardless of the numerous tools of Sakai LMS, assignment tool was recorded as the most highly used tool. It was further explained that majority of the respondents were aware of it because they were constantly informed to submit their assignments using it.

In a study that was conducted by Juhary (2014) on perceived usefulness and ease of use of the Sakai LMS as a learning tool using a 4-point Likert scale, the researcher sought to seek the most used tools of the learning management system. From the data collected, most respondents used the Sakai LMS for downloading their lecture slides with a mean score of 1.95 as well as completing their homework with a mean score of 2.14. Also, to collect extra notes for reading with the mean score of 2.17. The least used tool appeared to be the forum with a mean score of 2.62. It was further explained that instructors and lecturers were not engaging students by not putting any striking topics for students to bring out their submissions and also, the users were not compelled to discuss on the topic pertaining to their course digital using the system.

In general, the overall assessment of the Sakai LMS and its tools showed that they were averagely in use. Arguably, it can be concluded that awareness played a critical role in the mass usage of the resource tool. Students were frequently utilizing it because they were more often engaged in using it because they were made aware of it.

From the above discussion, it is apparent that awareness creation is imperative for the utilization of a learning management system. To achieve this, management should not only create the awareness of the learning management system and its features but also the phenomenal usefulness of the system should be made known to the intended users.

2.4 Attitude and Intention to Use the Sakai LMS.

According to (Tagoe, 2012. P1), “Technology Acceptance Model (TAM) was built upon Fishbein and Ajzen’s (1975) theory of reasoned action (TRA) which posits that beliefs could influence attitudes, which lead to intention, to use and finally actual usage behavior”. This section brings to light related works of attitude and intention to use the Sakai LMS.

2.4.1 Attitude to Use the Sakai LMS

Attitude refers to the degree of one’s general feeling of favourableness or unfavourableness about performing a behavior. “Attitude towards a behavior actually stems from a set of salient beliefs (known as *behavioural beliefs*), i.e., performing the behavior will lead to certain consequences” (Randall as cited in Seyal & Rahman, 2015, p.1). Similarly, according to Ajen (as cited in Choga, 2015), attitude refers to a person’s general feelings of favorableness or unfavourableness towards some perceived consequences. The researcher further added that “the more positive the perceived consequence of a behaviour the more favorable is the attitude towards the behaviour”.

In the area of e-learning, precisely pertaining to this study, attitudes refer to one’s subjective beliefs about favourableness or unfavourable about the use of Sakai LMS. In view of this, if users perceive that using the Sakai LMS will bring improvement in their studies, for instance, enhancing their studies through easy accessibility and ready availability of course materials and also if the system is easy to use then they will tend to develop a positive image about the system hence they will accept and highly use it. However, if their subjective beliefs shows that, Sakai LMS does not bring any significant improvement in their studies, they will feel reluctant to use the system. For instance,

if a student realises it will be more beneficial to use the Sakai LMS, he or she is more likely to use it (Dube & Scott, 2014).

Numerous studies have confirmed that attitudes of users influence the acceptance and extent of use of any information technology system, (Raaij and Schepers, 2008; Ong, Lai and Wang, 2004). In the same vein, under the lenses of (Brumini, 2014), numerous studies have proven that, users attitudes towards the use of any learning management system has a significant effect on its level of use.

In the works of Qiu, Wright and Xu (2010), The University of North Carolina at Chapel Hill undertook a two-year pilot evaluation on the Sakai LMS. It was reported that, students who participated in the study rated the experience favorably because they were able to use Sakai platform to complete coursework successfully with minimal effort and also did not have required any special training to learn how to use the tools on the platform hence positive attitude the use of the Sakai platform was evident.

Furthermore, Arhinful (2016) delved into the Sakai LMS adoption in Brock University, St. Catharines, Ontario. It was revealed that the feedbacks concerning the use of the Sakai LMS were phenomenal and highly positive. For instance, the researcher brought to light some of the favourable comments from the respondents;

“Taking Sakai, for instance, even when you don’t make it to lectures you get updated information about what happened in class, there are announcements, probably class cancellation you can easily get access to without necessarily talking to someone.” Also, “I think its speeds up communication

between the professor and the students. Because initially, the professor had to see his students but then with Sakai he can even communicate with students even in their homes.”

Also, Juhary (2014), undertook a study on perceived usefulness and ease of use of the learning management system in Malaysia. It was discovered that most of the respondents showed a positive attitude toward the use of the Sakai LMS. The researcher further stated that this positive acceptance was further supported by the respondents’ constant engagement with the Sakai LMS for academic activities such as research work and assignment.

Furthermore, Lowerison (2006) researched on attitudes of students towards learning management system and the findings indicated both positive and negative attitude towards the application of technology to learning. However, the rate of positive attitudes supersedes the negative attitude. The positive aspect of the findings showed that mixed learning mode and online courses provide; flexibility and easy access to course materials and convenience; online interaction with instructor and better academic performance.

In support of what Lowerison and Tagoe discovered, Park (2009) revealed that students had a positive attitude towards learning management system because of convenience. Thus, students who are able to access the system outside campus for course materials are more likely to develop positive attitudes to the system.

In addition positive attitudes towards the Sakai LMS, Wang, Doll, Deng, Park and Yang (2013) stated that, students’ attitudes are influenced by the quality and perceived ease of use of e-learning

courses, and functionality of e-learning platforms. Again, according to Lippert's (as cited in Desmond, 2010, p.6) in a study on "students' attitudes towards the use of learning management system in a face-to-face learning mode of instruction in the University of KwaZulu-Natal South Africa". The researcher reiterated that most students seemed to have acquired technological, explorative and manipulative skills in their learning environment hence, they had a strong positive attitude towards the use of Sakai Learning Management System.

Further, in a research study that was carried out by Berg (2013) on "teaching assistants' and undergraduate students' first online teaching and learning experiences in an open distance learning context" where Sakai LMS was the focus of the study. The respondents were asked to give their general impression about the use of the system. The sampled views indicated that all students agreed to the fact the content of the learning management system was valuable for their studies hence positive attitude the Sakai LMS was revealed. Again, Tagoe (2012) Students were asked to respond to the extent at which they agreed or disagreed with the assertion "I think the university should continue to offer face-to-face and not bother about e-learning". It was reported that 200 respondents representing (37.7%) which were the highest percentage among all the responses showed positive a attitude towards the introduction of the e-learning platform in teaching and learning.

On the contrary, Srichanyachon (2014) investigated the perceptions of learners towards the use LMS, the study revealed that overall, the respondents had moderate attitudes towards the use of the learning management system. For instance moderate attitudes was evident in the assertions that the learning management system makes it easy to access course materials, and learning can take place at anywhere making it more flexible and convenient.

Further, in a similar study that was conducted by Berg (2013), it was revealed that, majority of the students agreed to the fact that the online mode of instruction was taking more time from them than the traditional mode on instruction; sometimes their attention is shifted from the main purpose of the learning management system and end up checking for unnecessary information on the internet. Also typically, the traditional mode of instruction consist of hard copy study materials which makes learning more easier than the ones online hence a negative attitude towards the learning management system was recorded.

Moreover, Choga (2015) found out that students perceived the Sakai LMS as hard to use and of less value to their studies hence they had a negative attitude to it in terms of usage resulting in its underutilization. In the same study, it was further revealed that the negative attitude towards the use of the Sakai LMS was attributed to the fact that, there was not enough training and moreover most students did not possess the basic computer literacy skills to use the system. Again, the researcher sought to seek the attitude towards the use of Sakai LMS so they were asked to indicate the facilities respondents would prefer to use when receiving course material such as; email, memory devices, and Sakai e-learning platform. The results indicated that only two respondents representing 3.9% opted for Sakai LMS, 32 respondents representing 62.7% indicated that they preferred Memory Device (USB Flash drive, CD and lastly, 17 respondents representing 33.3% chose email. In view of their preferences, it can be shown that a total number of 45 representing (88.2%) of the entire respondents showed negative attitudes towards the use of Sakai LMS.

2.4.1.1 Factors that influence Users' Attitude towards the Use of the Sakai LMS

Many authors have proven certain factors that lead to a positive or negative attitude towards the use of a learning management system like Sakai. For instance, in the works of congruent Zemsky (2007), it was revealed that; users' attitudes towards the computer, prior ICT experience and state of technology readiness, had a significant effect on the extent of use of a learning management system, for instance, the Sakai platform. Additionally, numerous researchers have revealed in their studies that, the characteristics of any learning management system has a significant effect on the student's attitudes. For instance Ozkan and Koseler (2009) discovered that, "system qualities are the characteristics of a system and can be measured as response time, reliability, flexibility, ease of use, and ease of access, well-organised design and personalization". The more users or students perceive features of the system as quality, the more they will tend to develop more positive attitude towards it and vice versa.

Similarly, Choga (2015) posited that the availability of technical supports promotes learners' belief about a particular learning management system. The author further stated that a new technology is more likely to be used when users are given utmost support from instructors or technical team. In the same study it was concluded that "training serves as a precursor to positive attitudes about the technology, and it eliminates negative effect such as apprehension about something new and unpredictable, arming the learner with more perceived control" (p.16). In the same vein, Selim (2007), discovered that respondents who had prior knowledge about the use of web technology and possess computer literacy skills developed positive attitudes toward the use of the Sakai LMS.

It can be evident from the above extant literature that, one's attitude towards a particular learning management strongly depends on perceived believe that surrounds the system. It can clearly be shown that variables such as usefulness, level of difficulty, computer literacy skills, quality content of the system, system support, training and flexibility in accessing course materials are critical determinants of user's attitudes towards the use of the Sakai LMS.

2.4.2 The Intention to Use the Sakai LMS.

Mohammed and Hassan (2015) investigated "perceptions and attitudes towards blended learning of English courses in Saudi Arabia". It was realised that "students' attitude toward e-learning and students' decision to use e-learning are the most important factors in determining a student's intention to use e-learning" (p.2). In the works of Tagoe (2012), undertook a study on "students' perceptions on incorporating e-learning into teaching and learning at the University of Ghana". It was reported that about half of the respondents strongly agree to the fact that they will prefer to use an e-learning platform, supplemented with face-to-face mode of instruction. These findings were incongruent with Markwei (2017) who undertook a study on the use of course website to enhance face-to-face instruction which focused on students' perception. It was noted that respondents have a preference for face-to-face instruction enhanced by a course website and were willing to use it.

On the contrary, this finding was inconsistent in a similar study that was undertaken by Park (2009), it was reported that when the respondents were asked to indicate whether they preferred face-to-face than that of the Sakai platform, the findings revealed that 98% of the respondents attested to the fact they prefer the face-to-face mode of teaching and learning than using the Sakai platform or both and also supported by (Leung & Ivy (2003).

In the bid to fathom more on the intention of users to use learning management systems, in the works of Choga (2015), respondents were asked to indicate whether they voluntarily log on into the Sakai platform. The findings indicated that only 6 respondents representing (11.8%) agreed to the fact that, they voluntarily logged on into the Sakai platform whilst the rest indicated otherwise. It can be inferred from these findings that majority of the respondents visit the platform when they were compelled by their lecturers or tutors to do so or when exercises such as quizzes and interim assessments were being conducted on the platform. This finding was inconsistent with Lonm (2009) who undertook a research on student use of a learning management system for group projects. It was found out that majority of the respondents indicated they will voluntarily elect to use the learning management system available to them.

2.4 Computer Literacy Skills and Perceived Ease of Use of the Sakai LMS.

In the view of (Eshet-Alkalai, 2004 as cited in Abubakar and Adetimirin, 2015, p.5) “computer literacy comprises a variety of complex skills (which include: booting a computer, how to use a keyboard, edit work, retrieve information from computers, send and receive e-mails, etc.) which users need in order to function effectively in digital environments”. Perceived ease of use is defined as “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p. 320). It means if users subjectively think that, using a particular system will be easy to use, they will continue to use it

Copious research studies have been done on the relationship between computer literacy skills and the perceived ease of use of e-learning platforms. Pituch and Lee (2006) postulated that, users’

knowledge about prior computer technical skills or experiences influence perceived ease of use as well as the intent to use any learning management system. Also, the extent of how end-users will perceive an e-learning system as easy to use, it is partly dependent on the computer literacy skills they possess and this will in tend determine the extent of use of the system (Lee, Cheung & Chen, 2005). In a study that was conducted by Choga (2015), the views of the respondents were sampled concerning the perceived ease of use of the Sakai LMS. This was done by allowing the respondents to rank on a Likert scale ranging from strongly agree, agree, average, disagree through to strongly agree the given variables which sought to determine the respondent's interaction with the e-learning platform. It was reported that 55% of the entire respondents strongly agree that they found it difficult to use the Sakai LMS, 18% agreed, 12% of the respondents believed the ease of use of the system under their lenses was average, 10% disagreed, 5% opted for strongly disagree. This is a clear indication that the Sakai LMS was difficult to use. This result is not surprising because, "It was earlier established that the greater part of the sample, thus 27 respondents (52.9%) indicated that they had never received training on the use of Sakai e-learning platform" and the majority of the respondents lacked the basic skills to access the system. Tagoe (2012) stated that, predictive variables such as computer skills or experience of students before entering university, and computer self-efficacy or confidence has an influence on the perceived ease of use and extent of to use e-learning platform.

Croxall and Cummings (2000) postulated that the adoption of any information system is dependent on the level of computer proficiency that end-users possess. Similarly, Picciano and Seaman (2007) also added that the level of knowledge, skills, and ability to use learning management system has a positive strong relationship. They further posited that experience in using the internet

and related computer technology, they more they will accept, find it easy and continue to use learning management system, for instance, like Sakai LMS.

Arhinful (2016), explored the experiences of end-users on the adoption of the Sakai LMS in Brock University. The findings brought to bear that inadequate computer skills of users of the Sakai LMS especially among the first years had negative effects on the ease of use and ultimately affects the level of usage of the system. Some of the respondents stated that;

“When I came to Brock I did not know what Sakai Learning Management System was so when the first assignment was posted, I started panicking, I didn’t know where or how to access it. I found this to be a barrier, even though there are orientations on what to expect in the course, they don’t teach you how to use the platform or where to get help”.

It can be clearly shown from this feedback that, the level of computer literacy skills and ease of use of the Sakai LMS has a positive correlation, hence it can be inferred that the higher the level of computer proficiency the higher the ease of use and the extent of use of the Sakai LMS.

In conformity to what Arhinful’s (2016) study revealed, Stephanie (n.d) also investigated the relationship between computer proficiency and the extent of use of the Sakai LMS. It was reported that the survey focused on three universities; the University of Michigan, the Texas State University and University of Limerick. The results indicated that, students who are novice users were 3.6%, 4.0% and 64.0% which represents University of Michigan, Texas State University and University of Limerick respectively and University of Limerick. 64.0%, 68.0%, and 17.0 % were intermediate users from the University of Michigan, the Texas State University and University of Limerick respectively and lastly, 32.5%, 27.0% and 8.2% represented University of Michigan,

Texas State University and University of Limerick respectively and this was for advanced users. The results showed that there was a positive correlation between the level of computer proficiency and ease of use which had a strong effect on the extent of use. For instance, the University of Michigan had high scores in terms of intermediate users who used the Sakai LMS followed by the Texas State University and then the University of Limerick with the least level of usage. It can be inferred from these findings that, intermediate users found it easy to use the Sakai platform and this was evident in the level of usage. Hence computer literacy skills is very critical to the ease of use of e-learning platforms. This study was consistent with Markwei (2007); Leung & Ivy, (2003); Acheampong (2016). However, according to Pelgrum (2001), similar research was undertaken and it was discovered that the level of a computer literacy skills or prior experience in the use of a computer did not play a significant role on the ease of use of e-learning system.

In the work of Tagoe (2012), it was discovered that there was a significant relationship between users computer experience, ownership of computer and ease of use of e-learning. These findings confirmed what Afari-kumah and Achampong (2010) revealed. It was observed in the study that there was a positive relationship between prior computer experience and the perceived ease of use of the e-learning system. Similarly, James (2010), investigated users experiences in terms of computer technology and perceptions of using learning management systems. In the study, the Sakai LMS was compared to Blackboard in terms of features. The findings indicated the interface of Blackboard was user-friendly and better as compared to the Sakai. Consequently, users found it easier to use Blackboard than Sakai. It can be deduced that, users who found the interface of the Sakai had no or little training which made them perceive the interface as complex hence they did not find it easy to use it.

On the contrary other research findings have proven that Sakai LMS was easy to use for instance, Arhinful (2016, p.65,) theorised that, “students will be more satisfied using the Sakai LMS if they feel that it is easy to use even than when they perceive that it is useful for studies but difficult to use”. He further investigated the perceived ease of use of the Sakai LMS. The results suggested that although students were interested in the usefulness of Sakai LMS in their academic work, their most important concern was the ease of using the platform. This feedback suggests that “designers of the Sakai platform should pay critical attention to the functionality, graphical user interface and the interactivity of the platform as echoed by some of the students in the focus group discussion”. To achieve this goal with ease, users need to be trained at least to have the basics in computer literacy skills as it was emphasised.

This was also confirmed by what Suri and Schumacher (2008) unveiled in a study which focused on determining users experiences with the Sakai LMS. The findings signposted that, respondents regarded the platform as simpler to use compared to Blackboard even though they indicated that Sakai lacked some advanced functionalities compared to other proprietary solutions such as Blackboard. This also complements the finding of Afari-Kumah and Achampong (2010) where the findings showed a positive relationship between prior experience and perceived ease of use.

From the ongoing dialogue from the above literature review, arguably, it is evident that an individual user will find a learning management tool easy to use if at least, the user has some level of previous computer literacy skills experience or might have been trained on how to use the system.

2.5 Usefulness of the Sakai LMS.

Numerous authors have arrived on the fact, end users of a system pay a critical attention to how a system will be beneficial to them, however, because users have a varied purpose of using a system, perceived usefulness of a system is relative. According to (Davis, 1989 as cited in Suorsa and Eskilsson 2014, p.6), “perceived usefulness is defined as ‘the degree to which a person believes that using a particular system would enhance his or her job performance’”. Under the same lenses, perceived usefulness is defined as the perception of how the user sees improvement in learning when the e-learning system is adopted and used. (Sun, 2008). Choga (2015) added, in an institutional context, a system will be regarded as useful if one believes that it will have a relationship on the job

In view of the above definitions, it can be understood that the usefulness of Sakai LMS will determine the user’s attitude towards the use of the system in terms of satisfaction and extent of use. Saade, Nebebe, and Tan (2007) revealed that individual will tend to use a particular learning management system when they perceived that it will enhance their performance as far learning is concerned. According to Beard and Harper (2002) concluded that, most users of Sakai LMS perceived the system as a useful learning platform. For instance, Nuta and Pusca (2017) undertook a research study on an assessment of distance learning education platform options Sakai LMS and opportunity among students in the Danubius University. It was stated that the choice of the Sakai LMS in distance learning was as a result of “flexibility, timesaving orienting and learning resources in multiple environments” (p.1). Further, in the same study, the researchers discovered that saving time is one of the most important factors in choosing a distance learning programme. It was reported that “93.7% of students responded that the e-learning platform is a single point of

access to the information required in the learning process” (p.8). Again, it was reported that 86.6% of the respondents indicated the Sakai platform makes it easy to communicate with lecturers, instructors, and colleagues. It was arrived at that the Sakai LMS was usefulness to the users as far as the academic purpose was concerned.

In the same study, the findings showed that, because of flexible access to learning materials and the opportunity to interact with their instructors and colleagues at a convenient time, the respondents indicated that the Sakai LMS was very useful. With regard to the data that was gathered, 41.6% of students who participated in the survey were enrolled in the Faculty of Law, 40.8% in the Faculty of Economics and 17.6% were enrolled in the Faculty of Communications and International Relations. Thus they indicated that the Sakai LMS brought about flexibility in accessing materials.

