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**FACTORS AFFECTING ADOPTION AND USE OF MOODLE BY ACADEMIC TEACHING
STAFF AT THE UNIVERSITY OF ZAMBIA**

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ABSTRACT

Universities have made a considerable investment in the use of Learning Management systems (LMSs) to facilitate their teaching learning processes. However, these LMSs are not used by the academic staff to their fullest capabilities. To address this issue, this study investigated the factors that affect the adoption of LMSs such as Moodle amongst academic teaching staff at the UNZA. The study used the survey research design, that was aimed at collecting information from respondents that would help in establishing the factors that contribute to the low adoption rate of Moodle amongst the academic teaching staff at the UNZA. A meta-analysis was conducted in order to identify an appropriate theory or model to use in the study. TAM 2 was identified as the appropriate theory for the study because it gives a clear picture of perceived usefulness and perceived ease of use of technology. In addition, a usage log of the courses that utilize Moodle at the UNZA was sourced from CICT and quantitative research approach was employed in order to make conclusion based on the responses provided by respondents who participated in this study. The data collection tool that used was an online questionnaire on LimeSurvey designed using TAM 2. This study analyzed the data using Microsoft Excel. The results indicated that majority of courses at the UNZA did not have active Moodle sites. Based on these findings, it can safely be said that the current adoption rate of Moodle at the UNZA is very low with only a total of 158 sites active out of the 2295 courses. This research contributes to the already existing literature in the knowledge of adoption of e-learning technologies. In that it aims at investigating the factors affecting the low adoption rate of Moodle by the teaching staff at the UNZA based on the Technological Acceptance Model 2 (TAM 2). However, the limitations concerned were time limitations where the researcher had limited time to collect more data. This led to low or non-response from certain schools. Other than that, the researcher's knowledge of LimeSurvey was limited. The other limitation was the nature of the data collection tool, many respondents found that most of the questions did not apply to them. There should be more sensitization programs for the adoption and use of Moodle. Organizations should support their employees in using e-learning technology for innovation purposes and the usefulness of e-learning technology should be enforced. This study presents a new direction in the field of research towards the adoption of e-learning technologies. The study also shows the factors that affect the low adoption rate of Moodle at the University of Zambia and shows reasons for the current condition.

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TABLE OF CONTENTS

LIST OF FIGURES.....	vi
LIST OF TABLES	vii
CHAPTER 1 INTRODUCTION	1
1.1 BACKGROUND	2
1.2 STATEMENT OF THE PROBLEM.....	3
1.3 1.3 STUDY OBJECTIVES.....	3
1.3.1 1.3.1 GENERAL OBJECTIVE AND SPECIFIC OBJECTIVES	3
CHAPTER 2 LITERATURE REVIEW.....	6
2.1 OVERVIEW	6
2.4 ACCEPTANCE OF E-LEARNING TECHNOLOGIES	10
CHAPTER 3 METHODOLOGY.....	14
3.1 THEORY/MODEL FOR IDENTIFYING FACTORS.....	14
3.2 QUANTIFYING ADOPTION RATES	16
3.3 FACTORS AFFECTING ADOPTION.....	17
3.4 STUDY CONTEXT, TARGET POPULATION, SAMPLE SIZE AND SAMPLING PROCEDURES.....	17
3.5 DATA COLLECTION	18
3.6 DATA COLLECTION TOOLS.....	18
3.7 DATA ANALYSIS	18
CHAPTER 4 RESULTS	20
4.1 CURRENT ADOPTION RATE OF MOODLE AT THE UNZA	21
4.2 FACTORS AFFECTING ADOPTION OF MOODLE BY ACADEMIC TEACHING STAFF	21
4.2.1 DEMOGRAPHIC DETAILS.....	22
4.2.2 MOODLE USAGE.....	23
4.2.2.1 IF RESPONDENT HAS EVER USED MOODLE.....	23
4.2.2.2 USES RESPONDENT HAD FOR MOODLE	23
4.2.2.3 IF RESPONDENT HAS CREATED ANY SITE USING MOODLE	23
4.2.2.4 NUMBER OF MOODLE SITES RESPONDENT HAS CREATED THIS YEAR.....	24
4.2.3 RELIABILITY.....	25
4.2.4 DESCRIPTIVE STATISTICS.....	26
CHAPTER 5 DISCUSSION OF FINDINGS.....	27
5.1 INTENSION TO USE.....	27
5.2 PERCEIVED USEFULNESS	27
5.3 PERCEIVED EASE OF USE	27
5.4 SUBJECTIVE NORM.....	28
5.5 VOLUNTARINESS.....	28
5.6 IMAGE	28
5.7 OUTPUT QUALITY.....	28

5.8 JOB RELEVANCE.....	29
5.9 RESULT DEMONSTRABILITY.....	29
CHAPTER 6 CONCLUSION.....	31
6.1 LIMITATIONS.....	31
6.2 RECOMMENDATIONS.....	31
6.3 CONCLUSION.....	31
REFERENCES.....	32
APPENDICES.....	36
APPENDIX 1: LIKERT SCALE SURVEY DATA.....	36
APPENDIX 2: DEPARTMENTAL LETTER OF INTRODUCTION.....	38
APPENDIX 3: QUESTIONNAIRE.....	41

LIST OF FIGURES

Figure 1: The UNZA Moodle application homepage.....	2
Figure 2: TAM 2 model.....	15
Figure 3: Current adoption rate of Moodle at the UNZA.....	21
Figure 4: If respondent has ever used Moodle	23
Figure 5: If respondent has created any site using Moodle	24
Figure 6: Different learning management systems respondents have used besides Moodle	25

LIST OF TABLES

Table 1: Demographic details	22
Table 2: Uses respondent had for Moodle	23
Table 3: umber of Moodle sites respondents has created this year	24
Table 4: Cronbach's alpha	25
Table 5: Descriptive Statistics of TAM 2 items.....	26

CHAPTER 1

INTRODUCTION

E-learning has become an integral part of teaching and learning due to the proliferation of technology. It refers to educational processes that utilize various kinds of electric media and information and technologies (Patil, 2014). In an educational context, Learning Management Systems (LMSs) are also a type of e-learning platforms and these are what this research will focus on. Thus, LMSs are computer management software's that facilitate e-learning through the creation of course content (Lonn and Teasley, 2009). Using LMSs in education has facilitated the communication between students and their instructors therefore they are an essential tool (Jamal and Shannah, 2011). The main role of LMSs is not to replace the traditional classroom setting but to supplement the traditional lecture with course content that can be accessed online (Landry et al., 2006). LMSs are also beneficial for developing reciprocity and cooperation among learners, using active learning techniques, giving prompt feedback and emphasizing time on task (Wang et al., 2013).

There are a variety of e-learning management systems that exist. Blackboard is one of the most common Web-based LMS used for communication between instructors and students which also provides storage space for all types of information (Jamal and Shannah, 2011). Another open source LMS preferred is one known as Sakai which is a powerful and flexible platform for curriculum and learning management (Dube and Scott, 2014). Furthermore, there are other promising LMSs that exist such as ATutor, Eliademy and Dokeos (Lengyel et al., 2006; Clayton et al., 2016; Jovanovic and Jovanovic, 2013) but the University of Zambia only uses Google Classroom, Astria (Siachiwena, 2010) and also Modular Object-Oriented Dynamic Learning Environment (Moodle) (Chewe, 2015). However, this research focuses solely on Moodle LMS (Pappas, 2015).

Moodle is a Web-based open source LMS which allows staff to create online and blended learning and teaching environments of course delivery. It manages courses and their content by providing users to their courses and activities within them, helps in submitting and collecting assignments online, has a quiz module that allows a lecturer to design and set quiz tests with strategies that are usually not practical with paper-based testing, has grades area for tracking student scores, forums where one can post questions and also, it allows evaluation of a course through feedback by use of the questionnaire module (Lopes, 2014). Consequently, Moodle enhances lecturer and student interactions through the forum module and also, it is successful for providing a practical technical platform for administering tests to a large

number of students in a short time as a result of modules such as the quiz and assignment modules (Kwaku, 2011).

The purpose of this research was to investigate the low adoption rate of Moodle amongst academic teaching staff at the UNZA. As aforementioned, e-learning technologies like Moodle are very useful in education. However, it was suspected that very few academic teaching staff actually use it to teach. This was based partly on the researcher's experience at the UNZA where all courses except one administered Moodle. Thus, this research assessed the factors that contribute to its low adoption rate amongst the academic teaching staff at The UNZA and how these factors can be curbed in order to increase the use of Moodle in teaching and learning. Figure 1 shows a screenshot of the UNZA Moodle Web application.