Oheneba-Sakyi and Amponsah (2018, p. 33) undertook a research Sakai LMS experience at the University of Ghana, Legon and it was revealed that the Sakai platform made teaching and learning very effective and interactive... students were engaged through chats, forum questions, assignments and projects that required them to apply the knowledge acquired from class to critically analyse the existing situations and suggest ways to improve them. In the same study, the respondents brought to light that, the Sakai platform has facilitated academic, for instance, submission of assignment online and requires no need to print every assignment. Another fascinated revelation was that; “very reserved and shy students were able to freely contribute in the online classroom and they gave brilliant ideas and suggestions they could not have had the courage to do so in the traditional classroom setting.”

Rafi, Samsudin and Hanafi (2015, p.11), compared the perceived benefits between an Open source learning management system (Sakai) and Proprietary learning management system in two Malaysian universities. The researcher reported that “the perceived benefit’s mean score was significantly higher for the group that used open source system (Sakai) than for the group that used the proprietary systems”. Also, Kulshrestha and Ramswaroop (2013) investigated the benefits of the learning management system in Indian education. The findings demonstrated that the exposure to learning management system compelled users to gain computer literacy skills which in the normal circumstances would not be so. It was stated that among the pool of students, one could find certain portions to be well versed in computer aspects however this cannot be generalized. Among these were intermediate users and some who had negligible knowledge. However, learning management systems will enable them to overcome this barrier and enable them to gain more technical skills as they have to explore various features.

Furthermore, Nuta and Pusca (2017) carried out a study on an assessment of distance learning education platform options and opportunity in Romania using Sakai LMS. The outcome of the study revealed that the Sakai platform supported the Distance Learning students with tools through individual study and flexible tutorials, easy access to lecture materials, the ability to have access to grades obtained from quizzes and ongoing evaluations and providing information on tutorial activities and exam schedule. It was further revealed that majority of the users could communicate more easily with tools provided by e-learning platform. In the same study, it was reported that 97.1% of students believed that the use of the platform enabled better management of time, regardless of the location. Thus, distance learning, mediated by the e-learning platform allows the student to save time (by decreasing/eliminating distances to/from the university, obtaining the

necessary information faster, etc.). Furthermore, the author reported that the Sakai LMS “has both the scalability and capacity to handle large-scale installations for more than 200,000 users.

Also, Dube and Scott (2014) undertook an empirical study on the use of the Sakai LMS in Zimbabwe. The researcher brought to light that the Sakai LMS is an essential learning platform due to its availability, access to technical support, facilitation of communication and interaction between the lecturer and students, enabling of quick assessment and immediate feedback (p.5). The researcher later noted that, the Sakai LMS is currently being used in the departments of Applied Mathematics and Statistics and Operations Research. This is a positive indication that, the Sakai platform is a valuable tool as far as teaching and learning is concerned.

In generic terms, in a study that was conducted by (Tella, 2012); Soon and Fraser, 2011) they arrived at similar findings as far as the usefulness of Sakai LMS is concerned. It was revealed that the Sakai LMS was adopted because of some phenomenal benefits such as information quality and readiness, self-efficacy, and self-regulated learning system quality.

Additionally, in terms of flexibility and provision of educational resources to distance learning students and many others as critical usefulness of Sakai LMS, Coates (2007) reported that, learning management system like Sakai was highly accepted by the users, some of the reasons were; it enables users to access course at a relatively cheaper cost and provide a virtual classroom where users can interact digitally. This was congruent with what Breen, Cohen and Chang (2003) revealed in a research study which focused on teaching and learning online for the first time. The result indicated that the learning management system that was adopted by management contributed

positively to learning by enabling users to access course materials easily irrespective of their geographical area and also provided students with quick feedbacks from their instructors via online.

In addition, Qiu, Wriugh, and Xu (2010) undertook a study on information technology and distance education. The outcome of the study showed that majority of the respondents were in favour of courses delivered online. The intent for such favourable attitude was because the system was flexible and also reduced traveling effort and time. Furthermore, Wang (2013) also postulated that learning management systems have improved student morale, enhanced information skills acquisition, and student achievement and may even reduce student withdrawals absenteeism and have given the opportunity for those who felt shy in class to contribute effectively.

In the same way, Palmer (2010) made an extensive research on multiple case study of institutions using or piloting Sakai LMS. The finding was supported by what Kulshrestha and Ramswaroop (2013) found in a research study. It was ascertained that the use of Sakai LMS enabled users to gain extra experiences outside their classroom.

Also, in a research study that was conducted by Soon and Fraser (2010), on “knowledge sharing and knowledge exchange in distance education online group work” using Sakai LMS. It was revealed that students were greatly using the group work tools for communication, group collaboration and storage of documents for future use hence the usefulness of the Sakai platform to students was evident. Moreover, Lonn, Teasley and Krumm (2009), investigate undergraduates' perceptions and use of a learning management system using two campuses. The respondents were asked how valuable the learning management system was to them. They were asked to rate their

agreement for their course-related activities on a 5-point Likert scale from 1 = Strongly Disagree to 5 = Strongly Agree. All students rated the tools within the learning management system quite positively as almost all items received a rating of 4.0

Liaw (2008) also investigated students' satisfaction, their behavioral intention, and effectiveness of e-learning. Phenomenal benefits of the learning management were revealed. Majority of the respondents were on the view that the platform enabled materials to be readily available, place of independence, course material accessibility, flexibility, and convenience.

Similarly, Juhary (2014) embarked on a study concerning perceived usefulness and ease of use of the learning management system as a learning tool. Two important perspectives of the respondents were discovered. Firstly, respondents were actually interested in using the learning management system as supported by the mean score of (2.89). It was reported that similar trends were observed for the other two highest mean scores. The respondents felt that the content of the learning management system was helpful with a mean score of (2.94) and that they had adequate computing facilities with a mean score of (2.93). Malikowski, Thompson and Theis (2007) postulated that learning management system provides immense benefits to the user, for instance, it enables instructors /tutors to share course materials with students, make a class announcement, download and upload assignments, and help them to discuss subject areas digitally.

On the contrary, Choga (2015) made an extensive research and on one of the objectives, it focused on the usefulness of the Sakai LMS. The results indicated that the use of the system did not have much a positive impact on their studies. It further reported that, 45% of the respondents strongly

disagreed with the fact that, Sakai LMS was useful as far as their academics was concerned. Also, it was observed that 20 % agreed to the average option, 10% and 5% responded as agreeing and strongly disagreed respectively. Similarly, in a study that was conducted by Dube (2017), the respondents indicated that the learning management system lack flexibility with minimal value and did really contribute to their academic work.

Lastly, despite some of the limiting features of the Sakai LMS, respondents appreciated the fact that it had tools such as chat forums, grade book, resources, email systems among other useful features that bring great impact on teaching and learning (Simonson, 2007).

2.6 Extent of Use of the Sakai LMS

Numerous institutions especially tertiary institutions and colleges have at least adopted one or two learning management systems to supplement the traditional or conventional mode of teaching. It has gained a strong root in most western countries and this is not surprising because that's where the idea of learning management system originated from. Most African universities and colleges are no exception, they are also gradually adopting learning management systems. This can be evident in the study which was conducted by (Namisiko, Munialo & Nyongesa, 2014). It was observed that governments and management of academic institutions in African countries have demonstrated much interest in the incorporation of learning management systems with the conventional way of teaching and learning. In the works of Isaacs and Hollow (2012), it was found out that more than half of 447 universities in Africa were using learning management by the end of the year 2012. For instance, in Ghana, University of Ghana, Legon has adopted Sakai LMS

while Kwame Nkrumah University of Science and Technology and University of Professional Studies, Accra have adopted the Moodle learning management system and many others. The paramount rationale behind this initiative is to alleviate the undesired issue of turning away many qualified applicants who attempt to enter tertiary institutions especially the public institutions. Suorsa and Eskilsson (2014) postulated at the conclusion part of a research findings that lecturers or instructors play a critical role in influencing the perception and the extent of use of any learning management platform by students.

Juhary (2014) also, recorded from a survey which revealed that respondents were actually interested in using the Sakai LMS hence, the high level of usage was recorded among the students. The findings were supported by the mean score of 2.89 hence they were greatly utilizing the Sakai platform. Similarly, Lonn, Teasley and Krumm (2009) investigated undergraduates' perceptions and use of a learning management system using two campuses such as residential campus and commuter campus. Students from both campuses were actively engaged in the use of the various functional tools of the learning management system. Among the functional tools of the system, announcement tools emerged as tools which students highly utilized. It was reported that, Overall, high usage of the learning management was recorded.

Stephanie (n.d) conducted a survey on the evaluation of the Sakai LMS among three Universities such as the University of Michigan, the Texas State University and University of Limerick. In general, it appeared that most of the students' visited the Sakai platform and utilized the tools to the highest. It was further explained that the level of computer proficiency were considerably high, students obtained training on the use of the system and instructors constantly engaged the class in

activities using the system. These findings were congruent with what Pituch and Lee (2006) prostituted; external variables such as prior computer experience, level of computer skills may influence the intention and extent of use of technology platforms.

Furthermore, Arhinful (2016), explored the experience of Canadian and international students on Sakai LMS adoption. The response from the respondents showed that the majority of the students used the Sakai platform for submitting their assignments, downloading course articles, reading announcements and checking power point presentations hence, and was concluded that the system was highly used.

Also, in the research study which was conducted by Rafi, Samsudin and Hanafi (2015), the sample comprised 608 information technology major undergraduates from two Malaysian universities. The researchers compared the perceived benefits and user satisfaction between an open source learning management system (Sakai) and proprietary learning management system in the two Malaysian universities. It was reported that “an independent-samples t-test indicated that the learning management system uses mean scores (4.02 were significantly higher for the group that used the Sakai platform than for the group that used the proprietary systems (3.86). From this statistics, it can be evident that there was an exponential use of the Sakai LMS.

On the flipside, in the works of Dube & Scott (2014), it was revealed that the extent of use of the Sakai platform was considerably low. The low utilization of the platform was attributed to the fact that instructors were not engaging the students on the platform. Consequently, apart from the underutilization of the platform, “instructors and lecturers were not engaging the students in using

the learning management platform as the result the system was poorly used by the students , hence, it was underutilized, “robbing the students of an enjoyable, flexible, convenient and interesting learning atmosphere. Above all, the institution is deprived of realising the anticipated return on their technological investment”.

Further, according to Choga (2015), some tools available on the Sakai platform have never been used by the students in as much as they have been made available for use by their respective lecturers and tutors. Such examples include the email tool, announcement tool and many other tools of the system have been neglected. Consequently, the extent of use of these tools on the Sakai by students was very low. In the same study, the respondents were tasked to indicate the reasons for using the Sakai platform and the frequency of its use. The findings brought to bear that a high percentage of the respondents used the platform for downloading lecture materials, for submitting assignments and others and further, the findings revealed that there were using the platform because it was mandatory for them to use for instance for and for taking quizzes and interim assessments.

On the contrary, Soon & Fraser (2011) undertook a research study on knowledge sharing and knowledge exchange in distance education online group work . It was indicated that majority of the students frequently used the Sakai platform for downloading lecture materials, for chatting and sending email, these tools on the Sakai platform are option to the students but were highly utilised.

From the foregoing related literature, it can be deduced that the authors arrived at diverging results as far as the extent of use of the Sakai LMS is concerned. However, arguably, there are some

determinants that lead to the extent of use of the Sakai LMS such as student's the involvement, experience of computers training on the use of the system and its usefulness.

2.7 Challenges in the Use of the Sakai LMS.

Despite the numerous uses of the Sakai LMS, it is saddled with some challenges.

2.7.1 Inadequate Training

Many related research studies have proven that, many users of learning management systems cannot effectively use the system due to the lack of support services such as orientation and proper training on the use of the system. For instance, Unwin (2010) embarked on a survey on digital learning management systems in Africa: myth and realities, with 358 respondents from 25 countries. It was brought to light that, 74% of the respondents indicated that, lack of training and technical support impeded them from making full use of the learning management system. Consequently, relatively, they could not use the features of the Sakai LMS.

The above findings was also, supported by what Chitanana, Makaza & Madzima (2008) found from a research which focused on the digital learning management systems in Africa in four universities in Zimbabwe. From the results, it was indicated that, 76% of the respondents in the survey indicated that the low utilisation of the learning management system was as a result of lack of training and proper orientation of users concerning the use of the system. In the same vein, a similar research was embarked in the University of Botswana where it was reported that lack of training and support services hindered 503 students which was more than half of the entire respondents from utilizing the learning management system to its full potentials Tella (2012). Nuta

& Pusca (2017) also confirm from a research study that assessed distance education learning platform option and opportunity and the findings showed that lack of training coupled with poor knowledge in the features of the learning management system made many groups who are users of the system to shun away from using it. Again, Dube & Scott (2014) investigated on the use of the Sakai LMS and brought to bear that the majority of respondents (77.3%) indicated the lack of training hindered them from using the Sakai platform as expected.

Cavus & Zabadi (2014) have postulated that based on the findings of a research study which focused on a comparison of open source learning management systems. It was arrived at that, the learning management platform looked so complex and it was attributed to the fact that, the users lacked the requisite skills to use it as a result of the lack of training. It was categorically stated that “Sakai is a learning management system with complex webpages making information difficult to obtain”

2.7.2 Lack of ICT Infrastructure

Furthermore, Choga (2015) revealed that students developed negative attitude towards the use of Sakai LMS and the cause was attributed to the fact that, there was lack of ICT infrastructure. Again Salawudeen (2010) noted that, users found it expensive to purchase personal computers or laptops in Nigeria taking into consideration the income level of an average worker in the country as the results and even those who were privilege to have laptops were still office because it attracted extra cost to go online.

2.7.3 Lack of Computer Skills

Choga (2015) reported that in study that only a handful of the students confirmed knowledge and experience in using the system. This is a crystal clear indication that, the Sakai LMS has been underutilised. Precisely, surprisingly, students from the Faculty of Communication and Information Science (CIS) which this research targeted, made a good number of those who confirmed lacking knowledge about the use of Sakai.

Furthermore, the lack of knowledge has been identified as one of the critical reasons when the utilisation of the Sakai LMS is considerably low. This was confirmed by Dube & Scott (2014) in which it was revealed that lecturers/Instructors and tutors did not use the system for teaching mainly due to lack of basic skills of the system, hence they failed also to engage students to utilize the phenomenal features of the Sakai LMS. Smet (2012) recommended that “users need to acquire a basic knowledge in computer technology before they are able to move on” (p. 690). In his study it was indicated that 65.9% of the respondents lacked the technical knowhow hence they found it difficult to use the Sakai LMS.

In addition, it has also been proven by Salawudeen (2010) in a study that was conducted in Nigeria that lack of computer skills is one of the major challenge end users face when using the learning management system. It was observed that most of the students had no computer education background, consequently, they were afraid of operating one. Some even go to the extent of hiring experts to complete online forms pertaining to admission, and registration of documents.

2.7.4 Lack of Internet Access

Another setback that extent literature has revealed is the fact that the lack of internet accessibility is one of the major hindrances to the use of the Sakai LMS. For instance, (Ngeze, 2016; Ssekakubo, 2011; Unwin, 2010; and Lwoga, 2012), stated that, low internet facilities is the paramount reason why users do not use the Sakai platform. Again the findings of Mtebe and Raisamo (2014) is not different from what has already being found. It was learnt in the study that 9 out of 11 institution in Tanzania had low bandwidth thus it was less than 20mbps and consequently hinders users from using the Sakai platform.

Similarly, the findings from Mtebe and Raisamo (2014) was in congruent what Berg (2013) who found out in a study which focused on “the teaching assistants’ and undergraduate students’ first online teaching and learning experiences in an open distance learning context”. It was revealed that, the major challenge that users were saddled with was inability to access internet facilities, coupled with low bandwidth and this served as a great impediment for users to fully utilize the Sakai LMS.

Furthermore, the World Bank (2012) revealed that, one critical challenge that weighs down the use of learning management systems is the lack of computer infrastructure and the nternet is one of the critical challenges institutions in developing coutries especially those in sub-Saharan Africa. Also, it was reported a study conducted by Juhary (2014), majority of the respondents attributed unwillingness to use the learning management system to the internet problem including slow access and failure to get access.

2.7.5 System Error (Failure)

Juhary (2014) had reported that, most students developed negative attitudes to the learning management system because of constant system crash which deprived them from accessing the platform either in the middle of retrieving or downloading course materials. “The learning management system sometimes crashes and occasionally cannot be accessed. Although it appears that the majority of the respondents had hesitation to use the system” (p.8). Also, frequent system error was indicated in the study that was conducted by Wei, Wu & Zheng (2014) on the application of the Sakai in University of Science and Engineering. Respondents reported that, they continuously experienced system error using the Sakai platform and consequently, they were unable to complete tasks on the platform.

Further, Nasser, Cherif and Romanowski (2011) found out similar results on a research study which focused on the factors that impact student usage of the learning management system in Qatari schools. It was reported that, technical challenges such as system crash and freeze of the system took away the delight to use the system by the respondents. Similarly, Berg (2013) revealed that majority of students arrived at a consensus in terms of challenges associated with the learning management system. It was brought to light that the learning management was difficult to access especially at the crucial time when it was need most. Again, Juhary (2014) brought to light that the Sakai LMS was weighed down in terms usage due to some technical challenges such as loading problem, and system errors when logging in.

2.7.6 Lack of Awareness.

Furthermore, it has been observed that, another critical setback that contribute to the low utilisation of the Sakai LMS is the lack of awareness about the functional features or sometimes users are not even aware of its existence at all. This was evidenced in a research that was carried out by Leeder and Lonn (2014). It was surprising to know from the findings that both users and non-users were not aware of some features of the learning management systems instance Sakai platform.

An additional challenge which most literature did not reveal is that fact that, users are not aware of updates on the learning management system. This was evident in a study that was conducted by Berg (2013). Some students were not aware when assignments were published online. Some of the respondents expressed the sentiments that when some assignments were almost due that they were informed by their colleagues. Some of the respondents suggested that, such information can be disseminated via cell phones and if possible the system should be embedded with their phone so that they can receive alerts to quickly act on any information from their lecturers or tutors. It was concluded that there was poor communication between lecturers/instructors and students.

Again, Hall, ko and Morrissey (2012) asked respondents to indicate the challenges they faced using the e-learning platform. Users indicated that using the system was time consuming.

2.7.7 System Log in Failure

Also, Juhary (2014) observed that, students faced logging problem especially when accessing the Sakai platform for the first time and also responds time in terms of system loading was very low to the expectation of the respondents.

2.7.8 Unstable Power Supply

Moreover, in the works of Dube (2017); Choga (2015) a critical challenge from the study that focused on the use of Sakai LMS. The findings showed that, there was constant power cuts. Similar findings were observed by Kulshrestha and Ramswaroop (2013) who undertook a study on the benefits of Learning Management System (LMS) in Indian Education.

2.7.9 Complex System Interface.

In the works of Dube and Scott (2014), the study found that complexity of the Sakai learning management system is a major factors influencing the adoption and its usability. Davis (2005) undertook on a study which focused on the impression of Sakai LMS. It was revealed that the Sakai interface is not user friendly as expected. In the same study it was reported that the interface gets worse with upgrade because it was not designed well to suit the interest of the users.

In summary, it is evident that the common challenges that hamper the smooth use of the learning management system are poor internet accessibility, lack of personal computers, inadequate training and orientation, on the use of the system, system error when logging in, complex system interface, power outage, lack of requisite skills and insufficient system support.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter focuses on the methodology that was adopted for this study. According to Leedy (as cited in Ankrah, 2014, p.115) “the word method is coined from two Greek elements: meth and odos. The meaning of meth being “after” and odos, “way”. The term research methodology refers to the method adopted in carrying out a research study. Stahl, Bultitude and Rainey (2012); Trefry (2018) posit that research methodology is a way to systematically solve a research problem and may also be understood as a science of studying how research is done scientifically. It is the overall research approach, beginning from the theoretical underpinning to the collection and analysis of data. This section encapsulates the research design, selection of the subjects, population of the study, sample size, sampling technique, data collection instrument, pre-testing, data collection procedure, analysis and presentation of data.