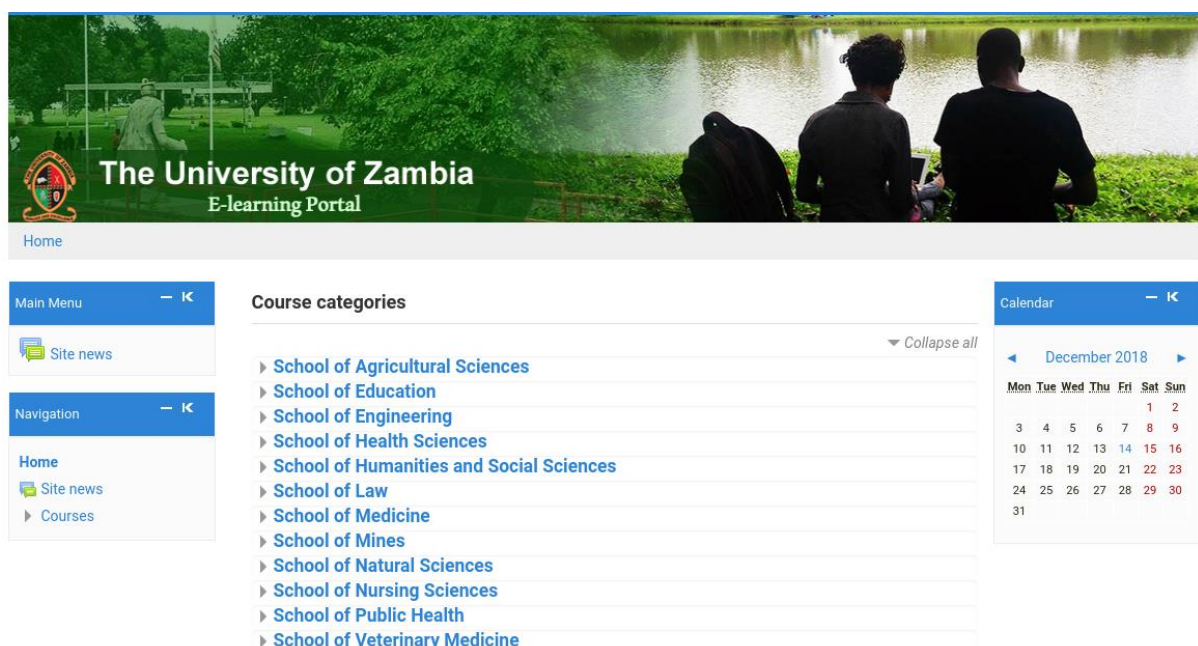


Figure 1: The UNZA Moodle application homepage

1.1 BACKGROUND

The UNZA has different types of students to cater for and these students include; Regular, Parallel, distance and postgraduate students. In order for the UNZA to meet the teaching and learning needs of the students, the UNZA started offering E-Learning technology services to its students. The E-learning technologies that the UNZA adopted were to harness information access and greater communication in learning and teaching. There are a number of E-learning technologies that the UNZA has adopted for teaching and learning purposes by academic staff. Among the adopted E-learning technologies by the UNZA include google classroom, Moodle, just to mention a few.

From the mentioned e-learning technologies, Moodle is an e-learning system that was in the adoption process by UNZA to offer teaching and learning contents. Moodle is an open source library management system whose development started as a research by an Australian named Martin Dougiamas in 1999. Been an open source software Moodle enables the users to freely customize it to suit their educational needs. Moodle also gives the user the freedom to preview and share knowledge with other users. The introduction process of change of any form in an institution of learning comes with its challenges from individuals as well as other factors from that particular institution. Thus, the adoption rate of Moodle among academic teaching staff at the UNZA was not as anticipated by the UNZA management. Therefore, the research attempted to investigate the factors that were affecting the adoption of Moodle at the UNZA among the academic staff despite it being open access (Cole and Foster, 2007).

1.2 STATEMENT OF THE PROBLEM

A study conducted by (Chewe and Chitumbo, 2012) observed that although The UNZA has adopted an LMS called Moodle in order to enhance teaching and learning experience which has been in use since 2012, however, there has been a low adoption rate of Moodle by the academic teaching staff. And it was from such an observation that the study's aim was to identify factors that have been causing the low adoption rate of Moodle amongst academic teaching staff at the UNZA.

1.3 STUDY OBJECTIVES

1.3.1 GENERAL OBJECTIVE AND SPECIFIC OBJECTIVES

The main objective of the study was to establish why there is a low adoption rate of Moodle amongst academic teaching staff at The UNZA.

- To establish the current adoption rate of Moodle amongst academic teaching staff at The UNZA.
- To identify the appropriate theory to use in identifying factors that contribute to the low adoption of Moodle amongst academic teaching staff.
- To identify the factors that contribute to the low adoption of Moodle amongst academic teaching staff.

1.3.2 RESEARCH QUESTIONS

1. To what extent is Moodle currently used by academic teaching staff at The UNZA?

This research question was aimed at identifying the extent to which academic teaching staff currently make use of the Moodle as a teaching tool.

2. What theory is appropriate for identifying factors that contribute to the low adoption of the Moodle by academic teaching staff at The UNZA?

This research question was aimed at identifying the appropriate theory that will be used to identify factors contributing to the low adoption of the Moodle among the academic teaching staff at The UNZA.

3. What factors contribute towards the low adoption rate of the Moodle at The UNZA?

This research question was aimed at identifying the factors that contribute to the low adoption of the Moodle among academic teaching staff.

1.4 RATIONALE OF THE STUDY

The main purpose of this study was to find out why there is a low adoption rate of the Moodle at The UNZA. The findings of the study will inform UNZA management and potentially other institutions of higher learning on specific strategies that can be employed in order to increase the adoption rate of the Moodle. The findings will potentially help improve the delivery of teaching services and enhance the learner's learning experience. Additionally, the research will help add to the much-needed scholarly literature on the low adoption rate of the Moodle.

1.5 ETHICAL CONSIDERATIONS

Before embarking on the study and interacting with the study participants, ethical clearance was obtained from the respective administrative offices. Ethical clearance was obtained in order to ensure privacy, justice, respect and beneficence to participants.

The aim of the study was explained to all study participants. As such, the participants were at liberty to answer or not if they felt insecure to give out information hence a decision not to participate was strictly respected. Therefore, this study stuck to uphold strict confidentiality throughout the research process.

The procedure was organized and conducted in such a way that no harm should be caused to any participants. All information concerning individual participants remained anonymous and confidential.

1.6 DEFINITION OF KEY TERMS

There has been extensive debate about a common definition of the term e-learning some of the definitions are as follows:

The (European Commission, 2001) describes, e-learning as the use of new multimedia technologies and the Internet to increase e-learning quality by easing access to facilities and

services as well as distant exchange and collaboration. Furthermore, e-learning can also be defined as the use of information and communication technologies in diverse processes of Education to support and enhance learning in institutions of higher education, and includes the usage of information and communication technology as a complement to traditional classrooms, online e-learning or mixing the two modes (OECD, 2005).

Furthermore, it is the utilization of electronic technologies to access educational curriculum outside of a traditional classroom. It involves the use of a computer or electronic device, such as mobile phone in some way to provide training, educational or learning material. In addition, it refers to the attainment and use of knowledge that are predominantly facilitated and distributed by electronic means. An e-journey is one type of e-learning or on line training. Blended learning is e-learning combined with other training methods.

On the other hand, Moodle is an acronym for Modular Object-Oriented Dynamic Learning Environment. It is an online educational platform that provides custom learning environment for students. Educators can use Moodle to create lessons, manage courses, and interact with teachers and students. Students can use Moodle to review the calendar, submit assignments, take quizzes and interact with their classmates.

It is also said to be a free online learning management system (LMS) or virtual learning environment (VLE.). It is suitable for all ages and all sectors. Anywhere learning takes place, Moodle can be used. It is usually used online but may also be used on an 'intranet' within your organization.

CHAPTER 2

LITERATURE REVIEW

2.1 OVERVIEW

This chapter provided an overview of previous research on e-learning technology acceptance, adoption and factors affecting their acceptance. It comprised the main focus of the research which was understanding the factors that affect the adoption of Moodle amongst academic teaching staff. This section is important because it discusses relevant literature and theories in order to identify gaps. Also, it will provide context for choice of methodology and data collection tools. It will also help in avoiding mistakes done in previous researches.

2.2 THEORIES OF INFORMATION COMPUTER TECHNOLOGY ADOPTION AND ACCEPTANCE

Various theories and models have been employed over the years to understand and study user's technology adoption behaviors. These models and theories focus mostly on people's intention to engage in a certain behavior such as the adoption and use of new technologies.

Davis presented a theoretical model known as the Technology Acceptance Model (TAM) which is aimed at explaining and predicting ICT usage behavior, that is, what causes potential adopters to accept or reject the use of information technology (Davis, 1989). TAM makes use of two theoretical constructs, Perceived Usefulness (PU) which is the degree to which a person believes using a particular system would enhance his or her performance and the Perceived Ease of Usefulness (PEOU) which is defined as the degree to which a person believes using a particular system would be free from effort (ibid).

These two constructs PU and PEOU are the fundamental determinants of system use and are used to predict attitudes toward use of the system that is the user's willingness to use the system. TAM has been used in different researches or articles in different ways such as comparing different adoption models. Davis empirically compared the ability of the Theory of Reasoned Action (TRA) and TAM to predict and explain the acceptance and rejection by users of the voluntary usage of computer-based technology (Davis, 1993).

Venkatesh and Davis developed and tested a theoretical extension of TAM known as TAM2, which is used to explain PU and usage intentions with the help of social influence and cognitive instrumental processes (Venkatesh and Davis, 2003). Social influence includes factors like subjective norms, voluntariness and image and the cognitive instrumental processes includes job relevance, output, quality, result, demonstrability and PU.