3.2 Research Design

The Survey research methodology was adopted for this study. A survey provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of the population. Hence, from the results of the sample, the researcher can then either make claim or generalise about the population (Creswell, 2013). A survey research is an approach that collects data through sampling from the population and uses statistical analysis to make inferences about the population (Curtis & Curtis, 2011). The survey research permits one to collect quantitative data for a quantitative analysis using descriptive and inferential statistics. For instance, a quantitative research approach is considered superior because of the following reasons;

1. It has high reliability, thus, it enables a research to be replicated which brings out the credibility of the findings.
2. It can easily be generalized since it normally involves a large sample size. The larger the sample size, the lesser the statistical error, and the higher the statistical power and also, the higher the representation of the population.

There are arrays of research designs for various research studies; the primary intent for the choice of a survey research methodology for this study is not far-fetched. “Survey research methodology allows for the collection of a large amount of data from a sizeable population in a highly economical way” (Kumar, 2011 as cited in Acheampong, 2016, p.32). Again, the limited time scale for the research made the survey approach appropriate. Moreover, the approach allows for the investigation of a particular phenomenon (for example perception and use of the Sakai LMS) to some depth in a short time. Data is often collected using questionnaires which in turn allows for easy comparison in survey research methodology. Since this study will be dealing with a large population, the survey research survey research approach is therefore more appropriate.

3.3 Selection of Subjects

Subjects refer to the people that are selected for a research study. In the context of this study, the subjects comprised undergraduate students from the Department of Distance Education who use the Sakai LMS. This section covered the population of the study and the selection of sample. The sample size and sampling technique were determined.

3.3.1 Population of the Study

According to Sheldon (2010), a population is an entire group from which information is required. “The target group which the researcher is interested in gaining information and drawing conclusions is known as the population” (Agbofa, 2012, p.32). A population thus refers to the entire group of people, events or organisations or things that the researcher wishes to investigate. Simply put, a population is the total number of subjects that a sample will be drawn from. Usually, it is impossible for the entire population to be used by researchers to conduct a study due to the following reasons:

1. It will be very costly and time consuming.
2. It is very difficult to study a huge number of subjects at a time.
3. At times, it is impossible to study the entire population for example, when a researcher wants to conduct a study on an entire population of a country for a quick decision to be taken.

Students from the Department of Distance Education at the University of Ghana were used as the target population for this study. The reason why the researcher decided to use students from the Department of Distance Education is because it is one of the departments where the Sakai LMS was piloted in the 2013/2014 academic year, before it was rolled over to other departments in the 2015/2016 academic year (Ansong, 2015). It is also the department that is structured in a way that compels students to use the platform virtually for all their activities as far as teaching and learning is concerned. For instance, students are instructed to visit the Sakai platform for all their electronic learning materials. Also, Interim Assessment (IAs) and quizzes are conducted on the Sakai platform, and students are supposed to interact with their respective instructors and colleagues digital using the platform. The population for this study comprised all level 300 studies students

and they are enrolled on the following programmes; Bachelor of Arts, Bachelor of Science in Administration, Bachelor of Science in Nursing and Bachelor of Science in Information Technology. The total number of students was 790, which constituted the population of the study.

Table 3.1: Study Population

PROGRAMMES	TOTAL NUMBER OF STUDENTS
Bachelor of Arts	199
Bachelor of Science in Administration	224
Bachelor of Science in Nursing	316
Bachelor of Science in Information Technology	51
Total	790

Source: Field Data, 2018

3.3.2 Selection of Sample

A sample is a subset of a population that is selected to represent a particular piece of a research study. The selected individuals are known as the subjects and those that will end up participating in the study become the respondents. This section comprises the sample size as well as the sampling technique that was used for the study.

3.3.2.1 Sample Size

A Sample size refers to the number of the part of a population that is selected for a research study. According to Frankel & Wallen (2000), a sample size is a subset of a population and it also helps to describe the precision of research. The original intent for selecting a sample from a population include:

1. To reduce cost.
2. A sample may provide a researcher with the needed information quickly.
3. In a few cases, it would also be impossible to use the entire population for a study especially when there is an outbreak of an epidemic disease and urgent, a test must be done quickly to find out the cause and an immediate possible remedy. It will be impossible and impractical to conduct the test using the entire population within a shortest possible time.

As Gay (as cited in Agbofa, 2012) rightly points out, using a whole population in research is not always feasible and is impractical.

In this study, the researcher selected the sample size with reference to the sampling ratios proposed by Alreck and Settle (as cited in Ankrah, 2014, p.124). “They proposed that for different population sizes; a sampling ratio of 30% is adequate for a population of less than 1,000; a sampling ratio of 20% is adequate for a population between 1,000 and 10,000 and a sampling ratio of 10% is adequate for a population greater than 10,000. Only a small fraction of the entire population ordinarily provides sufficient representation of the group as a whole and enough accuracy to base decisions on the results with confidence”. The researcher, therefore, selected a sample size of 237 which is 30% of the 790 of selected students from the Department of Distance Education, University of Ghana.

$$\text{Sample size of students} = \frac{30}{100} \times 790 = 237$$

The total sample size = 237

With reference to the sampling ratios proposed by Alreck and Settle (1985), a proportionate sample size was selected from each level for the study. The proportionate sample size for each programme was calculated using the following formula:

$$\text{P.S} = \frac{\text{Total number of Distance Learning students reading a programme}}{\text{Total number of all Distance Learning students}} \times 237$$

Where P.S = Proportionate Sample size.

A total sample size of 237 was chosen from the population of 790 students for the study.

The following statistics show the population and proportionate sample size for each level.

Bachelor of Arts,	P.S = $\frac{199}{790} \times 237 = 59.699999982 = 60$
Bachelor of Science in Administration	P.S = $\frac{224}{790} \times 237 = 67.200000001 = 67$
Bachelor of Science in Nursing	P.S = $\frac{316}{790} \times 237 = 94.8 = 95$
Bachelor of Science in Information Technology	P.S = $\frac{18}{790} \times 237 = 15.299999994 = 15$

The table below gives information on the population and proportionate sample size for the study.

Table 3.2: Population and Proportionate Sample Size by Programme

PROGRAMME	TOTAL NUMBER OF STUDENTS	PROPORTIONATE SAMPLE SIZE
Bachelor of Arts	199	60
Bachelor of Science in Administration	224	67
Bachelor of Science in Nursing	316	95
Bachelor of Science in Information Technology	51	15
Total	790	237

Source: Field Data, 2018

3.4 Sampling Technique.

Sampling refers to the process of selecting members from a population which will be used to represent the entire population. According to (Creswell, 2013), sampling is that part of statistical practice concerned with the selection of an unbiased or random subset of individual observations within a population of individuals intended to yield some knowledge about the population of concern, especially for the purposes of making predictions based on the sample frame.

There are different types of sampling techniques that a researcher can adopt for a research study such as simple random sampling, convenience sampling, quota sampling, stratified sampling, cluster sampling and purposive sampling. The availability of the intended subjects and the nature of the research can determine the type of sampling technique that will be adopted for a study. For instance, if the supposed subjects are very difficult to locate, the Snowball sampling technique may be adopted.

The convenience sampling technique was used for this study. The convenience sampling technique is a non-probability sampling technique where subjects are selected because of their convenient accessibility (Acheampong, 2016). Despite the ideal nature of simple random sampling where every member of the population has an equal and independent chance of being selected and findings are more objective, free from bias and representative of the population, the convenience sampling technique was considered. The prime reason for using convenience sampling is the fact that, the subjects were Distance Learning students, who ideally do not have regular lectures. Rather, they have tutorials sessions with limited time and they only schedule for them to meet their instructors on weekends as scheduled. Seeing that students do not attend tutorials regularly, it will be difficult for the researcher to get all of them in the same place at a time to administer the questionnaire for the study.

3.5 Instrumentation

In the works of Hsu and Sandford (2018, p.1), “instrumentation refers to the tools or means by which investigators attempt to measure variables or items of interest in the data-collection process.”

3.5.1 Data Collection Instrument

A research instrument is a written list of questions, the answers to which are recorded by respondents (Kumar, 2011). A questionnaire was used to collect data which were relevant to this study based on the objectives. “A questionnaire refers to a device for securing answers to questions

by using a form which the respondent fills in by himself” (Chandra, 2017). The reasons for the choice of a questionnaire for this study can be evidenced from its characteristics such as

1. It saves the researcher’s time as each participant enters his/her responses on the questionnaire; as compared to the time required to conduct personal interviews.
2. It is very economical as compared to interviews.
3. Respondents have the feeling that, they will remain anonymous and this will enable them to give out an objective view as the purpose of a study demands.
4. Large amount of data on a broad range of topics may be collected within a fraction of time.

Again, the questionnaire is a widely used and useful instrument for collecting survey information providing structures, often numerical data, being able to be administered without the presence of the researcher and often being comparatively straight forward to analyse.

Despite the above strengths of questionnaires, it is saddled with some challenges such as not providing an opportunity to collect additional information through observation, probing, prompting and at times the inability to clarify questions while they are being completed. In spite of these weaknesses, the questionnaire is considered the most suitable for the nature and purpose of this research.

The questionnaire for this study had eight (8) parts. Part of the questionnaire for this study was structured and the other part was unstructured. “Yes” or “No” questions which are classified as a categorical scale was used to measure some items on the questionnaire.

The first part (Part 1) focused on Demographics Data of respondents. The second part (Part 2), the third part (Part 3) , fourth part (Part 4), the fifth part (Part 5) , the sixth part (Part 6) , seventh part (Part 7) and lastly the eighth part (Part 8) were captioned; “Students awareness about the Sakai

Learning Management System and its tools”, “Students’ attitudes towards the use of the Sakai Learning Management System and intention to use the Sakai Learning Management System”, “Computer literacy skills and perceived ease of use of the Sakai Learning Management System”, “Perceived usefulness of the Sakai Learning Management System”, “Extent of use of the Sakai Learning Management System”, “Challenges in the use of the Sakai Learning Management System.” and the final part looked at; “Respondents Recommendations” respectively. Each part indicated the purpose and had instructions which aided the respondents to respond to each question without or less difficulties and provided spaces where necessary.

Also, some of the questions in the questionnaire were the closed-ended Likert-scale type. This type of questionnaire has been found to be suitable for the measurement of attitudes and perceptions. This is because it enables respondents to indicate the degree of their belief in a given statement Best & Khan (as cited in Agbofa, 2012). Each respondent was given a set of questionnaire which contained series of questions and were told to respond to it using the Likert Scale ranging from 1 to 5 where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree and other being; Very Bad = 1, Bad = 2, Average = 3, Good = 4, Very Good = 5

Also, some questions in the questionnaire were open-ended. This offered the respondents an opportunity to express their opinions about Sakai LMS freely. Open-ended questionnaire gives respondents the latitude to freely express their views, hence making respondents express their true opinion. Popper (2004) asserts that open ended questionnaire helps to avert the situation where respondents will be restricted and may end up eliciting their views copiously.

3.5.2 Pre-Testing

Pre-testing of the questionnaire was done to ensure clear wording, legibility, comprehensibility and to gain initial insight into hidden issues such as the time of response, and other errors to be corrected. This exercise helped the researcher to test the reliability and validity of the instrument. Reliability refers to “the degree of consistency or accuracy with which an instrument measures the attribute it is designed to measure”. Validity, on the other hand refers to “the degree to which an instrument measures what it is supposed to be measuring” (Anaman, 2017.p.41).

Babbie and Mounon (2001) state that “no matter how cautiously a questionnaire may be designed, there is always the probability of error and the surest protection against such error is to pre-test the questionnaire”. Generally, pre-testing enables a researcher to discover possible weaknesses, inadequacies and ambiguities in the research instrument, so that they can be corrected before the actual data collection takes place. In light of this, 30 copies of the questionnaire were distributed to the University of Ghana Distance Learning students on Tema campus. This is because they had similar characteristics as the population of the study. Also, they had used the Sakai LMS to some extent and therefore were more appropriate to help test the questionnaire. The respondents were requested to make suggestions and comments that helped to improve the questionnaire. Some of the comments were as follows; “I think instructors should be changed to tutors since that is what we know”, and a word like “cumbersome” was suggested to be changed to “difficult”.

3.5.3 Validity and Reliability of the Instruments

4.5.3.1 Validity

In the quest to achieve validity of the constructs, the questionnaire was given to some faculty members who were experts in the Sakai platform at the Department of Distance Education. Based

on their suggestions and comments, the wording of some items were changed and some questions were reframed to the level which the respondent could comprehend in order to provide the true answers as the objectives of the study demanded.

4.5.3.2 Reliability

According to Bryman (as cited in Anaman, 2017, p.50), “the reliability of scales is at the heart of quantitative methodological research in social science that uses survey”. Kaplan (2004) also postulated that reliability assesses the ability of the scales used to yield consistent scores among the same participants at different time intervals. When the reliability coefficient of a construct is high, it becomes reliable and trustworthy. However, according to Tashakkori and Taddlie (2010), the reliability coefficient should be above 0.70 in order for it to be considered reliable.

The Cronbach alpha coefficient was adopted to check for the reliability of each construct used in the study. The Cronbach alpha coefficient is commonly used for testing reliability, it looks at the internal consistency among the items in the scale (Choga & Kim, 2015).

Although the values as shown in Table 3.3 are either close to or above 0.70, they are still in the range that is deemed acceptable, based on the common threshold values recommended by accepted literature (Nunnally & Berstein, 1994 cited in Moran, Hawkes & Gayar, 2010). For instance, Malhotra (2004) indicated that all values which are more than 60% (0.60) should be accepted.

Table 3.3: Construct Number of Items Cronbach Alpha (α)

Construct	Number of items	Cronbach Alpha
Attitudes towards the use	11	0.733
knowledge of Sakai platform	6	0.730
Perceived Ease of Use (PEU)	6	0.791
Perceived Usefulness (PU)	6	0.816
Frequency of use	8	0.605

Source: Field Data, 2018

3.5.4 Data Collection Procedure

The researcher gathered the data for this study on the University of Ghana main campus at the time the Distance Learning students were preparing for their end of semester examinations, so most of them were found on the University of Ghana main campus at areas such as; libraries and lecture halls. With the help of some students, the researcher located areas where their colleague students had gathered for tutorials and group discussions. For the areas where students had gathered with their tutors, the researcher asked for permission before some of the questionnaires were distributed. The researcher made enquiries to make sure that the subjects fell within the appropriate category before the copies of the questionnaires were distributed. The copies of the questionnaires were distributed to those who were available either before or after their tutorials classes. Also, the researcher distributed some of the questionnaires to students at libraries. The researcher then continued to carry out these same activities until the required total number of respondents for each discipline was obtained for the study. The questionnaires were distributed by the researcher and

assisted by the class representatives and group leaders when available. The researcher was available to answer questions from respondents any time they faced difficulties in answering any part of the questionnaire. At the point where subjects felt reluctant to take part in filling the questionnaire, the researcher encouraged them to do so.

3.6 Analysis and Presentation of Data

According to Burns and Grove (as cited in Acheampong, 2016, p. 42) “data analysis is the process of extracting from a given data, the relevant information from which a summarised and comprehensible numerical description can be formulated”. Data gathered for this study was analysed using descriptive and inferential statistics. “Descriptive statistics is concerned with the description, presentation and summarisation of a set of data in order to properly describe the various features of that set of data. In effect, descriptive statistics describe numerical data” (Acheampong, 2016, p.41). According to Curtis and Curtis (2011), inferential statistics allows a researcher to make an inference or deduction about the population from analysis of the sample. Inferential statistics helped the researcher to analyse the data and draw conclusion. The Chi-Square was used to test the relationship between variables such as the relationship between computer literacy skills and the perceived ease of use of the Sakai LMS of the respondents, and the perceived usefulness and extent of use of the Sakai LMS.

The Statistical Package for Social Sciences (SPSS) version 23 was used to analyse the data. The SPSS is a software application programme that is used for statistical analysis and manipulation of

quantitative data. The reason for the choice of the SPSS is the fact that it is easier to define variables, input data, and generate concise results that are easy to comprehend.

All the fully completed questionnaire were assigned with serial numbers (1, 2, 3...230) which aided the researcher in the easy identification and rectification of omitted items. All the variables on the questionnaire were entered into the SPSS with labels for easy interpretation and reference. Also, scoring codes were assigned to each response in the SPSS, with reference to the questionnaire, before the manipulation of data based on the objectives of the study. All wrong entries and omissions were rectified before the output of the data was extracted. For easy interpretation, frequency distribution tables, bar charts and pie charts were used to present the data for this study.

CHAPTER FOUR

ANALYSES AND PRESENTATION OF DATA

4.1 Introduction

This chapter presents the analysis and presentation of data gathered from the respondents. The data was gathered through the use of survey which encapsulates both open and closed-ended questions based on the objectives of the study.

“A response rate (also known as completion rate or return rate) in survey research refers to the number of people who answered the survey divided by the number of people in the sample” (Ankrah, 2014, p.142). According to Babbie (as cited in Anaman, 2017), a response rate of at least 50% is adequate for analysis and reporting. It was further stated that a response rate of 60% is good while that of 70% is very good and above is excellent.

Out of the two hundred and thirty seven (237) copies of questionnaire that were distributed proportionally, two hundred and thirty (230) were retrieved, representing a response rate of 97.0%. So therefore it can be inferred from Babbie’s assertion that, since the response rate for this study is 99.7 % it can be remarked as excellent. Wilson (as cited in Anaman, 2017), also asserts that a typical response rate of well-executed survey is around 40-50%, therefore it can be said again that, the response rate for this study is very high. The chapter has been organised under the following major sub-headings:

- i. Demographics Data of Respondents.
- ii. Awareness of the Sakai LMS and its Tools.
- iii. Attitudes towards the use of the Sakai LMS.

- iv. Computer Literacy Skills and Perceived Ease of use of the Sakai LMS.
- v. Perceived Usefulness of the Sakai LMS.
- vi. Extent of Use of the Sakai LMS
- vii. Challenges in the Use of the Sakai LMS.

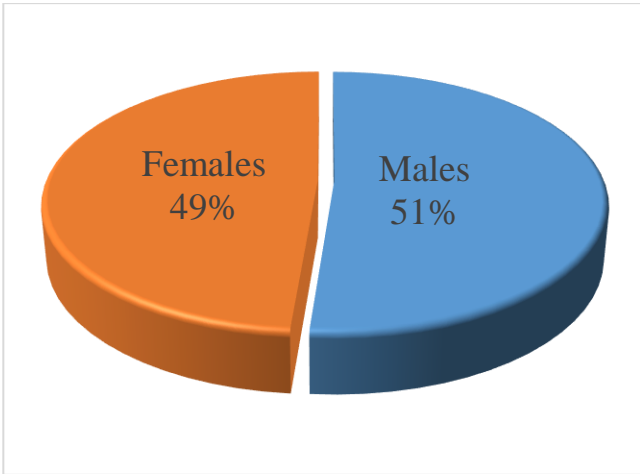
4.2 Demographics Data of Respondents.

Demographics data refers to the characteristics of a population which include; gender, age, race, ethnicity, education, profession, income level, marital status to mention but a few (DeFranzo (2012). The Demographics data gathered for this study were; gender, age and discipline of the respondents.

4.2.1 Gender

According to Encarta Dictionary, “gender is the sex of a person or organism, or of a whole category of people or organisms”. As earlier researchers have proven, gender has a significant influence on the use of new technology (Davis, 2000). Based on this reason respondents were asked to indicate their gender. The responses are shown in Figure 4.1

Figure 4.1: Gender Respondents



Source: Field data, 2018

As is shown in Figure 4.1, out of the 230 respondents, 118 (51.30%) were males whilst 112 (48.70%) were females. This means that more males responded to the questionnaire than females.

4.2.2 Age

“Age is defined as a description of an individual's development based on biomarkers” (Kowalczyk, 2018). Age is one of the critical Demographics characteristics in research that need to be considered especially in the area of electronic learning (Aramide, Ladipo & Adebayo (2015). In view of this, respondents were asked to indicate their age ranges. Table 4.1 depicts the age distribution of respondents.