Fishbein and Azjen developed the Theory of Reasoned Action to define links between the beliefs, attitudes, norms, intentions and behaviors of individuals (Fishbein and Azjen, 1997). The theory originates from psychology and it is a special case of the Theory of Planned Behavior (Azjen, 2010). It assumes that a person's behavior is determined by the person's attitude and his or her subjective norms towards the behavior. The subjective norm refers to the person's perception that most people who are important to him or her think that they should not perform the behavior in question. TRA is used to predict and understand human behavior to help in solving applied problems and making policy decisions. It is applicable when studying consumer behavior and family planning behaviors.

Azjen presented a theoretical model known as the Theory of Planned Behavior (TPB) which focuses on cognitive self-regulation (Azjen, 1991). It is similar to the TRA but the difference is that it takes into account an additional construct, namely perceived behavioral control which refers to the perception of control over the performance of a given behavior. Azjen reviews that the theory was applied in studies examining problem drinking or leisure behavior in which the theory provided useful information to understand these behaviors or to implement effective interventions to change them (ibid, 1991). Taylor and Todd compared the ability of TPB and TAM to explain behavior and predict an individual's intention to use ICT, respectively (Taylor and Todd,1995).

The Diffusion of Innovations (DOI) is a general theory of how new ideas are spread and adopted in a community and it seeks to explain how communication channels and opinion leaders shape adoption. Moore and Benbasat used DOI to develop an instrument designed to measure the various perceptions that an individual may have of adopting an information technology innovation. The instrument was intended to be a tool for the study of the initial adoption and subsequent diffusion of information technology innovations within organizations (Moore and Benbasat ,1991).

Furthermore, the UTAUT aims to explain the degree of acceptance of the use of information technology and it is based on eight models. It draws on the TRA, TAM, TPB, combined TAM and TPB, the Motivational Model, the model of Personal Computer Utilization, the Innovation Diffusion Theory and the Social Cognitive Theory (Venkatesh et al, 2003). This model has been empirically examined and found to outperform the eight individual models.

This study used the TAM2 to identify and explain the factors that affect adoption or acceptance of the Moodle technology by academic teaching staff at the UNZA, using the two constructs PU and PEOU and the social influence and cognitive instrumental processes.

Perceived usefulness was used to measure the extent to which Moodle helps perform job activities, the PEOU construct in the study was used to measure how easy it is for academic teaching staff to use Moodle without too much effort, the Subjective Norm construct was used to measure the extent to which people around can influence beliefs, the construct of Image was used to measure to what extent Moodle is seen as a status symbol and something to be proud of by the academic teaching staff, Job Relevance construct was used to measure to what extent the academic teaching staff believe that the system will be relevant to their job, in other words is Moodle able to support their job activities, the Output Quality construct was used to measure the quality the academic teaching staff believe their work activity will be of, Result Demonstrability was used to measure the degree to which the user can see direct tangible results of work of Moodle implementation and Voluntariness was used to measure the degree to which the academic teaching staff can choose to use or not use Moodle.

The TAM2 was used in this study instead of TAM because in terms of explanatory power, TAM only explains 40-50% of technology acceptance whereas TAM2 reaches 60% (ibid). This helped the study to give a detailed explanation of the factors that affect Moodle adoption. Additionally, TAM2 is a simple and generic model that can be used to study initial and continued intention (Sumak et al,2000)

2.3 THE ADOPTION OF E-LEARNING PLATFORMS

Chewe conducted a recent study on faculty perception of Moodle software as a teaching tool at the UNZA (Chewe,2018). The main aim of the study was to gather perceptions of the lecturers toward the use of Moodle online environment from which future practice could be informed. The survey was conducted in the term of the 2017 academic calendar and one of the main findings was that there was a low adoption level of Moodle as a supplementary mode of lesson delivery. However, the study focused solely on faculty perception of Moodle as a teaching tool. This study aimed at finding out the current adoption rate of Moodle amongst academic teaching staff in the 2017/2018 academic year and identifying the factors that lead to low adoption rate.

Studies looking at the nature of technology adoption from multidimensional perspective have remained below expectation especially in African countries. A study by Ansong et al sought to explore the nature of e-learning adoption at the University of Ghana using a multi-stakeholder approach (Ansong et al ,2017). The three major categories of stakeholders (students, instructors and e-learning administrators) responded to a questionnaire on the nature of their engagement with the Sakai learning management system of the University of Ghana. The study also bridged a literature gap by providing a multi-facet (student, lecturer

and e-learning instructors) in identifying determinants of e-learning adoption from a developing country. The study concludes with a discussion of implications and future research directions which gives way to future researchers to take up researches within the same subject. The study's implications were towards research, policies and practice. It contributed to the body of knowledge within the area of e-learning by validating and extending technology, organization and environment framework in an African perspective. These implications provide support for the study of e-learning adoption from a multi-faceted approach. Although the literature mentioned above was distinguished from the current research by its focus on three important facets of e-learning adoption, it was still important because it made the researcher recognize that other than focusing on just one aspect which was the teaching staff, there were other users of e-learning technologies that could be looked at such as the students or the e-learning instructors.

Another study was conducted by Chipembele and Bwalya at the Copperbelt University (CBU) to assess the University's e-readiness (preparedness) with a view to ascertain the likelihood of the University benefitting from various opportunities unlocked by the adoption and use of ICTs in advancing its core mandate of teaching, learning and collaborative research (Chipembele and Bwalya,2016). The study used the network readiness model emanating from the socio-technical theory which underpins the extended technological enactment framework.

The findings of the study demonstrated that anticipated ICTs users did not leverage available ICT infrastructure or were unaware of its existence. Further quantitative constructs were that accessibility to ICTs and requisite ICT skills has significant impacts on e-readiness indicators and in integration of ICTs in CBU core business activities. The study also showed that the institutional ICT policy and working environments reshape user's perception of ICTs for the use of teaching, learning and research.

Additionally, Cahir et al carried out a study on the results of first stage implementation of Moodle at an Australian University (Cahir et al ,2014). This study involved an online survey and a focus group with unit conveyors teaching Open University Australia (OUA) units in Moodle. It was found that despite the expectations of the pilot study contributing to the building of capability and knowledge among staff members, the program was jeopardized by a common pattern of behavior among higher education workers called casualization of the academic work force. And therefore, the paper concluded that an environment of insecure employment is a barrier to change management.

There are many factors that influence and impact the successful adoption of e-learning technologies (Papp, 2000). Also, there are factors that make the adoption of these e-learning technologies a challenge. A study conducted by Selim aimed at specifying the critical factors that affect the acceptance of e-learning technologies by students (Selim ,2005).

Furthermore, this study used a survey instrument and data was collected through an anonymous study instrument. The findings of this study were then reported to be attitude of the instructor towards technology, instructor's teaching style, student motivation, technical competence, ease of on campus internet access, effectiveness of information technology infrastructure and University support of e-learning activities (ibid).

Although the above study looked at factors that affect the adoption of e-learning technologies, there are still some things that remain open to study. For instance, the study focused solely on the perspectives of students and left out those of the instructors in higher learning institutions. Therefore, one of the aims of this research is to bring out the factors that affect the adoption of e-learning technologies amongst academic teaching staff in higher learning institutions.

2.4 ACCEPTANCE OF E-LEARNING TECHNOLOGIES

The acceptance or adoption of e-learning technologies by academic teaching staff has been seen as a challenge faced by many educational institutions around the world hence a study was conducted by Al-alak and Alnawas to measure the acceptance and adoption of e-learning by academic staff (Al-alak and Alnawas ,2011).

The major findings of the study established that the failure to adopt e-learning initiatives in Universities despite teachers' positive attitudes towards the adoption of e-learning included the improper deployment of the necessary infrastructures and equipment that sparkle the adoption and acceptance of e-learning; the absence of the necessary conditions for the development of quality educational contents and services; lack of specific training for lecturers and not hastening the networking and corporation at national level.

The study further made some recommendations that would lead to increase in the acceptance and adoption of e-learning. The first recommendation was that the University management needs to support its academic staff through the provision of the required infrastructure and collaborate and communicate with them in order to reduce the fear of adopting e-learning. The study also recommended that educational institutions need to make systematic efforts in providing lecturers with trainings on how to use e-learning systems effectively. The study further recommended that courses should be given to lecturers to explain the benefits of

adopting e-learning system and how the system can support their educational objectives. Additionally, the study recommended that educational institutions should take advantage of those who have experience with the use of informational technology and utilize them in assisting those that lack such experiences.

The above study mainly focused on the provision of equipment, trainings and encouraged corporations among institutions to increase acceptance and adoption of e-learning but did not focus on factors such as attitudes, beliefs and behavior of the academic staff towards e-learning. Universities may provide all the equipment and the trainings but if do not have the right attitudes towards e-learning even adoption or acceptance will be very difficult hence this has been done.

A study by Alqudah applied the Technological Acceptance Model (TAM) in the identification of barriers that prevent academic staff at Jordan University to utilize Moodle (Alqudah, 2014). TAM is used to identify the attitudes and behavior that people have towards the acceptance of technology. Using TAM, the study considered the factors that explain user's acceptance in using new technologies and these factors are the PEOU and PU, attitude toward using (ATU) and behavioral intention (BI).

The study obtained quantitative data using the survey of TAM items and information on age, gender and teaching area and also included in the study was the relationship between the technical support factor and Moodle. The major findings of the study established that technical support has a positive effect on the PU of Moodle and technical support also has a positive effect on PEOU of Moodle. In addition, the findings indicated that PEOU has a positive effect on the academic staff's intentions to use Moodle. The findings further indicated that PEOU is a more significant barrier to adopting Moodle.