Table 4.1: Age Distribution of Respondents

Age Range	Frequency	Percent (%)
Less than 26	145	63.0
26 - 35	74	32.2
36 - 45	6	2.6
46 and above	5	5
Total	230	100

Source: Field data, 2018

From the above table, it can be shown that, out of the 230 respondents, 145 (63%) were below the age of 26. Also, 74 (32.2%) were of the ages from 26 to 35. Again, 6 (2.6%) of the respondents constituted the ages from 36 to 45. Also, few of the respondents 5 (2.2%) were of the ages of 46 and above representing the least percentage of the respondents. It can be inferred from the age distribution that majority of the Distance Learning students are below 26 years. Erdamar and Demirel (2014) postulated that the age of 18-35 are considered the technological age and therefore they are often exposed to the use of ICT than the older people who are normally described as e-migrants.

4.3 Awareness of the Sakai LMS and its Tools

The Cambridge Dictionary defines awareness as “knowledge that something exists, or understanding of a situation or subject at the present time based on information or experience”. It is obvious that if intended users of a learning management system are not aware of its existence definitely they will not have the opportunity to utilise it. Also, if mechanisms are put into place to

get the system trumpeted to the intended users and without creating awareness about its various tools, the system will not be fully utilised. This section analysed the awareness of the Sakai LMS as well as its tools.

4.3.1 Awareness of the Sakai LMS

Awareness plays a key role in the implementation of every system. For a researcher to know whether intended users have accepted a system, their levels of awareness need to be considered first. The researcher finds awareness of the Sakai LMS critical for this study because if users are not aware that a system exists, surely, they will be deprived from benefiting from its value. Based on this background the researcher found it imperative to find out the extent of the awareness of the Sakai LMS by the Distance Learning students.

All the respondents 230 (100%) who took part in the study answered in affirmative indicating that they are aware of the existence of the Sakai LMS. This results was not surprising because as indicated in the preliminary chapter, the Sakai platform was adopted and used to supplement the weekend tutorials of the Distance Learning students by the Department of Distance Education. It is an indication that every student at least has used the Sakai platform.

4.3.1.1 Channel of Awareness of the Sakai LMS.

Channel of awareness in the context of this study refers to the means by which respondents got to know of the existence of the Sakai LMS. Against this background, respondents were asked to

indicate the channels through which they became aware of the existence of the Sakai LMS.

Table 4.2 shows the responses from the respondents.

Table 4.2: Channel of Awareness of the Sakai LMS

Channel of Awareness	YES		NO	
	Freq.	%	Freq.	%
Distance Education Handbook	42	18.3	188	81.7
Orientation	152	66.1	78	33.9
University of Ghana Website	69	30	161	70
Notice Board	26	11.3	204	88.7
Lecturers	68	29.6	162	70.4
Tutors	170	73.9	60	26.1
Friends	56	24.3	174	75.7

Source: Field data, 2018

As shown in Table 4.2, it was revealed that 42 (18.3%) of the respondents indicated that they became aware of the existence of the Sakai platform through the Distance Education Handbook. Also, 152 (66.1%), 69 (30%) of the respondents became aware of the Sakai platform through orientation and the University of Ghana website respectively. Another, 26 (11.3%) of the respondents indicated that they became aware of the Sakai platform through notice board whilst a significant number 204 (88.7%) of them were not. Further, 68 (29.6%), 170 (73.9%) of the respondents became aware of the Sakai platform through their lecturers and tutors respectively and also, 56 (24.3%) through their friends.

It can be observed that majority of the students became aware of the Sakai platform through the tutors assigned them.

4.3.3 Awareness of the Sakai LMS Tools.

Learning management system tools refer to the functional features that users can utilise to achieve a specific purpose (Pappas, 2017). If an effort is exerted for intended users to become aware of an available information system, however, and if they are not made aware of its various tools, the system will still be underutilised. In the light of this background, the respondents were asked to select the tools on the Sakai platform that they were aware of. Table 4.3 shows the awareness of the Sakai LMS tools available to the Distance Learning students.

Table 4.3: Awareness of the Sakai LMS Tools.

Sakai Tools	Yes		No	
	Freq.	%	Freq.	%
Assignment tool	212	92.2	18	7.8
Chat tool	190	82.6	40	17.4
Grade book tool	205	89.1	25	10.9
Test and quizzes tool	230	100	-	-
Forum tool	170	73.9	60	26.1
Calendar tool	159	69.1	71	30.9
Syllabus tool	158	68.7	72	31.3
Resource tool	192	83.5	38	16.5
Announcement tool	199	86.5	31	13.5
Email tool	117	50.9	113	49.1
Plagiarism checker tool	48	20.9	182	79.1

Source: Field data, 2018

The above table shows that all the respondents 230 (100%) indicated that they are aware of the tests and quizzes tool. Also, 212 (92.2%), 190 (82.6%) and 205 (89.1%) of the respondents are

aware of the assignment tool, chat tool, and grade book tool of the Sakai LMS respectively. It can also be shown from the table that; 170 (73.9%) of the respondents were aware of the forum tool, 159 (69.1%), 158 (68.7%) of the respondents were aware of the calendar tool and syllabus tool respectively. The rest of the responses on the awareness of the Sakai LMS tools were as follows; resource tool 158 (68.7%), announcement tool 199 (86.5), email tool 117 (50.9) and plagiarism checker tool 48 (20.9%). However, 182 (79.1%) of the respondents were not aware of the Plagiarism checker tool.

It can, therefore be observed that majority of the respondents were aware of the tests and quizzes tool which suggest that almost every Distance Learning student is aware of the test and quizzes tool. Also, on the average, the respondents indicated that they are aware of the email tool which also suggests that students do not really utilise it. Further, as shown from the table, the level of awareness on the plagiarism checker tool was minimal and this also brings to the realisation that most lecturers and tutor do not instruct students to submit their assignments and projects to the Sakai platform to check for the plagiarism index since it was not a requirement.

4.4 Students' Attitudes and Intention to Use the Sakai LMS.

Attitudes and intention are two critical variables which help to understand the reasons why a user may decide to use an information system or not use it (Tagoe, 2012). Therefore, to establish a clear understanding of the behavioural intentions of users towards the use of the Sakai LMS it was imperative to know their attitudes. This subsection captures respondents' attitudes towards the use of the Sakai LMS and intention to use the Sakai LMS.

4.4.1 Attitudes towards the Use of the Sakai LMS.

In the context of this study, attitudes mean one's general believe about favourableness or unfavourable of an information system. TAM asserts that the principal influence of beliefs is on attitudes that subsequently impact behavior. Against this background, the researcher found it necessary to find out students' attitudes towards the use of the Sakai LMS. Table 4.4 shows students' attitudes towards the use of the Sakai LMS.

Table 4.4 Attitudes towards the Use of the Sakai LMS

ITEMS	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Non Response	
	Freq	%	Freq.	%	Freq.	%	Freq	%	Freq	%	Freq.	%
I think that I would like to use the Sakai platform frequently	35	15.2	42	18.3	63	27.4	63	27.4	25	10.9	2	0.9
I enjoy using the Sakai platform for my studies.	51	22.2	66	28.7	57	24.7	44	19.1	9	3.9	3	1.3
I believe that the Sakai platform enhances my learning experience.	42	18.3	56	24.3	64	27.8	50	21.7	17	7.4	1	0.4
I can easily download my lecture materials from the Sakai platform.	25	10.9	38	16.5	56	24.3	72	31.3	38	16.5	1	0.4
I believe that the Sakai platform makes learning convenience, flexible and interesting.	43	18.7	50	21.7	64	27.8	54	23.5	19	8.3	-	-
The Sakai platform makes lecture materials readily available.	36	15.7	48	20.9	49	21.3	69	30.0	28	12.2	-	-
I found the tools on the Sakai platform very difficult to use.	31	13.5	46	20.0	93	40.4	48	20.9	7	3.0	5	2.2
I found the tools on the Sakai platform very valuable.	27	11.7	26	11.3	89	38.7	70.0	30.4	18	7.8	-	-
I visit the Sakai platform only when I am compelled by my instructor to do so.	37	16.1	47	20.4	51	22.2	58	25.2	37	16.1	-	-

I prefer sit down interim assessment (IA) and quizzes than taking them online on the Sakai platform.	41	17.8	28	12.2	36	15.7	43	18.7	82	35.7	-	-
In a whole I am satisfied with the Sakai platform.	47	20.4	53	23.0	66	28.7	49	21.3	15	6.5	-	-

Source: Field data, 2018

As shown in Table 4.4, 63 (27.4%) of the respondents were undecided on the assertion that “I think that I would like to use the Sakai platform frequently” and on the same breath, 63 (27.4%) of the respondents agreed. Besides 42 (18.3%) disagreed whilst 25 (10.9%) strongly agreed. In trying to ascertain the stand of this assertion “I enjoy using the Sakai platform for my studies”, 51 (22.2%) of the respondents disagreed, 44 (19.1%) agreed whilst 3.9 (3%) indicated strongly disagreed. Also, 64 (27.8%) were ambivalent on the assertion “I believe that the Sakai platform enhances my learning experience”, 50 (21.7%) agreed whilst 17 (7.4) indicated strongly agree.

Further, on the assertion “I can easily download my lecture materials from the Sakai platform”, 72 (31.3) of the respondents indicated agree, 56 (24.3%) were undecided whilst 25 (10.9%) strongly disagreed. Another, 64 (27.8%), 54 (23.5%) and 19 (8.3%) of the respondents indicated neutral, agree and disagree respectively on the assertion “I believe that the Sakai platform makes learning convenient, flexible and interesting”. Also, 69 (30.0%) agreed to the fact that, the Sakai platform makes lecture materials readily available, 49 (21.3%) were indifferent whilst 28 (12.2%) indicated strongly agree. Also, 93 (40.4%) of the respondents were ambivalent to the assertion “I found the tools on the Sakai platform very difficult to use”, 48 (20.9%) agreed but 7(3.0%) strongly agreed.

Also, it was revealed that, 89 (38.7%) of the respondents were neutral to the assertion “I found the tools on the Sakai platform very valuable”, 70.0 (30.4%) agree whilst 18 (7.8%) strongly disagree. Another, it was indicated that, 58 (25.2) of the respondents agreed to the fact that they do visit the Sakai platform only when they are compelled by their instructor to do so, 51 (22.2%) were neutral to the assertion whilst 37 (16.1%) of them strongly agreed and on the same breath 37 (16.1%) strongly disagreed.

Further, it was also observed that, a considerable number 82 (35.7%) of the respondents strongly agreed to the fact that they prefer “sit down” IA and quizzes than taking them online on the Sakai platform, 43 (18.7%) of the respondents agreed but 28 (12.2%) disagreed. This responses depict that, most of the students do not like the idea of taking IA and quizzes on the Sakai platform.

Also, it was brought to light that, 66 (28.7%) of the respondents were undecided whether in a whole they were satisfied with the Sakai platform, 53 (23.0%) disagreed and 15 (6.5%) strongly disagreed representing the least portions of the responses.

Table 4.5: Overall Attitudes towards the Use of the Sakai LMS

Responses	Ranges scores	Frequency	Percent (100%)
Negative attitudes	22 and below	41	17.8
Moderate attitudes	33-43	182	79.1
Positive attitudes	44-55	7	3.0
Total		230	100.0

Source: Field data, 2018

As shown in Table 4.5, if the total score of a respondent is 22 and below it means negative attitudes, from 23 to 43 signify moderate attitudes and from 44 to 55 shows positive attitudes.

It can be observed that majority of the respondents showed moderate attitudes 182 (79.1%) towards the Sakai LMS, 41 (17.8%) showed negative attitudes whilst 7 (3.0%) exhibited positive attitudes. Despite the fact that majority of the respondents showed fair attitudes, greater portion of the rest of the respondents showed negative attitudes and this an indication that the student's attitudes towards the Sakai LMS is not really encouraging.

4.4.2 Students' Intention to Use the Sakai LMS.

According to the Merriam Webster Dictionary, "intention is a determination to act in a certain way". In the works of Tagoe (2012), intention was defined as the willingness to use a technology which is influenced by attitude and eventually affects the actual user behavior. Knowing the intention of users towards the use of the Sakai platform will give a clue to whether students will use the platform or not to use it. For this reason, this section analysed students preferred mode of course instruction and their willingness to log on to the Sakai platform

4.4.2.1: Preferred Mode of Course Instruction

Preferred mode of course instruction denotes the methods that students or learners consider as ideal for teaching and learning. It includes face to face mode of course instruction and the blended mode of course instruction. Allocation of time between blended learning and face-to-face instructional strategies is not the question but what is most important is the method that the students will prefer. Based on this background, respondents were asked to indicate their preferred mode of teaching and learning. Table 4.6 presents the responses from the respondents.

Table 4.6: Respondents' Preferred Mode of Instruction.

I solely prefer the traditional classroom (face-to-face) teaching and learning rather than complementing it with the Sakai platform		
Response	Freq.	%
Yes	204	88.7
No	16	7.0
Non response	10	4.3
Total	230	100

Source: Field data, 201

As shown in Table 4.6, a significant number 213 (92.6%) of the respondents answered in the affirmative that they preferred only the traditional classroom (face-to-face) teaching and learning than complementing it with the Sakai platform whilst 16 (7.0%) indicated No. This is an indication that, the Distance Learning students preferred the conventional mode of instruction than supplementing it with the Sakai platform.

4.4.2.2 Students' Willingness to Log on to the Sakai Platform.

Willingness according to the Oxford Dictionary is defined as “the quality or state of being prepared to do something; readiness”. In as much as the Distance Learning students are required to take their interim assessment and quizzes using the Sakai platform, it is important to determine if the students will voluntarily log on the platform to utilise it for their day to day activities such as online discussion, downloading of lecture slides and lecture tutorials. In the light of this background, the respondents were asked to indicate if they voluntarily logged onto the Sakai platform. The responses are as shown in Table 4.7.

Table 4.7: Respondents' Willingness to Log on to the Sakai Platform.

I will voluntarily log onto the Sakai platform		
Response	Freq.	%
Yes	87	37.8
No	138	60.0
Non responses	5	2.2
Total	230	100

Source: Field data, 2018

As indicated in Table 4.7, a sizeable number 138 (60%) of the respondents answered contrary to the assertion “I will voluntarily log onto the Sakai platform” whilst 87 (37.8%) answered in affirmative. This suggests that, most of the Distance Learning students are not in favour of using the Sakai platform for their studies.

4.5 Computer Literacy Skills and Perceived Ease of Use of the Sakai LMS.

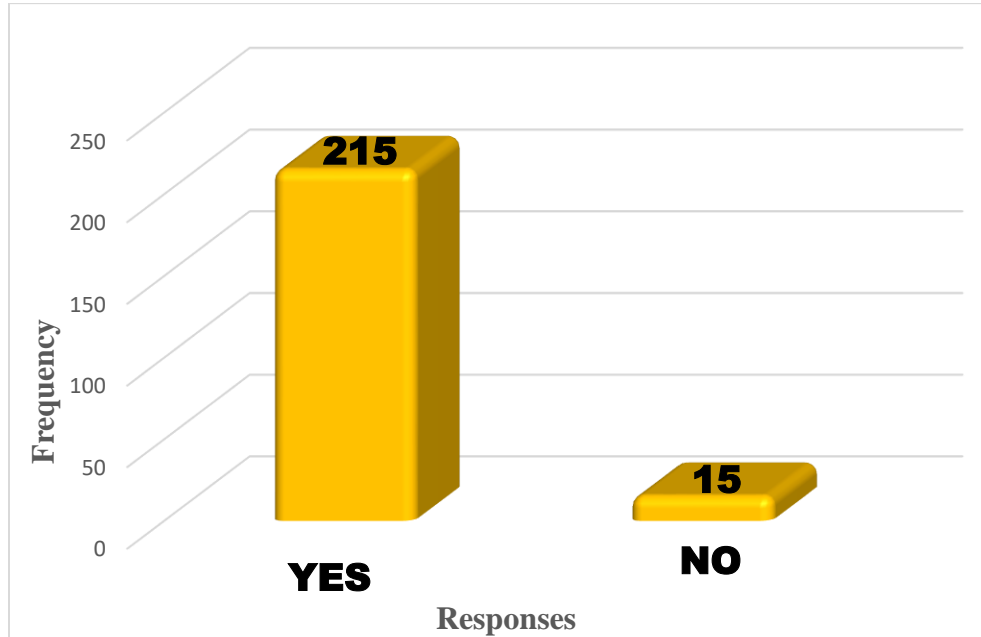
Computer literacy skills is one of the critical variables that influence the extent at which users perceive a system as easy to use as found by numerous authors. Therefore, to be able to determine and understand how the Distance Learning students perceive a system as easy to use, it is critical to know their level of computer proficiency. This section covers students' computer literacy skills and perceived ease of use of the Sakai LMS.

4.5.1 Computer Literacy Skills

Computer literacy skills is the ability to use a computer such as knowing how to log in, use keyboards, mouse, explore and to use its features or tools and the internet (Emily, 2016). A computer literacy skill is considered as the gateway to the acceptance and use of any information technology. In the quest to determine students' computer literacy skills therefore, this part analysed respondents' knowledge and skills to use a computer and other related technologies, followed up by their level of computer literacy skills, the extent of Sakai training as well as navigation on the Sakai platform.

4.5.1.1 Knowledge and Skills to Use a Computer and other related Technology

Knowledge is the theoretical or practical understanding of a subject and skills are the proficiencies developed through training and experience (Lauby, 2013). In order to fathom the experience in terms of computer skills which the respondents possess, they were asked to indicate if they had the knowledge and skills to use a computer and other related technologies. The responses from the respondents are shown in Figure 4.2

Figure 4.2: Knowledge and Skills to Use a Computer and other Related Technology

Source: Field data, 2018

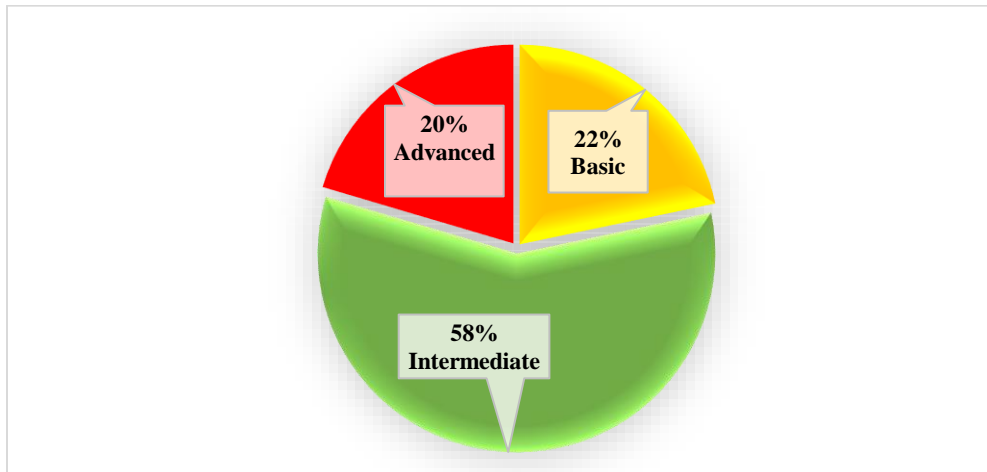
From Figure 4.2, it can be seen that 215 (93.5%) responded in the affirmative that they had knowledge and skills to use computer and other related skills whilst 15 (6.3%) of the respondents indicated otherwise. It can therefore, be stated that majority of the respondents have at least prior knowledge and skills to use a computer hence this will serve as a building block to aid them to use the Sakai platform with ease.

4.5.1.2 Level of Students' Computer Literacy Skills.

The level of computer literacy is the stage at which one may be classified as far as knowledge and skills to use a computer is concerned. It is critical to know the different levels of computer experience of users in order to holistically determine the ease of use and extent of use of e-learning platform (Fusilier & Durlabhji, 2005). Based on this background, respondents were asked to

indicate their level of computer proficiency. Figure 4.3 depicts the computer literacy skills of the respondents.