The study did not make any recommendations on what institutions should do to ensure acceptance of Moodle among academic teaching staff is successful. This study will therefore make recommendations based on the findings that will help in ensuring the successful acceptance of Moodle among academic teaching staff.

Salem and Ahmad presented a study and the aim of the study was to explore the acceptance of Moodle as a teaching and learning tool by the faculty of the department of information studies(IS) at Sultan Quaboos University (SQU) (Salem and Ahmad ,2016). The researchers utilized one of the information computer technology acceptance theories known as the Unified Theory of Acceptance and Use of Technology(UTAUT). The theory UTAUT was used to examine the effects of performance expectancy, effort performance, social influence

and facilitating conditions on the behavioral intentions of the SQU faculty members to use Moodle in their teaching. The data was collected using the interview method and the sample size was nine.

The major findings of the study showed that there were two faculty groups within the Department of IS: one group made use of Moodle and the other group did not use Moodle. The results showed that in the group that used Moodle, performance expectancy, effort expectancy, social influence, facilitating conditions and behavioral intention are positively related, thus influencing the faculty members' use behavior while in the group that did not use Moodle it was discovered that they displayed optimistic performance expectancy for technology but their overall perception of Moodle was negative and the other UTAUT constructs have no influence on this groups adoption of Moodle as a learning platform. The study also identified four additional factors that affect the adoption of Moodle in addition to the UTAUT constructs, the factors include age, gender, experience and voluntariness of use amongst which gender was found to exhibit the least influence on adoption of Moodle as both female and male faculty members use the platform.

The recommendations of the study were to create awareness on benefits and use of Moodle for the group that does not use Moodle in its teaching and also to explore the attitudes and perceptions of the faculty members on the basis of UTAUT.

In as much as the above study strived to bring about critical aspects on the acceptance of Moodle as a teaching/learning tool using the UTAUT theory constructs the sample size of nine members of the faculty was too little to come up with these findings, it also missed some other factors such as training and skills of the faculty members in the use of the learning management system Moodle as a teaching /learning platform. Although it looked at behavioral intentions of the members it did not look at the attitude of faculty members towards change which this study will try to look at.

2.5 SUMMARY

In this chapter, various literature related to the current study was reviewed. The literature reviewed was related to this study in that it looked at adoption of e-learning technologies such as Moodle by academic teaching staff at universities and some of the studies also made use of TAM 2 in conducting their studies. The other relation of the reviewed studies to this study was that one particular study was also conducted at the UNZA and it looked at the perception of faculty on the use of Moodle software. The difference of this study from the literature surveyed

was that it was aimed at finding out why there is a low adoption rate of Moodle at the UNZA, it also applied the TAM 2 theory to identify the factors contributing to the low adoption of Moodle and the study made recommendations based on the findings that would help ensure effective adoption of e-learning technologies.

CHAPTER 3

METHODOLOGY

A research method is an important component of the research process, the section describes action to be taken to investigate a research problem and the rationale for the application of specific procedures or techniques used to identify, select, process, and analyze information applied to understanding the problem, thereby, allowing the reader to critically evaluate a study's overall validity and reliability. The methodology section of a research paper answers two main questions; How was the data collected or generated? And how was it analyzed? The writing should be direct and precise and always written in the past tense (Kallet,2004). Furthermore, a research method involves a research design, research site, population, sampling techniques, research instruments data collection procedures and data analysis. This chapter stated how data would be collected in response to research questions, describing procedures and techniques as well as justification for picking that particular research design, target population, sample size and sampling procedures, data collection instruments and data analysis techniques. This information was presented in the following order; research design, target population, sample size and sampling procedure, data collection, data collection tools and data analysis.

This study used the survey research design. Cohen and Manion argue that surveys gather data at a particular point in time with the intention of describing the nature of existing conditions or identifying standards of which existing can be compared or being able to determine the relationship existing between events (Cohen and Manion, 1980). The study's aim was to collect information from respondents on their attitudes and opinions in relation to the low adoption rate of Moodle amongst the academic teaching staff at The UNZA. The data collection tools used was the TAM2 questionnaire.