Figure 4.3: Level of Computer Skills



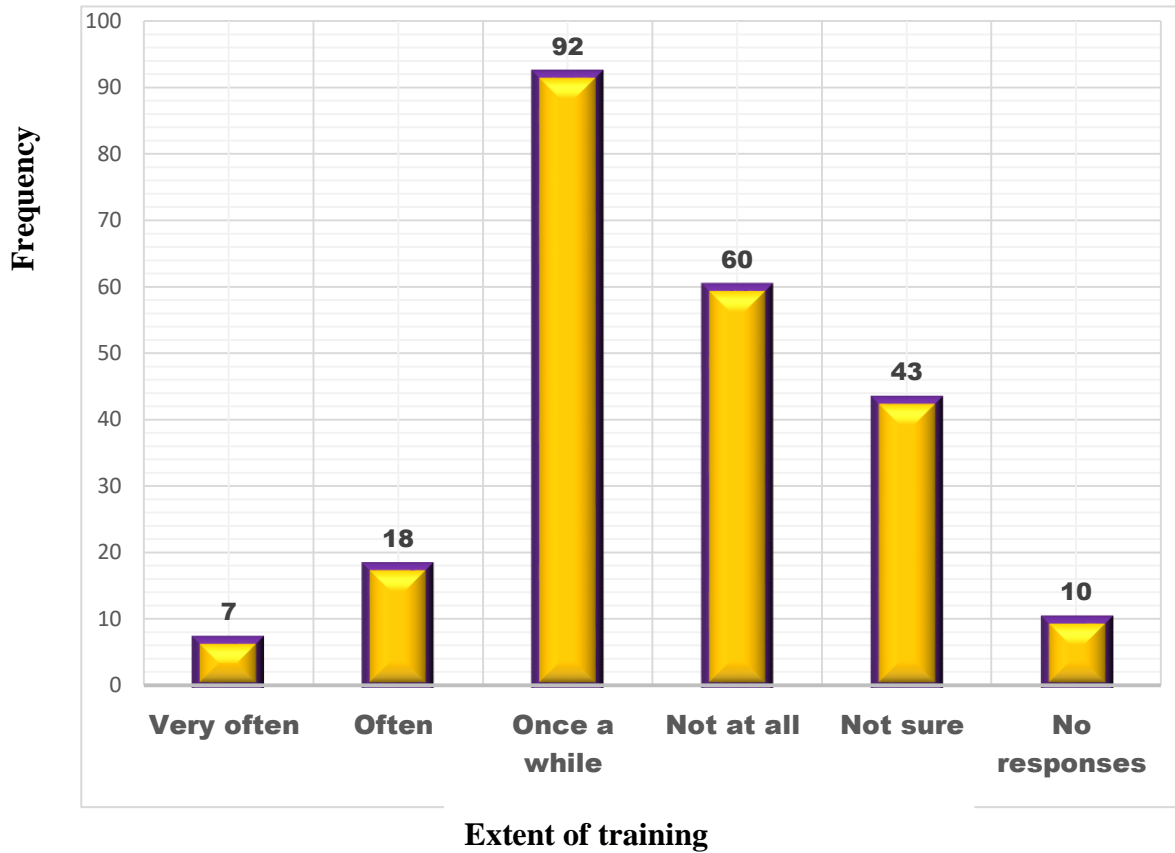
Source: Field data, 2018

As shown in Figure 4.3, 133 (58%) of the respondents did rate their knowledge and skills in using a computer and other related technologies as intermediate, while 50 (21.7%) rated their level as basic and 47 (20.4%) indicated advanced level. This data is an indication that majority of the students have some prior experience, knowledge and skills to use the Sakai platform.

4.5.1.3 Extent of Sakai LMS Training

Sufficient training on the use of a learning management system is a crucial factor to determine user's perception and the level of usage. This implies that if users receive sufficient training on the use of the Sakai platform, they will find it easy to use it and which will eventually increase the extent of its use as theorised in the Technology Acceptance Model (TAM). Based on this background, the respondents were asked to indicate the extent of training they had received on the Sakai platform from the distance units. The results are shown in Figure 4.4

Figure 4.4: Extent of Sakai LMS Training



Source: Field data, 2018

As shown in Figure 4.4, 92 (40.0%) of the respondents specified that, the distance unit provides training on the Sakai platform once a while, 60 (26.1%) also indicated that they have not received training at all, 43 (18.7%) were not sure if the distance unit provides training, while 18 (7.8%) revealed that, they often received training. Finally, 7 (3.0%) indicated very often and 10 (4.3%) of the respondents did not respond. This data shows that once a while, the students receive training on how to use the Sakai platform. The disparity in the responses suggests that since the University of Ghana Distance Education Department has different disciplines with different lecturers and tutors, some students may receive training whilst others may not. This also gives out the clue that,

the distance unit does not have any fixed period where students received training on the Sakai platform.

4.5.1.4 Ability to Navigate the Sakai platform

Navigating on the Sakai platform means the ability of users to get around the tools on the Sakai platform. It is necessary to know the ease at which users navigate the Sakai platform because as theorised in the TAM, if users find it easy using a system it will propel them to continue to use it.

In view of this, respondents were asked to indicate their ability to navigate on the Sakai platform

Table 4.8 presents respondents' responses.

Table 4.8: Ability to Navigate the Sakai Platform

ITEMS	Very Bad		Bad		Average		Good		Very Good		Non Response	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Your ability to retrieve course materials from	29	12.6	27	11.7	60	26	65	28.2	47	20.4	2	0.9
Your ability to chat with friends using the Sakai platform.	44	19.1	48	20.9	67	29.1	47	20.4	24	10.4	-	-
Your ability to submit an assignment through the Sakai platform	21	9.1	38	16.5	57	24.8	61	26.5	53	23.0	-	-
Your ability to send email to tutors and lecturers through the platform.	37	16.1	46	20.0	79	34.3	42	18.3	21	9.1	5	2.2
Your ability to see your grades after a quiz or an (Interim assessment (IA)).	27	11.7	18	7.8	46	20.0	67	29.1	72	31.3	-	-
Your ability to use all the Sakai platform tools available to you.	15	6.5	22	9.6	84	36.5	67	29.1	39	17.0	3	1.3

Source: Field data, 2018

As shown in Table 4.8, it can be seen that 65 (28.2%) of the respondents rated themselves good in terms of their ability to retrieve course materials from the Sakai platform, 60 (26%) rated their ability as average, whilst 27 (11.7%) indicated bad. Despite the fact that some students rely on their colleagues for course materials as emphatically stated in the problem statement, these results suggest that the demand for reading materials probably pushed the majority of the students to familiarise themselves with the resources tools. Also, it was brought to bear that, 67 (29.1%) of the respondents rated their ability to chat with friends using the Sakai platform as average, 48 (20.9%) indicated bad whilst 24 (10.4%) reacted to the assertion as very good respectively. It can be realised that the majority of the students haven't well familiarised themselves well with the chat tools and the reason can be attributed to the fact that chatting on the platform was voluntary hence there are not any striking variables that compelled them to chat on the platform.

Another, a sizeable 61 (26.5%) number of the respondents, chose good to show their ability to submit assignments through the Sakai platform, 38 (16.5%) indicated bad whilst 21 (9.1) selected good. Further, on the notion, "Your ability to send email to tutors and lecturers through the platform" 79 (34.3%) of the respondents chose average, 46 (20.0%) indicated bad but 21(9.1) selected. Again, it was found that 72 (31.3%) of the respondents chose very good to affirm to the statement "your ability to see your grades after a quiz or an Interim assessment (IA)", 67 (29.1%) indicated good whilst 18 (7.8%) selected bad. Also, 84 (36.5%) considered themselves average to the item "your ability to use all the Sakai platform tools available to you" 67 (29.1%) indicated good whilst 18 (7.8%) chose very bad.

Table 4.9: Overall Impression on Navigating on the Sakai Platform

Responses	Range scores	Frequency	Percent (100%)
Bad	12 and below	22	9.6
Average	13-23	162	70.4
Good	24-30	62	20.0
Total		230	100

Source: Field data 2018

From Table 4.9, when an individual total scores is 22 and below it is noted as having bad knowledge in the navigation of the Sakai platform, from 13-23 means average whilst from 24-30 signify as good.

It was revealed that, majority 162 (40.4) of the respondents had fair knowledge in the navigation on the Sakai platform, 62 (20%) of the respondents' knowledge was good whilst 22 (9.6%) was bad. This feedback suggests even though apart from the average scores, a greater portion of the rest of the respondents had good knowledge which it is insignificant and therefore, this is alarming that there is the need for more training for students on the Sakai LMS.

4.5.2 Perceived Ease of Use of the Sakai LMS.

Perceived ease of use refers to how users find it easy using a system. As theorised in the TAM perceived ease of use of a system affects user's attitude and which intend affects actual system use. As the results of this revelation, the respondents were asked to indicate the degree to which they perceived the Sakai platform as easy to use. The responses are shown in Table 4.10.

Table 4.10: Perceived Ease of Use of the Sakai LMS.

ITEMS	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Non Response	
	Freq.	%	Freq.	%	Freq.	%	Freq	%	Freq.	%	Freq.	%
I find it easy to use the Sakai platform .	25	10.9	27	11.7	70	30.4	95	41.3	3	1.3	10	4.3
The Sakai platform does not require any special computer literacy skills in order to use.	34	14.8	58	25.2	47	20.4	69	30	22	9.6	-	-
I found it easy to learn how to use the Sakai platform	23	10.0	41	17.8	58	24.8	85	37.7	23	10.0	-	-
I learned how to use the Sakai platform on my own	22	9.6	42	18.3	35	15.2	99	43.0	31	13.5	1	0.4
The Sakai platform interface is user friendly and flexible to use	28	21.2	44	19.1	60	26.1	81	35.2	17	7.4	-	-
My interaction with the Sakai platform is clear and understandable	17	7.4	56	24.3	64	27.8	68	29.6	20	8.7	5	2.2

Source: Field data 2018

As shown in Table 4.10, It is seen that, 90 (39.1%) of the respondents agreed they find it easy to use the Sakai platform, 64 (27.8%) were neutral whilst 3 (1.3%) strongly agree. It was also indicated that, 69 (30%) of the respondents agreed that the Sakai platform does not require any special computer literacy skills in order to use, 58 (25.2%) disagreed, however, 22 (2.6%) strongly agreed. It was also encouraging to notice that 85 (37.7%) of the respondents agreed to the assertion “I found it easy to learn how to use the Sakai platform”, 41 (17.8) disagreed, 23 (10.0) indicated disagree and on the same breath 23 (10.0) strongly disagreed. These responses suggest that, majority of the students have some prior knowledge in using a computer.

Further, 99 (43.0%) of the respondents agree that they learned how to use the Sakai platform on their own, 42 (18.3%) disagreed and 22(9.6%) disagreed. Also, it was revealed that, 81 (35.2%) of the respondents agreed to the notion “the Sakai platform interface is user friendly and flexible to use”, 60 (26.1) were indifferent. However, 17 (7.4) strongly agreed. Also, It was indicated that 69 (27.8 %) of the respondents were neutral on the assertion “my interaction with the Sakai platform is clear and understandable”. It was also encouraging to note that, 68 (29.6%) of the rest of the respondents agreed. However, 17 (7.4%) strongly disagreed.

Table 4.11: Overall Impression on the Perceived Ease of Use the Sakai LMS

Responses	Ranges scores	Frequency	Percent (100%)
Negative perception	12 and below	28	12.2
Moderate perception	13-23	160	69.6
Positive perception	24-30	42	18.3
Total		230	100

Source: Field data 2018

As indicated in Table 4.11, it can be seen that, majority of the respondents 160 (69.6%) had total scores from 13 to 23 and this represents a moderate perception towards the ease of use of the Sakai platform. It was also revealed that, 42 (18.3%) had a score from 24 to 30 and this represents positives whilst 28 (12.2%) scored 12 and below and this was considered as negative perception. This data suggest that the users do not find it easy to use the Sakai platform.

4.7 Perceived Usefulness of the Sakai LMS.

Perceived usefulness refers to the degree to which users believe that using a system will heighten to his or job performance (David, 1989). Across the many empirical tests of TAM, perceived usefulness has consistently been a strong determinant of usage intentions and actual use of a system. Based on this revelation, the respondents were asked to indicate the extent to which they perceive the Sakai platform as useful. Table 4.12 depicts the responses of the respondents.

Table 4.12: Perceived Usefulness of the Sakai LMS.

ITEMS	SD		D		N		A		SA		No Response	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Using the Sakai platform helps me to accomplish my coursework more quickly.	38	26.5	67	29.1	73	31.7	46	20.0	6	2.6	-	-
Using Sakai platform increases my academic performance.	44	19.1	76	33.0	62	27.0	40	17.4	7	3.0	1	0.4
The content of materials on the Sakai platform is very useful.	26	11.3	22	9.6	73	31.7	87	37.8	22	9.6	-	-
Using the Sakai platform has enabled me to gain extra skills and experiences outside the classroom.	20	8.7	50	21.7	58	25.2	79	34.3	23	10	-	-
I can access lecture materials on the Sakai platform with my smart phone anywhere and at any time.	23	10.0	25	10.9	34	14.7	101	43.9	45	19.6	2	0.9
Overall, the Sakai platform is very advantageous to my course of study.	28	12.2	38	16.5	83	36.1	65	28.3	16	7.0		

Source: Field data 2018

From Table 4.12, It was revealed that 73 (31.7%) of the respondents fairly indicated the Sakai platform helps them to accomplish their coursework more quickly, a number of them 67 (29.1%)

disagreed whilst 6 (2.6%) strongly agreed. Also, on the assertion “using Sakai platform increases my academic performance”, 76 (33.0%) of the respondents disagreed, 63 (27.4%) were neutral but 7 (3.0%) strongly disagreed. These responses suggest that, the Sakai platform does not really have any significant positive impact on their academic performance so there is a likelihood that, most students might not be motivated to use the platform as theorised by Davis (1989) on the Technology Acceptance Model. Further, out of the total number of the 230 respondents, 87 (37.8%) agreed and 22 (9.6%) strongly disagreed that the content of materials on the Sakai platform is very useful, 22 (9.6%) disagreed and on the same breath, 22 (9.6%) strongly agreed. These responses suggest that, the course materials on the Sakai platform is very useful hence as theorised in the TAM, it will attract more users to use it.

Again, a total number of 79 (34.3%) respondents reported they agree indicating that using the Sakai platform has enabled them to gain extra skills and experiences outside the classroom, 58 (25.2%) of the respondents were neutral whilst 20 (8.7%) strongly disagreed. It was indicated that almost half 101 (43.9%) of the entire respondents 230 agreed that they can access lecture materials on the Sakai platform with their smart phones anywhere and at any time, 45 (19.6%) strongly agreed. However, 23 (10.0%) strongly disagreed. It can be inferred from these responses that most students can easily access the Sakai platform on their smart phone provided they have internet connectivity. In terms of overall assessment, 83 (36.1%) reported agreeing that the Sakai platform is very advantageous to their course of study. Also, 65 (28.3%) agreed and 16 (7.0%) strongly agreed.

Table 4.13: Overall Impression on the Perceived Usefulness of the Sakai LMS.

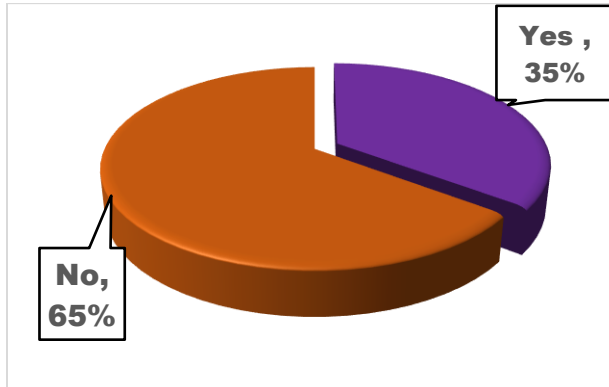
Responses	Ranges scores	Frequency	Percent (100%)
Negative perception	12 and below	31	13.5
Moderate perception	13-23	171	74.3
Positive perception	24-30	28	12.2
Total		230	100

Source: Field data 2018

As shown in Table 4.13, it was revealed that, majority of the respondents 171 (74.3%) had a total score from 13 to 23 representing moderate perception on the usefulness of the Sakai platform. Also, few of the respondents 31 (13.5) had a total score from 12 and below which shows negative perception and the rest 28 (12.2%) shows positive perception with scores from 24 to 30. It can therefore be said that the difference between the total scores for negative perception and positive perception was insignificant and this is a call for alarm to improve on the content of the system.

4.7.1 Perceived Contribution of the Sakai LMS on Academic Work.

TAM posits that, perceived usefulness is a critical variable that determines the actual use of the e-learning system. Also, some external factors such as perceived improvement in academic performance determine one's intention to use and the actual use of the information system. Based on this background, the respondents were asked to confirm if the use of the Sakai platform has contributed to academic work. Figure 4.4 shows the responses of the respondents.

Figure 4.4: Respondents' Perceived Contribution of the Sakai LMS on Academic Work.

Source: Field data, 2018

As shown in Figure 4.4, more than half of the respondents 149 (65%) reported “No” to the fact the Sakai platform has contributed tremendously to academic work whilst 81 (35%) confirmed in affirmative signifying it has helped them. This output suggests that, the Sakai platform does not contribute tremendously to academic work as perceived by majority of the respondents.

4.8 Extent of Use of the Sakai LMS

Macmillan dictionary defined extent as “the degree to which something happens or is likely to happen”. Many authors have related the TAM to confirm that the extent of using information system is dependent on the perceived usefulness and perceived ease of use. Determining the extent of use of the Sakai LMS will therefore enable the researcher to know how often the Distance Learning students visit the Sakai platform. This section includes; how often do the student use the Sakai platform, the instructors/tutors influence on the extent of use of the Sakai Platform as well as reasons and frequency of use of the Sakai platform.

4.8.1 Frequency of Use of the Sakai platform

To be able to fathom the extent of use of the Sakai platform by the Distance Learning students it is imperative to ascertain how often the respondents use the system. In view of this background, the respondents were asked to indicate how often they use the Sakai platform. The results are represented in Table 4.14.

Table 4.14: Respondents Frequency of Use of the Sakai platform period

Usage Frequency	Frequency	Percent
Daily	38	16.5
Weekly	73	31.7
Monthly	45	19.6
Once a while	74	32.2
Total	230	100

Source Field data 2018

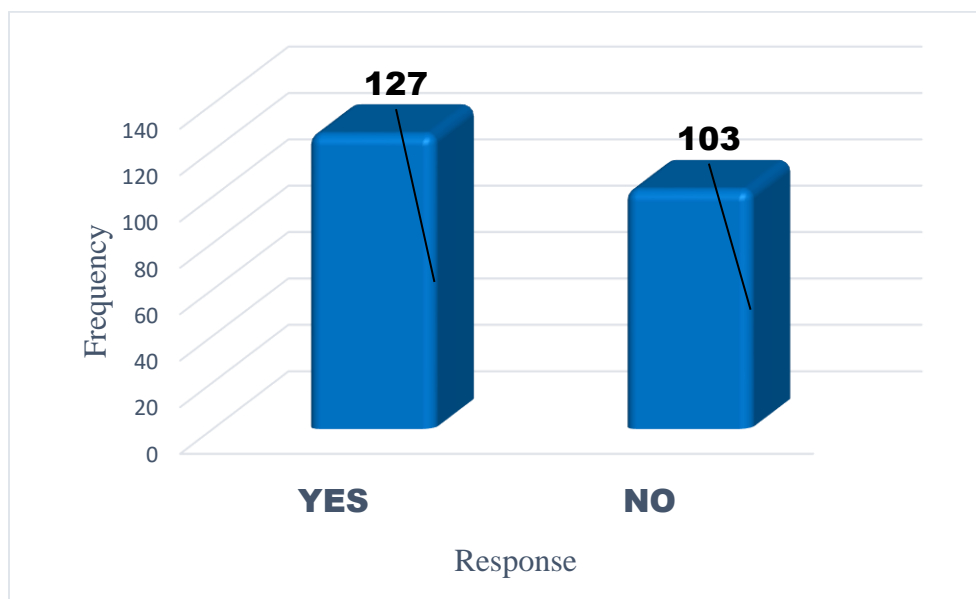
As shown in Table 4.14, 74 (32.2%) of the respondents indicated that once a while they visit the Sakai platform, 73 (31.7%) of the respondents visit the platform weekly. Also, 45 (19.6%) do visit the platform monthly and 38 (16.5%) indicated daily. It can therefore be surmised from this output that most students do visit the platform when instructed by their instructor or tutor. Based on the responses, it can be observed that most students visit the Sakai platform occasionally as compared to those who visit the platform daily as expected. Hence, this is an indication that the Sakai platform has been underutilised

4.8.1 Instructors/Tutors Influence on the Extent of Use of the Sakai Platform

In academic institutions, instructors / tutors directly engage students in course delivery. In the light of this it is critical to know if instructors / tutors influence the extent of use of the Sakai platform.

The responses obtained are presented in Figure 4.5.

Figure 4.5: Instructors/Tutors Influence on the Use of the Sakai platform



Source Field data 2018

As shown from Figure 4.5, it was revealed that, 127 (55.2%) of the respondents confirmed they only visit the Sakai platform when there is an announcement from their instructors / tutors whilst 103 (44.8%) reported no. These responses suggest that, a considerable number of students won't visit the platform if there is no announcement from their instructor or tutors.

4.8.2: Respondents Reasons and the Frequency of Use of the Sakai Platform

The use of every information system is sparked by some reasons. These reasons also influence the extent of use of the system. For the researcher to know the reasons that propel students to use the Sakai LMS, respondents were asked to indicate the reasons for the use and frequency of use of the Sakai LMS. The responses can be seen in Table 4.15.

Table. 4.15: Respondents Reasons and the Frequency of Use of the Sakai Platform

Reasons for using the Sakai platform	Frequency of use					
	Frequently		Rarely		Never	
	Freq.	%	Freq.	%	Freq.	%
For downloading course outline and lecture materials	116	50.4	84	36.5	30	13.0
For downloading and submitting assignments	147	63.9	83	36.1	-	-
For receiving class announcements	119	51.7	90	39.1	21	9.1
For discussing subject areas with course mates and tutors	70	30.4	109	47.4	51	22.2
For sending emails to course mates or tutors	48	20.9	99	43.0	83	36.1
For taking Interim Assignments (IA) and quizzes	171	74.3	59	25.7	-	-
For viewing video tutorials	27	11.7	71	30.9	132	57.4
For checking plagiarism of assignments	2	0.9	39	17.0	89	82.2

Source Field data 2018

As shown in Table 4.15, it was reported that, 116 (50.4%) of the respondents frequently use the Sakai platform for downloading course outline and lecture materials, 84 (36.5%) rarely use it

whilst 30 (13.0%) of the respondents had never used it. Again, 147 (57.4%) of the respondents indicated that they frequently use the Sakai platform for downloading and submitting assignments, the rest of the respondent 88 (36.1%) brought to bear that they rarely used it and none of the respondents chose “Never”. Those who reported that they rarely used the platform create a picture that, either their tutors don’t frequently instruct them to submit their assignments via the Sakai platform or they are usually not given assignments. Another, 119 (51.7%) of the respondents identified that they use the Sakai platform for receiving class announcements, 90 (39.1%) of the respondents reported that they rarely use it whilst 21 (9.1%) indicated they had never used the platform. This is a clear indication that some depend on their colleagues for announcements.

Furthermore, 109 (47.4%) respondents indicated that they rarely use the Sakai platform for discussing subject areas with course mates and tutors whilst 70 (30.4%) reported that they frequently use it for such effect. However, it was revealed that 51 (22.2%) of the respondents never used it for such purpose. It can be inferred from this data that a considerable number of students don’t really use the platform for discussion. Also, it was reported that 99 (43.0%) of the respondents rarely use the Sakai platform for sending emails to course mates or tutors whilst 48 (20.9%) of the respondents frequently use it for such purpose. However, it was observed that 83 (36.1%) of the respondents had never used it. This output shows that most of the students do not utilise the email tools as expected. Another, out of the 230 respondents, 171 (74.3%) indicated that they frequently use the Sakai platform for taking Interim Assignments (IA) and quizzes, 59 (25.7%) of the respondents indicated they rarely use the Sakai platform for such purpose.

It was also brought to bear that a significant number 132 (57.4%) of the respondents never used the Sakai platform for watching video tutorials, 71 (30.9%) reported that they rarely use the Sakai platform while 27 (11.7%) indicated they frequently use it for the said purpose. It can be inferred from this output that, most students don't utilise the video on the Sakai platform. Also, it was reported that 89 (82.2%) of the respondents indicated they had never used the Sakai platform for checking plagiarism index of their assignments, 39 (17.0%) reported they had rarely used it whilst only 2 (0.9%) of them indicated they frequently use it. This is an indication that, those who use plagiarism checker tool might have use it for their personal work since the tool is mostly used by the graduate students as compared to those in the undergraduate level.

4.9 Challenges in the Use of the Sakai LMS.

“Despite the notion that university students may be “tech-savvy” they are likely to encounter challenges with regards to navigating their new academic context physically, psychologically, emotionally, and technologically” (Arhinful, 2016, p. 3). Users are usually saddled with different kinds of challenges when exposed to e-learning especially when it is newly implemented. Based on this background respondents were asked to indicate the challenges they do face when using the Sakai platform. The responses from the respondents are depicted in Table 4.16

Table 4.16: Challenges Respondents encounter when using the Sakai Platform.

Challenges	Yes		NO	
	Freq.	(%)	Freq.	(%)
There is inadequate training on how to use the Saka Platform.	172	74.8	58	25.2
Difficult to get access to the internet.	162	70.4	68	29.6
There is slow internet connectivity.	170	73.9	60	26.1
The Sakai platform interface look complex and I am unfamiliar with the features	103	44.8	127	55.2
Sometimes I experience system error and unable to access the Sakai platform.	172	74.8	58	18.1
Sometimes I don't get informed when there is an announcement on the Sakai platform.	142	61.7	88	38.3
I don't have a personal computer to access the Sakai platform.	109	47.4	121	52.6
Power outages sometimes deny me of accessing the Sakai platform	137	59.6	93	40.4

Source: Field data 2018

As it is shown in Table 4.16, 172 (74.8) of the respondents reported that there is inadequate training on how to use the Saka Platform, on same breath, 172 (74.8) of the respondents indicated that sometimes they do experience system error and unable to access the Sakai platform. Also, 162 (70.4%) of respondents reported that they find it difficult to get access to the internet and 170 (73.9%) brought

to bear that they experience slow internet connectivity. This is an indication that, internet connectivity becomes slow even if they get access to it.

Further, 103 (44.8) of the respondents indicated the Sakai platform interface look complex and they are unfamiliar with the features. However, a significant number of the respondents 127 (55.2%) did not observe such challenges.

Again, it was revealed that 142 (61.7%) of the respondents indicated sometimes they don't get informed when there is an announcement on the Sakai platform. Also, 109 (47.4%) of the respondents shown that they don't have a personal computer to access the Sakai platform. Another critical challenge was noted by 137 (59.6%) of the respondents to the assertion "power outages sometimes deny me of accessing the Sakai platform". These mentioned challenges are compelling and will help assist the researcher to make prudent recommendations to help improve the use of the Sakai platform.

These mentioned challenges are compelling and will help the researcher to make prudent recommendations to help improve the use of the Sakai platform.

4.10 Hypothesis Testing

Hypothesis refers to an educated guess of the relationship among variables. It helps to establish the relationship between variables before a conclusion can be drawn. According to Ankrah (2014, p.229), "hypothesis is a specific statement of prediction. It describes in concrete (rather than

theoretical) terms what the expectation will be in the study. A single study may have one or many hypotheses”. In this study, Chi-Square was used to test the relationship between two variables. According to Onchiri (2013), “a Chi-square test compares proportions actually observed in a study with the expected to establish if they are significantly different”. Among the various non-parametric tests, Chi-square test is considered as one of the commonly used non-parametric tests by researchers. Its correct application is an uphill task for most researchers (Kothari, 2007).

4.10.1 Hypothesis one

H₀: Students’ computer literacy skills will not affect their perceived ease of use of the Sakai LMS.

H₁: Students’ computer literacy skills will affect their perceived ease of use of the Sakai LMS.

Where,

H₀ is the Null hypothesis

H₁ is the Alternative hypothesis

The significant level (α) for this study is 0.05 and the test statistic is a Chi-Square and is given as;

$$\chi^2 = \sum_i \frac{(O_i - E_i)^2}{E_i}$$

Where O_i are the observed frequencies

Where E_i are the expected frequencies

χ^2 is Chi-Square

DF is Degree of Freedom

COR is Correlation Coefficient.

Table: 4.17 Relationship between Students’ Computer Literacy Skills and the Perceived Ease of Use of the Sakai LMS

			Perceived Ease of Use of the Sakai LMS					
			Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Computer literacy skills	Basic	Count	10	3	13	19	5	50
		Expected Count	5.4	5.9	13.9	19.6	5.2	50.0
	Intermediate	Count	12	19	44	49	9	133
		Expected Count	14.5	15.6	37.0	52.0	13.9	133.0
	Advanced	Count	3	5	7	22	10	47
		Expected Count	5.1	5.5	13.1	18.4	4.9	47.0
Total	Count	25	27	64	90	24	230.0	
	Expected Count	25.0	27.0	64.0	90.0	21.0	230	

Source: Field data, 2018

$\chi^2 = 19.808$ DF = 6 COR = 0.149

The degree of freedom (DF) is given as;

$$(r-1)(c-1)$$

Where r is the number of rows

c is the number of columns

From Table 4.17, the degree of freedom is;

$$(3-1)(5-1) = 2 \times 4 = 6$$

From the chi-square table, a DF of 6 at $\alpha = 0.05$ is given as 12.592

Table 4.18: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.435	8	.013
Likelihood Ratio	18.584	8	.017
Linear-by-Linear Association	5.295	1	.021
N of Valid Cases	230		

Source: Field data, 2018

Table: 4.19 Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	.152	.069	2.323	.021
Ordinal by Ordinal	Spearman Correlation	.147	.069	2.248	.026
N of Valid Cases		230			

Source: Field data, 2018

The calculated Chi-Square from Table 4.18 = 19.435 and the Chi-Square value from a Chi-Square distribution table at a Degree of Freedom of 6 = 12.833. Since the calculated Chi-Square value is greater than that of the Chi-Square table, therefore the H_0 is rejected and H_1 is accepted, hence, the conclusion that students' computer literacy skills will affect their perceived ease of use of the Sakai LMS.

This is a positive relationship between students' computer literacy skills and perceived ease of use of the Sakai LMS. When the value of Person's correlation (R) is greater than 0.5, it is an indication of a strong relationship and weak when less than 0.5. Based on this rule, from Table 4.19, the

Person's Correlation (R) = 0.152 which is an indication of a weak relationship between students' computer literacy skills and perceived ease of use of the Sakai LMS.

4.10.2 Hypothesis Two

H₀: Students' perceived usefulness of the Sakai LMS will not increase the extent of use of the Sakai LMS.

H₁: Students' perceived usefulness of the Sakai LMS will increase the extent of use of the Sakai LMS.

Where,

H₀ is the Null hypothesis

H₁ is the Alternative hypothesis

The significant level (α) for this study is 0.05 and the test statistic is a Chi-Square and is given as;

$$\chi^2 = \sum_i \frac{(O_i - E_i)^2}{E_i}$$

Where O_i are the Observed frequencies

Where E_i are the expected frequencies

χ^2 is Chi-Square

DF is Difference

COR is Correlation Coefficient.

Table 4.20: Relationship between Students’ Perceived Usefulness of the Sakai LMS and the Extent of Use of the Sakai LMS

			The extent of use of the Sakai LMS				
			Daily	Weekly	Monthly	Once a while	Total
Usefulness of the Sakai LMS	Strongly Disagree	Count	11	8	7	12	38
		Expected Count	6.3	12.1	7.4	12.2	38.0
	Disagree	Count	7	25	18	17	67
		Expected Count	11.1	21.3	13.1	21.6	67.0
	Neutral	Count	12	19	13	29	73
		Expected Count	12.1	23.2	14.3	23.5	73.0
	Agree	Count	6	17	7	16	46
		Expected Count	7.6	14.6	9.0	14.8	46.0
	Strongly Agree	Count	2	4	0	0	6
		Expected Count	1.0	1.9	1.2	1.9	6.0
	Total	Count	38	73	45	74	230
		Expected Count	38.0	73.0	45.0	74.0	230.0

Source: Field data, 2018 $\chi^2 = 19.758$ DF = 12 COR = .005

The degree of freedom (DF) is given as;

$$(r-1)(c-1)$$

Where r is the number of rows

c is the number of columns

From Table 4.20, the degree of freedom is;

$$(5-1)(4-1) = 4 \times 3 = 12$$

From the Chi-Square table, a DF of 12 at $\alpha = 0.05$ is given as 21.026.

Table 4.21: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.758	12	.072
Likelihood Ratio	21.675	12	.041
Linear-by-Linear Association	.005	1	.942
N of Valid Cases	230		

Source: Field data, 2018

Table 4.22: Symmetric Measures

	Value	Asymp. Std. Error	Approx. T	Approx. Sig.
Interval by Interval Pearson's R	.005	.068	.073	.942 ^c
Ordinal by Ordinal Spearman Correlation	.018	.068	.269	.788 ^c
N of Valid Cases	230			

Source: Field data, 2018

From Table 4.21, the calculated Chi-Square value = 19.758 and the Chi-Square value from a Chi-Square distribution table at a difference of 12 = 21.026. The calculated Chi-Square value is less than that of the Chi-Square table, therefore the H_0 is accepted and H_1 is rejected, hence, the conclusion that students' perceived usefulness of the Sakai LMS will not affect the extent of use of the Sakai LMS, hence this is an indication of a negative relationship between students' perceived usefulness of the Sakai LMS and the extent of use of the Sakai LMS. However, from Table 4.22,

the Person's Correlation (R) = 0.005 which is an indication of a weak relationship between students' perceived usefulness of the Sakai LMS and the extent of use of the Sakai LMS.

CHAPTER FIVE

DISCUSSION OF MAJOR FINDINGS

5.1 Introduction

This chapter presents a discussion on the major findings of the study based on the objectives and existing related literature. The study investigated the perceptions and use of the Sakai LMS among Distance Learning students of the University of Ghana. The major findings are discussed under the following headings.

- I. Awareness of the Sakai LMS and its Tools.
- II. Students' Attitudes towards the Use of the Sakai LMS and Intention to Use the Sakai LMS
- III. Computer Literacy Skills and Perceived Ease of Use of the Sakai LMS
- IV. Perceived Usefulness of the Sakai LMS
- V. The Extent of Use of the Sakai LMS
- VI. Challenges in the Use of the Sakai LMS

5.2 Awareness of the Sakai LMS and its Tools.

Awareness is one of the factors that determines the extent of patronage of every information system. Without awareness users may not be in the position to utilise an information system at their disposal as expected. According to Nugent (2013) "a person with awareness would likely be able to report on his or her internal and external states".

The first objective of this study is to find out the level of awareness of the Sakai LMS and its tools. The findings revealed that all the students are aware of the existence of the Sakai LMS. Most respondents became aware of the platform through their tutors, during orientation and other

channels such as; distance education handbook, University of Ghana website, notice board, lecturers and friends. This high level of awareness of the Sakai platform can be attributed to the fact that the Sakai LMS has been adopted by the Department of Distance Education as a mode of course instruction to supplement the conventional mode of teaching and learning. It can further be explained that since the Sakai platform is used for conducting Interim Assessment (IA) and quizzes which are compulsory to all, students will definitely be aware of its existence. These findings are consistent with what Choga (2015) revealed in a study on the use of Sakai e-learning platform by undergraduate students in the faculty of communication and information science in the National University of Science and Technology in which all the respondents answered in affirmative that they are aware of the existence of the Sakai platform. However, the findings is contrary to what Dube and Scott (2014) revealed in a similar study where most of the respondents reported that they were not aware of the existence of the Sakai platform and as the result, led to the low utilisation of the Sakai platform. Also, analogous findings were revealed in the works of Mtebe (2015); Bhalalusesa, Lukwaro and Clemence (2013); Ssekakubo (2011); Juhary (2014) and Arhinful (2016) where lack of awareness of the learning management system were reported and consequently affected the extent of its use. The lack of awareness of the learning management system deprived the end users from utilising it for the purpose as envisioned by the management of the institutions.

Also, the study unraveled that even though at least every student is aware of the existence of the Sakai LMS, few of them are not aware of the existence of some of the Sakai tools at their disposal which they are required to use as far as course delivery is concerned. The study found out that most of the students are aware of the tests and quizzes tool, assignment tool, and grade tool and it

can be attributed to the fact, it is compulsory for students to take their IA and quizzes, check their grades and submit their assignments using these tools on the Sakai platform. This findings is consistent with the works of Choga (2015) who found that most students became aware of the tests and quizzes tool because it was mandatory for them to use it. Also, it can be explained that ultimately students became aware of the grade tools because their tests and quizzes results are generated from it.

Further, the findings corroborate the study by Soon and Fraser (2009) where assignment tool was reported as the most highly used tools on the learning management platform. It was further elucidated that the high level of awareness of the assignment was the result of the end users being constantly informed to submit their assignments using the assignment tool.

Also, most of the students are aware of the resource tool. This is not surprising because, it is one of the tools that instructors and tutors engage students in using, thus students get most of their lecture notes and other relevant course materials via Sakai platform. Similar findings was found in the study of Juhary (2014) where most end users used the Sakai LMS for downloading their lecture slides. As indicated, the resources tool is used for sharing course materials like slides, handouts and books, past questions, links for documents to mention but a few. However, from these findings the few number of the Distance Learning students who do not visit the Sakai platform for the course materials on their own means they rather rely on their course mates for the materials.

On the flipside, the study revealed that a considerable number of students are not aware of the calendar tool and more than half of the respondents are not aware of the email tools. This is

consistent with works of Soon & Fraser (2011) where it was found that calendar was not a popular tool to the students because they were not aware of it likewise the email tool. With respect to the awareness of the calendar tool, it can be explained that students depended on their colleagues for information pertaining to updates and deadlines as far as their course is concerned. This also attests to the fact that when students are not directly engaged by instructors or tutors in using any particular learning management system tool the patronage of the said tool will be relatively low. Also, low level of awareness of the email tool brings to mind that students are often not instructed to utilise it by their instructors or tutors.

Although the ultimate goal of the Technology Acceptance Model is to measure the actual use of technology (Tegoe, 2012), several authors have revealed that “Technology Awareness” as it is popularly known in existing literature has a significant influence on the intention to use information technology which in turn influence the extent of use (Abubakar & Ahmad, 2013; Ilesanmi, 2012); Yaqub, Yaqub, Bello, Adenuga & Ogundeji, 2013). These authors were of the view that technology awareness is an external variable of the TAM which needs to be considered before researchers can holistically assess the actual usage of any information systems. Similarly, it was observed from this study that awareness of the Sakai tools have significant influence on its use and this is evident in the use of the test and quizzes, assignment tools, grade tool, and resources resource. It can be explained from this findings that before students can highly be motivated to use the Sakai platforms and its tools, great attention need to be given to awareness creation. Instructors and tutors also play a crucial role in making the tools on the Sakai platform known to the Distance Learning students.

5.3 Students' Attitudes Towards the Use and Intention to Use the Sakai LMS.

One's intention to use any information system is mediated by the attitudes (Kautonen, Gelderen & Fink, 2015). Attitude refers to the degree of one's general feeling of favourableness or unfavourableness about performing behavior (Seyal & Rahman, 2015). According to Nadeem (2016), there are three main types of attitudes which includes positive attitudes, neutral attitudes and negatives. In relation to this study, positive attitudes mean end-users having favourable perception about the Sakai platform. For example, end-users having a perception that the content of the Sakai platform is useful to their academic work and then continue to use it. Negative attitudes on the other hand mean end-users having unfavourable perception about the Sakai platform and this affects their extent of use. For example, having difficulties using the Sakai platform makes them shun the system. Neutral attitudes is when an end-user is ambivalent about the favourableness and unfavourableness of the Sakai platform. An attitude is exhibited based on individual's perception towards others or an objective.

The second objective of this study is to determine students' attitudes towards the use of the Sakai LMS and the intention to use it. On the attitudes towards the use of the Sakai platform, the findings showed a moderate attitudes towards the use of the Sakai platform. This findings supports the works of Srichanyachon (2014) were the overall attitudes towards the use of the learning management system was moderate. For instance, the moderate attitudes was exhibited in the assertion that the use of learning management system makes it easy to access course materials and learning can take place anywhere at any time making course instruction more flexible and convenient. Also, this study is fairly consistent with the works of Berg (2013) where negative attitude towards the learning management system was recorded. Majority of the respondents

brought to bear that the online mode of instruction was taking more of their time, for instance, in the quest to use the learning management system for their academic work they end up searching for information on the internet which are irrelevant as compare to the conventional mode of learning. Again, the finding is fairly congruent with what Choga (2015) revealed where majority of the students showed negative attitudes towards the use of the Sakai platform for the reasons been that training on the Sakai platform was not enough which made it uncomfortable for students to use the Sakai tools with ease.

Further, this finding is fairly incongruent with the works of Qiu, Wright and Xu (2010); Arhinful (2016); Berg (2013); Juhary (2014), and Lowerison (2006) where positive attitudes towards the use of the learning management system were revealed. From their findings, the positive attitude towards the use of the learning management system were as the results of the fact that accessing course materials was very flexible, students can get informed on the platform even if they miss class and also they can take part in online class discussion to be mention but a few.

From the findings of this study, it can be assumed that the Distance Learning students do not like to use the Sakai platform as much as expected and perhaps in as much as majority of the students showed moderate attitudes towards the use of the Sakai platform, the moderate attitudes was skewing towards the negative attitudes which is not encouraging.

Also, in the in a bid to fathom behavioural intention of students to use the Sakai platform, the researcher sought to find out if Distance Learning students solely prefer the traditional classroom (face-to-face) teaching and learning rather than complementing it with the Sakai platform. It was observed from the findings that majority of the students do not like the ideas of having Sakai as a complement to the tradition face-to-face mode of course instruction. The reasons were as follow;

it was brought to bear that internet access is a big hindrance to the use of Sakai platform. It was further explained that even if they get access to the internet because of low bandwidth they are not able to get strong connectivity in order to use the platform when they are on campus. Consequently, this disturbs them in the bid to watch video tutorials on the Sakai platform.

Also, the findings showed that because of slow internet connectivity sometimes the students are not able to complete their interim assessment and quizzes using the Sakai platform as expected. Most of the students emphatically stated that it takes longer time for them to move on to next page on the platform when taking interim assessments and quizzes. In addition, most of the students brought to bear that the Sakai platform do not allow go back to revisit unanswered questions and already answered questions which need further review during interim assessment and quizzes hence this is a clear indication that the Distance Learning students do not really feel comfortable since they do not have that kind of latitude to move back and forth in answering exams questions as compare to the conventional way of writing exams. Again, the study found that initial registration is an arduous task for them and also sometimes they experience technical hitches which makes taking interim assessment on the platform uncomfortable. For instance, the findings showed that candidates' terminal can get frozen and the whole system need to be restarted before they can proceed. Furthermore, it was brought to notice that some of the students are not in favour of the Sakai platform simply because tutors do not have enough time for them on the platform and therefore, see no need to visit the platform and in effect this affect them academically since the periods for the weekend face-to-face class meeting is limited. Again, it was observed by the students that they experienced incessant delay in uploading of lecture materials by tutors, the Sakai platform becomes slow when a lot of students are accessing it simultaneously especially they are

taking interim assessment and quizzes. The study also found that students' computer literacy skills are not strong enough for them to independently navigate and to explore the various tools on the Sakai platform. These findings are consistent with the works of Park (2009) where it was revealed that 98% of the respondents confirmed they prefer the face-to-face mode of teaching and learning than using the Sakai platform. Also the finding is consistent with Choga (2015) where majority of the respondents did not like the idea receiving part of course instruction through the Sakai platform. Further, this findings is inconsistent with Tagoe (2012), it was reported that more than half of the respondents strongly agree to the fact that they will prefer to use an e-learning platform, supplemented with face-to-face mode of instruction for their course delivery and also supports the study of Markwei (2017) where majority of the respondents had preference for face-to-face instruction enhanced by a course website.

On the flip side, despite the negative comments from the findings there are some shared success stories. The few who are in favour of the Sakai platform brought to bear that the platform helps them to access course materials at the comfort of their home. Also, others indicated that because of their busy schedules, and which make them sometimes miss the weekend tutorial classes, they take the advantage of the platform to watch video tutorials, download course materials and also take part in online discussion. Also, the findings brought to bear that students who are shy indicated the Sakai platform help them to ask questions which would have been difficult for them through the face-to-face meeting. This is finding supports the study of Oheneba-Sakyi & Amponsah (2018), the author's study showed that the Sakai platform helps students especially students who feel shy during face-to-face class meeting the opportunity to ask questions and to take active participation in online discussion as far as academic work is concerned.

Again, the behavioral intention to voluntarily log onto the Sakai platform was investigated. It was observed from the findings that more than half of the respondents won't voluntarily log onto the Sakai platform unless they are instructed by their tutors to do so. This finding supported the study of Choga (2015) in which respondents brought to bear that they felt they have been forced to use the Sakai platform. Some emphatically stated that if not because their tutors instructed them to use the Sakai platform they wouldn't have visited the platform at all. However this findings is incongruent with (Lonn, 2009), the finding showed that students will voluntarily elect to utilise the learning management system as their disposal.

With reference to the above discussion on student's attitude towards the use of the Sakai platform and the behavioural intention to use the platform. It is apparent that their attitudes towards the use of the Sakai LMS is not encouraging and this phenomenon eventually affected their readiness and interest to use the Sakai platform to its maximum. "TAM theorised that the behavioural intention of an individual to use a system is determined by two main factors: perceived usefulness and perceived ease of use" (Davis, 1993 as cited in Suorsa Eskilsson, 2014) this give an impression that there is more room for improvement.

5.4 Computer Literacy Skills and Perceived Ease of Use of the Sakai LMS.

Computer literacy skills is indispensable as far as the use of any computer system is concerned. There are three main types of computer literacy skills which have been accepted worldwide. It comprise, beginners, intermediate and advanced. Those classified under beginners level are able to operate the basic functions of a computer such as formatting, editing, saving, typing, printing and understands the document page setup etc. Also, those found under the intermediate level are

able to customise toolbars, draw, import and insert graphs, manipulate excel and elaborate reports etc whilst those who are considered as advanced users are able to automate some operations, can manage macro commands, can create a wide range of graphic effects, and conduct some level of troubleshooting to mention but a few (Koo, 2008). As several researchers such as Pituch and Lee (2006); Tegoe (2012) have hypothesised computer literacy skills which is considered as an external variable in the TAM affects perceived ease of use of a new technology.

The third objective of the study is to investigate computer literacy skills and perceived ease of use of the Sakai LMS. The findings showed that majority of the respondents have prior knowledge and skills to use a computer and other related technology. This finding corroborates the study by Acheampong (2016) in which majority of the respondents indicated they are computer literate. In the quest to gauge their knowledge and skills in using computer and other related technology, the study revealed that majority of the respondents are found in the category of intermediate level. Similar finding is found in the works of (Markwei, 2007; Leung and Ivy, 2003). This suggests that, most of the students are fairly computer literate. This finding also suggests that computer literacy skills of students have improved significantly among Distance Learning students of the University of Ghana because of the increasing number of students having acquired those skills before entering the university (Tegoe, 2012).

Also, on the extent of training that the students had received from the distance unit, the findings brought to bear that once a while they receive training on the use of the Sakai platform as reported by the majority of the respondents. Arguably, it can be inferred from this finding that, Sakai training is not enough and therefore to increase the extent of use of the Sakai platform more

training sessions should be organised for the Distance Learning students frequently. Again, it was revealed that most students had fair knowledge in navigating on the Sakai platform. This is congruent with a study that was conducted by Pituch and Lee (2006) on the influence of system characteristics on e-learning. It was revealed that external variables such as prior computer experience, level of computer skills influence the intention and extent to use e-learning platform. Further, the findings also showed that majority of the respondents had moderate perception pertaining to the ease of use of the Sakai LMS. This findings also suggest that the Distance Learning students need more training on the use of the Sakai LMS since perceived ease of use of every system is critical to the extent of its use (Derakhshan, 2009); (2016); Markwei (2007); Leung & Ivy, 2003 and Acheampong (2016).

The relationship between computer literacy skills and perceived ease of use of the Sakai LMS was tested using chi-square. According to (Pituch & Lee, 2006), users' knowledge about prior computer technical skills or experiences influence perceived ease of use as well as the intent to use any learning management system. The study revealed a positive relationship between students' computer literacy skills and perceived ease of use of the Sakai LMS even though the relationship is a weak one. This finding supports the works of Arhinful (2016); Tagoe (2012); Afari-kumah & Achampong (2010); Stephanie (n.d) but it is inconsistent with Pelgrum (2001). Based on the findings of these existing literature, it can be justified that indeed perceived ease of use of the Sakai platform is directly dependent on the level of computer literacy skills, prior computer knowledge and this can be enhanced through intensive and consistent training. This also corroborate what (Amoroso and Cheney, 1991; Igbaria, Zinatelli, Cragg, and Cavaye, 1997; Lee, 2008 as cited in

Choga, 2015) which was stated that; “computer literacy is positively related to perceived ease of use and perceived usefulness of the technology. In view of this findings, it can, therefore, be reiterated that for the Distance Learning students of the University Ghana to use the Sakai LMS with ease which will increase the extent of its as theorised in the TAM (Davis,1993), a critical attention should focused on the Sakai training.

5.5 Perceived Usefulness of the Sakai LMS

In the study of Dadzie (2009); Chang (2004) and Choga (2015), it was confirmed that perceived usefulness of information systems especially in the area of e-learning influences the extent of use as theorised by Davis (1993) in the TAM. Sun (as cited in Suorsa and Eskilsson, 2014, p.7) postulated that, “perceived usefulness is the perception of how user sees improvement in learning effects through the adoption of an E-learning system”. For instance, when users are able to access information easily irrespective of their geographical location, gets relevant information at their convenient time from the Sakai LMS, the system will be perceived as useful.

The fourth objective of the study investigated the perceived usefulness of the Sakai LMS. The findings showed that majority of the students have moderate perceptions as far as the usefulness of the Sakai LMS is concerned. Also, it was further observed that the rest of the respondents who showed negative perception are more than those with positive perception even those there is no striking difference between the variables. It can, therefore, be assumed from this findings that the Sakai platform is fairly useful to the students. In view of this, in the pursuit to enhance the perceived usefulness of the Sakai platform in order to attract users who are not willing to use the platform and to maintain those with positive perception management need to check the content quality, accessibility, flexibility, cost in terms of time and effort to use the platform. Musa Al-

Momani and Pilli (2014) confirmed that there is a strong positive relationship between service quality, information quality and perceived usefulness of e-learning. This findings confirm what was theorised in the TAM where perceived usefulness of the information system is dependent on variables such as content quality, extent of effort exerted to use the system and the improvement as the result of using the system (Suorsa & Eskilsson, 2014).

In the area of e-learning, improvement in users' academic work determines how they will perceive the system as indicated in the TAM (Eskilsson, 2014). On the contribution of the Sakai LMS to academic work of the Distance Learning students, the study found out that majority of the students indicated that the Sakai platform does not really contribute tremendously to their academic work to their academic work. This finding is not different from what Choga (2015) revealed whereby the use of the Sakai platform do not have much positive impact on students' academic work. Also, the finding is similar to the works of Dube (2017) in which the respondents brought to bear that the learning management system lack flexibility with minimal value and did not really contribute to academic work. However, this findings is a deviation from a study by Oheneba-Sakyi and Amponsah (2018) who found out that most respondents indicated that the Sakai platform for instance help them in submission of assignment online and requires no need to print every assignment and lecture materials which saves them from bearing such cost. It also incongruent with the works of Kulshrestha and Ramswaroop (2013) where the findings showed that the use of the learning management system in the long run helped users to gain computer literacy skills which supported their academic work which in the normal circumstances would not be so. Also the findings did not support the study of Lonn, Teasley and Krumm (2009) in which it was found

out that majority of the students rated the usefulness of the learning management system to academic work positively.

Also, few who responded in affirmative brought to bear that the Sakai platform has contributed positively to their academic work and buttressed their views with the following comments;

They can access course materials from the Sakai platform every time and anywhere even with their phones, the platform helps them to submit assignments electronically without necessarily meeting their tutor especially students who double up as workers. It was also reported that the Sakai platform is the best option because it gives them the opportunity to participate in class discussion even at work. Others remarked that the Sakai platform has help them in obtaining extra computing skills. This revelation is reflective of the studies by Nuta and Pusca (2017); Dube & Scott (2014); Coates (2007); Breen, Cohen & Chang (2003); Qiu, Wrigh & Xu (2010). Upon this revelation, if conscious effort is made by the management of the Distance unit to arrest factors that hinders the use of the Sakai platform, students will immensely benefit from the platform and as such continue to use it. Even though the study did not find favourable feedback from the Distance Learning students as far as the usefulness of the Sakai platform is concerned especially on the contribution to academic work, it can be observed that several authors as discussed earlier had revealed that learning management system is useful as perceived by the end users, therefore, it is an alarming that the content of the Sakai LMS requires great attention.

5.6 Extent of Use of the Sakai LMS

Extent of use of e-learning system is considered as the degree at which end users utilise a system when it is implemented. The term extent of use is considered in the TAM as the actual system use

(Davis, 1993). In a Doctoral thesis of Davis (as cited in Chuttur, 2009, p.1), extent of use of a system is “a response that can be explained or predicted by motivation, which, in turn, is directly influenced by an external stimulus consisting of the actual system’s features and capability”

The fifth objective investigated the extent of use of the Sakai LMS. The findings showed that majority of the Distance Learning students once a while visited the Sakai platform. This finding with the previous studies by Choga, (2015); Dube and Scott (2014) where majority of the respondents reported they only visit the Sakai platform when there is an announcement from their instructors or tutors hence the extent of use of the Sakai platform as reported was relatively low. However, this finding is inconsistent with Juhary (2014) where distance students frequently visit the Sakai platform on their own for their academic works and extent of used was high. Also, the findings support the works of (Lonn, Teasley & Krumm (2009); (Rafi Samsudin & Hanafi (2015) where high extent of use of the system was reported. It can be observed from this findings that students don’t really visit the platform as expected by the Distance Learning units of the University of Ghana. This is because, the Sakai platform has been wholly accepted as a supplement to the face-to-face weekend tutorials, and it is therefore expected for students to visit the platform almost every day and perhaps the Sakai platform can also be considered as the second classroom of the Distance Learning students. Therefore, management of the Distance Learning units need to work assiduously not only to make sure that courses are delivered on the Sakai platform but also focus on how to increase its usage.

Also, on the reasons for using the Sakai platform, the study found that, most of the respondents use the Sakai platform for taking interim assessment and quizzes, downloading and submitting

assignments. This findings corroborate with the study of Choga (2015) where the reasons for utilising the Sakai platform was as the result of the fact they have been instructed by their tutors to do so. However, this finding is inconsistent with Soon and Fraser (2011) in which the Sakai platform was utilised not because they have been forced by their instructor to do so. For instance, most students used the platform for downloading lecture materials, for chatting and sending email to friends and tutors which are not considered as mandatory tools. It can be observed that the reasons for the use of the Sakai platform by the Distance Learning students are skewed to the tools which are mandatory for them to use. However, reasons such as; using the Sakai platform for discussion, sending mails, checking updates and watching video tutorials which are not compulsory to use are relatively low, however, the reasons for the use of the platform are centered on the Sakai tools that are compulsory to the students. Indeed, the overall frequency of use of the Sakai platform by the Distance Learning students is relatively low. This means much effort need to be fueled into motivating the users to willingly utilise and explore the features of the Sakai platform.

Again, the relationship between perceived usefulness and extent of use of the Sakai platform was tested using the chi-square. The test revealed a negative relationship between perceived usefulness and extent of use of the Sakai platform even though the relationship is very weak. This means that perceived usefulness of the Sakai platform by Distance Learning students does not affect the extent of its use. This finding, therefore did not support the assertion in the TAM which states perceived usefulness affects the extent of use of a system. This finding is inconsistent with a study of (Lonn, Teasley & Krumm, 2009). Based on this revelation, it can be assumed the Distance Learning students of University Ghana are not much motivated to use Sakai LMS by its usefulness,

therefore, it is a clear direction that much works need to be done to increase the perceived ease of use of the Sakai platform since it is one of the critical variable of the TAM and perhaps which underpin this study.

5.7 Challenges in the Use of the Sakai LMS.

As a matter of fact, there is no system that is 100% effective when implemented. The sixth objective of this study was to ascertain some challenges that the Distance Learning students encounter when using the Sakai platform. The findings from this study revealed the following challenges which mitigate against the use of the Sakai platform; students shun away from using the Sakai platform because of inadequate user training and proper orientation on the use of the Sakai platform. This finding supports the research which was undertaken by (Chitanana, Makaza & Madzima (2008) in which it was found that low utilisation of the learning management system was as a result in adequate training and proper orientation. The finding also corroborate with the studies which were undertaken by Tella (2012); Nuta & Pusca (2017); Dube & Scott (2014) where lack of training on the use of the learning management system was reported by the majority of the respondents.

Again, the finding of this study revealed system error and unable to access the Sakai platform. This findings is in agreement with similar study which was undertaken by Juhary (2014) where it was found out that constant system crash deprived the users from accessing the platform either in the middle of retrieving or downloading course materials. Also similar finding was found in the works of Wei, Wu & Zheng (2014) and also not different from what Nasser, Cherif & Romanowski

(2011) findings where the system crash and freeze with error signal which eventually took away the delight to use the system by the respondents.

Another, the finding brought to bear that users of the Sakai platform find it quite difficult to get access to the internet and slow internet connectivity. The issue of internet as a critical impediment to the use of e-learning especially in learning management system have been confirmed by several researchers such as Ngeze (2016); Ssekakubo (2011); Lwoga (2012), Mtebe & Raisamo (2014); Berg (2013). Further, since internet is the gateway to the Sakai platform Oheneba-Sakyi and Amponsah (2018), it is compelling for management of the Distance unit to pay critical attention to internet connectivity.

Furthermore, other challenges are as follows; the Sakai platform interface look complex and unfamiliar with the features. Similar finding was found by Dube and Scott (2014) where the complex nature of the learning management system affected user adoption and usability and also consisted with what Davis (2005) found were the interface of the Sakai platform was remarked as unfriendly. Again, another challenge from the findings is that sometimes the respondents don't get informed when there is an announcement on the Sakai platform, some also don't have a personal computer to access the Sakai platform which is consist with Salawudeen, (2010) in which it was noted that users found it expensive to purchase personal computers or laptops in Nigeria. Furthermore, the findings brought to bear that power outages sometimes deny the Distance Learning students from accessing the platform and this is not different from the works of Dube

(2017); Choga (2015); Kulshrestha and Ramswaroop (2013) where power cut was a big challenge to the users of the learning management system.

Also, difficulty to log onto the Sakai platform for the first time was revealed from the findings. This finding supports the works of Juhary (2014) where users faced challenges when attempt to log on onto the learning management system. Also, lack of awareness about some functional features of the Sakai platform was showed in the findings. This conforms to the study by Leeder and Lonn (2014) where lack of awareness of the learning management system as well as its functional features led to low utilisation. In addition, lack of computer skills which is compelling in order for students to use the Sakai platform with ease was left unmentioned in the findings and similar findings was reported in the works of Dube & Scott (2014), the findings showed that low utilisation of the Sakai platform was as the result of lack of computer skills.

Again, the findings of this study also showed that there is a delay in uploading lecture materials by tutors and insufficient system support.

There is no deniable fact that the implementation of every e-learning platforms are usually saddled with some inherent challenges, such phenomenon has been shown in the implementation of the Sakai platform in this study. As theorised in the TAM by Davis (1993) the challenges faced by the Distance Learning students as evidenced in this study are related in the TAM as external variables which influence the perceived usefulness and perceived ease of its. This means that, when challenges associated with a system are minimal it will positively affect the perceived usefulness and perceived ease of use of the system.

5.8 Theoretical Interpretations of the Findings

In the areas of user acceptance, adoption, perception and use of information system, numerous researches have adopted the Technology Acceptance Models (TAM) to predict and explain their studies. Even though there have been some other proposed models over the years and some “researchers who have shared mixed opinions regarding its theoretical assumptions and practical effectiveness the TAM has captured the attention of the Information Systems community” (Chuttur, 2009, p.1).

There are three critical variables which are considered as determinants of the actual use of any information systems in the TAM. These three factors have been considered by Davis (1993) as user’s motivation and they comprise perceived usefulness, perceived ease of use and attitude towards using the system. It was hypothesised that, attitude is the paramount determinant of whether users will use or reject an information system. It was further postulated that, attitude of the user is influenced by two main beliefs: perceived usefulness and perceived ease of use and with perceived ease of use having direct influence on perceived usefulness. Perceived usefulness and perceived ease of use of a system are also influenced by external variables such as computer skills and prior knowledge in using the system (Pituch & Lee, 2006). Attitudes of users in turn influence the actual use which is one of the measured variables in this study (Pituch & Lee; 2006) and Hayashi; Chen, Ryan and Wu, 2008).

The above construct of the TAM relate to the findings of the study. The first objective of this study was focused on awareness of the Sakai and its tools. Authors considered technological awareness

as one of the external variables of the TAM which influences perceived usefulness and perceived ease of used. Also, as stated earlier in this chapter, the attitudes of users of the system influences the behavioural intention to use it. The study arrived at moderate attitudes and it affect the behaviroual intention to use the system. For instance, more of the respondents where not in favour of the Distance unit complementing the Sakai LMS with the conventional face-to-face mode of instructions and perhaps it was backed with some perceived reasons, which emanated from perceived usefulness and perceived ease of use of the Sakai platform as stated earlier in the study. More so respondents did not have voluntary intention to use the Sakai platform. In relation to the theory, as shown in this study, attitudes influence ones' behavioural intention to use an information system.

Furthermore, the study revealed a positive relationship between computer literacy skills and perceived ease of use of the Sakai platform but found a negative relationship between perceived usefulness and extent of use of the Sakai platform. These findings also can be linked to the TAM which states; perceived ease of use is influence by external variables and the computer literacy skills in this study is considered as one of the external variables. Also, perceived usefulness influence the actual use but opposite effect was realised in this study. Therefore, the findings of this study have been validated by the TAM.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter is the summary of the major findings based on the objectives as indicated in the preliminary stage of the study. Also, this chapter draws conclusion and makes recommendations from the major findings to help improve the use of the Sakai LMS by the Distance Learning students of the University of Ghana. In addition, it suggests areas for further research.

6.2 Summary of Findings

This study determined the perceptions and use of the Sakai LMS among Distance Learning students of the University of Ghana. Specifically the study sought to find out the awareness about the Sakai LMS and its tools, Students' attitudes towards the use of the Sakai LMS and intention to use the Sakai LMS, the relationship between computer literacy skills and perceived ease of use of the Sakai LMS, the perceived usefulness of the Sakai LMS, the extent of use of the Sakai LMS and the major challenges Distance Learning students faced when using the Sakai LMS. The major findings of the study are presented below.

6.2.1 Awareness about the Sakai LMS and its tools.

Findings from this study shows universal awareness of the Sakai LMS and most of the Distance Learning students became aware of it through their tutors and during orientation. However, some of the tools on the Sakai platforms were not known to the Distance Learning students especially those that instructors or tutors did not engage the students in using them.

6.2.2 Students' Attitudes towards the Use of the Sakai LMS and Intention to Use the Sakai LMS.

The study unraveled that students' attitudes towards the use of the Sakai LMS was moderate. Also, it was revealed that most students did not have the intention to use the Sakai LMS due to certain perceived challenges by the Distance Learning students as far as their academic purpose was concerned. Moreover, students felt they had been forced to use the Sakai LMS for instance, it was inferred from the respondents that most student would not have use the Sakai platform if not because Interim Assessment, quizzes, assignments were taken through the use of the platform.

6.2.3 Relationship between Computer Literacy Skills and Perceived Ease of use of the Sakai LMS.

The study investigated if computer literacy skills of the Distance Learning students affects their perceived ease of use of the Sakai LMS. Firstly, the study revealed that most of the Distance Learning students had fair computer literacy skill as the majority were found under the intermediate level coupled with fair knowledge in using the Sakai LMS. It also revealed that most students had a moderate perception about the ease of use of the Sakai LMS. It emerged that indeed, one's computer literacy skills affect the perceived ease of use of the Sakai LMS. This also suggests that the Distance units of the students should put much emphasis on the provision of the Sakai training on the use of the Sakai LMS to the Distance Learning students.

6.2.4: Perceived Usefulness of the Sakai LMS

The fourth objective sought to unravel the perceived usefulness of the Sakai LMS to the Distance Learning students. It was brought to bear that student's perception about the usefulness of the Sakai platform was moderate. For instance, half of the students reported that the Sakai platform contributes positively to their academic work. This suggests that, the Sakai platform is fairly useful to the Distance Learning students. However, the course content and tutors need to spend ample time on the platform to answer questions put on the platform by students.

6.2.5: Extent of Use of the Sakai LMS

The fifth objective is to determine the extent of use of the Sakai LMS among the Distance Learning students. It was revealed that frequency of use of the Sakai platform was relatively low. However, some tools on the Sakai platform were frequently used which include; quizzes and test tool Interim Assignments (IA) and quizzes, assignment tool for downloading and submitting assignments. The reason was that it was compulsory for every student to use these mentioned tools. Therefore, it can be inferred that most students were not willing to voluntarily use the Sakai Platform if not because of the negative motivation.

The study also found that perceived usefulness of the Sakai platform does not affect the extent of use. This suggests that instructors should not only focus on the usefulness of the Sakai platform but also, they should pay critical attention to the ease with which students are able to use the platform to support their academic work (Arhinful, 2016).

6.2.6 Major Challenges Distance Learning students faced when using the Sakai LMS

The sixth objective is to ascertain some major challenges Distance Learning students faced when using the Sakai LMS. The following challenges were highlighted in the study which serves as impediments to the use of the Sakai LMS to the Distance Learning students Distance of the University of Ghana; inadequate training on how to use the Saka Platform, system error and unable to access the Sakai platform at the point of need, difficult to get access to the internet, slow internet connectivity, the Sakai platform interface look complex and students were unfamiliar with some of the features, difficulty to log onto the Sakai platform for the first time, sometimes students don't get informed or alerted when there is an announcement on the Sakai platform , some students don't have a personal computer to access the Sakai platform, low system support, power outages sometimes deny students from accessing the platform, lack of awareness about some functional features of the Sakai platform and inadequate computer literacy skills to independently use and to explore the tools on the Sakai platform.

6.3 Conclusion

Currently, the use of instructional technologies has become compelling for higher institutions in the quest to enhance teaching and learning. No wonder e-learning has no more been regarded as a luxury but rather an inevitable tool and because of its phenomenal positive impact on teaching and learning especially in the area of distance learning. The use of learning management systems is gaining roots in most tertiary institutions with the intent to supplement the traditional face to face teaching and learning and in the bid to accelerate easy access and quality education and to alleviate issues such as; students lecture ratio which ultimately leads to some qualified applicants not being able to get opportunity to be enrolled.

As it was evident in this study that the use of the Sakai platform has been a great support to the Distance Learning students of the University of Ghana as perceived by the respondents such as quick and easy access to course materials, convenient and flexible course instruction, reduce cost of physical course materials and transport and it helps gain extra skills to mention but a few. However, many researchers in the area of e-learning hold the view that learning management systems are still underutilised due to certain challenges associated with its use as evident in this study and concerted effort from management of the Distance units and all stakeholders need to be exerted to arrest these challenges.

6.4 Recommendations

The following recommendations are made based on the findings of the study.

6.4.1 Adequate Orientation and Training on the Sakai platform.

Firstly, it is recommended that, the Distance Education units of the University of Ghana should provide adequate orientation and training to all continuing students on the use of the Sakai LMS. Much emphasis should be put on each tool that are required to be used by the students. This will ultimately create awareness about the tools as well and help students navigate on the Sakai platform with ease. Apart from students who need training, instructors and tutors should also be given adequate training to be in a better position to engage students in using the Sakai platform.

6.4.2 Basic Computer Training for all Distance Learning Students

Secondly, basic computer training should be organised for all first years Distance Learning students and this will help provide a level playing field as far computer literacy skills is concerned.

This should be regarded as a crucial move because first years students come from different background and schools where there is an unequal exposure of basic computing therefore such opportunity will lay a foundation for all students to confidently use the Sakai LMS with ease.

6.4.3 Provision of Support System

Again, there should be a support system such as the provision of video tutorials that show the basic functions of the Sakai LMS, how to log in to access resources especially for beginners to use. In addition, there should be the provision of technical specialists of the Sakai platform and should be made known to students for them to channel their issues especially peculiarly ones pertaining to the use of the Sakai platform.

6.4.4 Channel of Funds into the Provision of Bandwidth

Furthermore, the university should channel more funds into the provision of bandwidth to ensure strong internet connectivity when IA and quizzes are being taken. This will help students to take their IA, quizzes, assignment and overall to effectively utilise the Sakai platform especially whilst on campus.

6.4.5 System Upgrade

In addition, the management of the university should make a conscious effort to upgrade the Sakai platform to accommodate other platforms such as social media and also students should be given automatic alerts on their phones via SMS when there is an announcement on the Sakai platform for them to respond to instructions on time. Also, tutors should be motivated to spend ample time on the Sakai platform to address questions that are put across by students and also they should engage students with pertinent discussion on topical areas of subjects under study.

6.4.5 Redesigning of the Sakai LMS Interface

Finally, it is imperative that designers of the Sakai LMS should redesign its interfaces to look more flexible, user-friendly and customisable to reflect the needs and goals of the highest number of end users.

6.5 Areas for Further Studies

This study was only limited to the University of Ghana Distance Learning students. In view of this there is the need to investigate the following;

1. Further studies should be carried on lecturers and tutors' adoption, perception and use of the Sakai LMS since it is now getting roots on the University of Ghana campus.
2. Again, there is the need to conduct further study by comparing perception and use of the Sakai LMS with other learning management systems adopted by other universities in Ghana such the Moodle by Kwame Nkrumah University of Science and Technology (KNUST), Kumasi and University of Professional Studies (UPS), Accra etc.
3. Also, further study should be carried on perception, awareness and use of the Sakai LMS employing a mixed methodology illuminate the study.

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APPENDIX A: QUESTIONNAIRE



**SCHOOL OF INFORMATION AND COMMUNICATION STUDIES
DEPARTMENT OF INFORMATION STUDIES
UNIVERSITY OF GHANA, LEGON**

Dear Colleague,

I am investigating “*level 300 distance students’ perception and use of the Sakai Learning Management System of the University of Ghana*”. This is a purely academic endeavour that will lead to the award of an MPhil degree.

I shall be grateful if you will spare me some few minutes to complete the questions posed in the questionnaire.

All responses will be duly appreciated and will be treated confidentially.

You are also assured that, information given shall be used for the purpose of the research only.

Thank you for your time.

Yours sincerely

Noah Darko-Adjei

PART 1: DEMOGRAPHICS DATA

Please tick (✓) appropriately.

1. Gender: (I) Male [] (II) Female []
2. Age: (I) less than 25 [] (II) 25-35 [] (III) 36-45 [] (IV) 46 and above
3. Programme of study:
(I) Bachelor of Arts [] , (II) Bachelor of Science in Administration [] , (III) Bachelor of Science in Nursing [] , (III) Bachelor of Science in Information Technology []

PART 2: AWARENESS OF THE SAKAI LEARNING MANAGEMENT SYSTEM AND ITS TOOLS.

1. Are you aware of the existence of the Sakai platform? (I) Yes [] , (II) No []
2. If yes, how did you get to know about it? **Tick** (✓) all that applies

- (I) Distance Education handbook [], (II) Orientation [], (III) University of Ghana website [] (IV) Notice board [], (V) Lecturers [], (VI) Tutors [], (VI) Friends [], (VII) Other.....

3. Which of the following Sakai tools are you aware of? **Tick (√)** all that applies

No.	Items	Tick (√)	No.	Items	Tick (√)
1.	Assignment tool	[]	7.	Syllabus tool	[]
2.	Chat tool	[]	8.	Resource tool	[]
3.	Grade book	[]	9.	Announcement tool	[]
4.	Test and quizzes tool	[]	10.	Email tool	[]
5.	Forum tool	[]	11.	Plagiarism checker tool	[]
6.	Calendar tool	[]			

PART 3: STUDENTS' ATTITUDES TOWARDS THE USE OF THE SAKAI LEARNING MANAGEMENT SYSTEM AND INTENTION TO USE THE SAKAI LEARNING MANAGEMENT SYSTEM.

From the table below, tick (√) the extent to which you agree or disagree with the following statements.

Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA)

No.	Items	SD	D	N	A	SA
1.	I think that I would like to use the Sakai platform frequently.	[]	[]	[]	[]	[]
2.	I enjoy using the Sakai platform for my studies.	[]	[]	[]	[]	[]
3.	I believe that Sakai platform enhances my learning experience.	[]	[]	[]	[]	[]
4.	I can easily download my lecture materials from the Sakai platform.	[]	[]	[]	[]	[]
5.	I believe that the Sakai platform makes learning convenience, flexible and interesting.	[]	[]	[]	[]	[]
6.	The Sakai platform makes lecture materials readily available.	[]	[]	[]	[]	[]
7.	I found the tools on the Sakai platform very difficult to use.	[]	[]	[]	[]	[]
8.	I found the tools on the Sakai platform very valuable.	[]	[]	[]	[]	[]
9.	I visit the Sakai platform only when I am compelled by my instructor to do so.	[]	[]	[]	[]	[]
10	I prefer sit down interim assessment (IA) and quizzes than taking them online on the Sakai platform.	[]	[]	[]	[]	[]
11	In a whole I am satisfied with the Sakai platform.	[]	[]	[]	[]	[]

Behavioral Intention to use the Sakai LMS

12. I solely prefer the traditional classroom (face-to-face) teaching and learning rather than complementing it with the Sakai platform. (I) Yes [] (II) No []

13. Please give reasons for your choice in (12) above

.....

14. I will voluntarily log onto the Sakai platform. (I) Yes [] (II) No []

PART 4: COMPUTER LITERACY SKILLS AND PERCEIVED EASE OF USE OF THE SAKAI LEARNING MANAGEMENT SYSTEM.

1. Do you have knowledge and skills to use a computer and other related technology?

(I) Yes [], (II) No []

2. If yes, which level will you belong to?

(I) Basic [] (ii) Intermediate [] (iii) Advanced []

3. How often does the distance unit provide training on how to use the Sakai platform?

(I) Very often [], (II) Often [], (III) Once a while [], (IV) Not at all [], (V) Not sure []

4. Please rate your knowledge in navigating on the Sakai platform

Very Bad (VB), Bad (B), Average (A), Good (G), Very Good (VG).

No.	Item	VB	B	A	G	VG
1.	Your ability to retrieve course materials from the Sakai platform.	[]	[]	[]	[]	[]
2.	Your ability to chat with friends using the Sakai platform.	[]	[]	[]	[]	[]
3.	Your ability to submit an assignment through the Sakai platform	[]	[]	[]	[]	[]
4.	Your ability to send email to tutors and lecturers through the platform.	[]	[]	[]	[]	[]
5.	Your ability to see your grades after a quiz or an (Interim assessment (IA).	[]	[]	[]	[]	[]
6.	Your ability to use all the Sakai platform tools available to you.	[]	[]	[]	[]	[]

From the table below, tick (✓) the extent to which you agree or disagree with the following statements.

Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA)

No.	Items	SD	D	N	A	SA
1.	I find it easy to use the Sakai platform.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	The Sakai platform does not require any special computer literacy skills in order to use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	I found it easy to learn how to use the Sakai platform	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	I learned how to use the Sakai platform on my own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	The Sakai platform interface is user friendly and flexible to use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	My interaction with the Sakai platform is clear and understandable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART 5: PERCEIVED USEFULNESS OF THE SAKAI LEARNING MANAGEMENT SYSTEM.

Please indicate your level of agreement to the following statements. Please tick (✓) where appropriate.

Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA)

No.	Items	SD	D	N	A	SA
1.	Using the Sakai platform helps me to accomplish my coursework more quickly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Using Sakai platform increases my academic performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	The content of materials on the Sakai platform is very useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Using the Sakai platform has enabled me to gain extra skills and experiences outside the classroom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	I can access lecture materials on the Sakai platform with my smart phone anywhere and at any time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Overall, the Sakai platform is very advantageous to my course of study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Do you think the Sakai platform has contributed tremendously to your academic work?

(I) Yes (II) No

8. If yes to the above question (7), state specific instances how it has helped you.

.....

PART 6: EXTENT OF USE OF THE SAKAI LEARNING MANAGEMENT SYSTEM

1. How often do you use the Sakai platform?

(I) Daily , (II) Weekly , (III) Monthly , (IV) Others.....

2. I only visit the Sakai platform when there is an announcement from my tutor /instructor.
 (I) Yes [] (II) No []

Please indicate the reasons for using the Sakai Platform and how frequently, Tick (√) all that applies

No.	Items	Frequently	Rarely	Never
1.	For downloading course outline and lecture materials	[]	[]	[]
2.	For downloading and submitting assignments	[]	[]	[]
3.	For receiving class announcements	[]	[]	[]
4.	For discussing subject areas with course mates and tutors	[]	[]	[]
5.	For sending emails to course mates or tutors	[]	[]	[]
6.	For taking Interim Assignments (IA) and quizzes	[]	[]	[]
7.	For watching video tutorials	[]	[]	[]
8.	For checking plagiarism index of assignments	[]	[]	[]

PART 7: CHALLENGES IN THE USE OF THE SAKAI LEARNING MANAGEMENT SYSTEM.

Please indicate the challenges you face when using the Sakai platform. Tick (√) all that applies

No.	Items	
1.	There is inadequate training on how to use the Saka Platform.	[]
2.	Difficult to get access to the internet.	[]
3.	There is slow internet connectivity.	[]
4.	The Sakai platform interface look complex and I am unfamiliar with the features.	[]
5.	Sometimes I experience system error and unable to access the Sakai platform.	[]
6.	Sometimes I don't get informed when there is an announcement on the Sakai platform.	[]
7.	I don't have a personal computer to access the Sakai platform.	[]
8.	Power outages sometimes deny me of accessing the Sakai platform.	[]

9. In your own opinion, what do you think should be done to improve the effectiveness and efficiency of use of the Sakai platform?

Thank you for your kind cooperation and time

APPENDIX B: LETTER OF INTRODUCTION



UNIVERSITY OF GHANA
DEPARTMENT OF INFORMATION STUDIES
SCHOOL OF INFORMATION AND COMMUNICATION STUDIES

Ref. No.:

October 25, 2017

The Head
Department of Distance Education
University of Ghana
Legon

Dear Sir/Madam,

LETTER OF INTRODUCTION

This is to introduce to you Noah Darko-Adjei an MPhil student of the Department of Information Studies. He is researching on the topic: **“The perception and use of Sakai learning management system in University of Ghana”**. Noah is expected to submit his thesis as part of the requirement for the MPhil programme.

We would appreciate any support you can give him.

Yours faithfully,

Dr. E. Adjei
(Head of Department)

COLLEGE OF EDUCATION

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