3.1 THEORY/MODEL FOR IDENTIFYING FACTORS

A meta-analysis was conducted in order to identify an appropriate theory or model to use in the study. And as discussed in the literature review chapter two of the document, TAM 2 was the identified theory which includes new constructs as compared to the first one as demonstrated by the figure below:

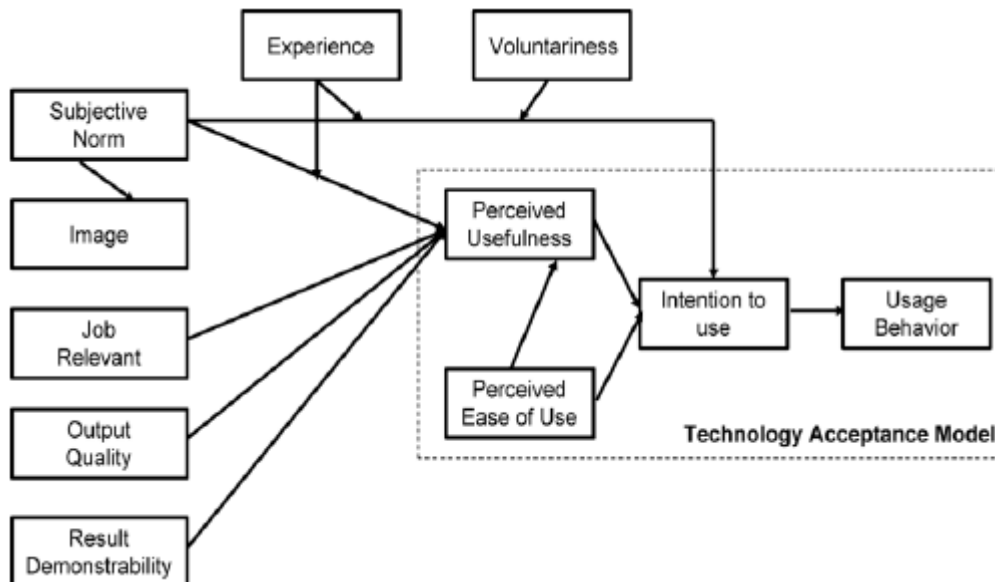


Figure 2: TAM 2 model

As a starting point, TAM 2 uses the first TAM with its first two constructs which are perceived ease of use and perceived usefulness. Then to that it incorporates new theoretical constructs. The new constructs involve social influence processes such as subjective norm, voluntariness and image and cognitive processes such as job relevance, output quality, results demonstrability and perceived ease of use.

Subjective norm and social influence; subjective norm is a person's perception that most people who are important to him should or should not perform the behavior in question. The rationale for a direct effect of subjective norm on intention is that people may choose to perform a behavior, even if they are not themselves favorable toward the behavior or its consequences, if they believe one or more important referents think they should and they are sufficiently motivated to comply with the referents.

Voluntariness with social influence; a study carried out by Hartwik and Barki reveals that the direct compliance effect of subjective norm on intention is theorized to operate whenever an individual perceives that a social actor wants him or her to perform a specific behavior, and the social actor has the ability to reward the behavior or punish the non- behavior (Hartwik and Barki, 1994). TAM2 theorists that in a computer usage context, the direct compliance based effect of subjective norm over and above perceived usefulness and perceived ease of use will occur in mandatory, but not voluntary usage settings. This model therefore positions voluntariness as a moderating variable defined as the extent to which potential adopters perceive the adoption decision to be non-mandatory. As Hartwick and Barki found that, even when users perceive system use to be organizationally mandated, usage intentions depend vary because some users are unwilling to comply with such mandates (Hartwick and Barki ,1994).

Image and social influence; individuals often respond to social normative influences to establish or maintain a favorable image within a reference group. Image is the degree to which use of an innovation is perceived to enhance one's status in one's social system (Moore and Benbasat, 1991). TAM2 theorizes that subjective norm will positively influence image because, if important members of a person's social group at work believe that he or she should perform a behavior.

Beyond the social influence processes affecting perceived usefulness and usage intention, TAM2 has theorized four cognitive instrumental determinants of perceived usefulness as; job relevance, output quality, result demonstrability and perceived ease of use. In cognitive processes people tend to compare what a system is capable of doing with what they need to get done in their job.

Job relevance; one key components of this process is the potential user's judgment of job relevance which is defined as an individual's perception regarding the degree to which the target system is applicable to his or her job. Output quality; TAM 2 posits that, over and above considerations of what tasks a system is capable of performing and the degree to which those tasks match their job goals, people will take into consideration how well the system performs those tasks, which can be referred to as perceptions of output quality.

Result demonstrability; shows that even effective systems can fail to gather user acceptance if people have difficulty in attributing gains in their job performance, specifically to their use of the system. Therefore, TAM2 theorizes that result demonstrability is defined as the tangibility of the results of using innovation will directly influence perceived usefulness. Perceived ease of use; TAM2 retains the perceived ease of use as it is in the original TAM, as a direct determinant of perceived usefulness. The less effortful a system is to use, the more using it can increase job performance.

3.2 QUANTIFYING ADOPTION RATES

Adoption rates were measured using the total number of courses for each level of study. These were extracted from the student information system with the data segmented by department and school. The total number of active Moodle sites were extracted by analyzing Moodle usage logs between January 2018 and September 2018. The activity of Moodle sites was determined by identifying the total number of users that had accessed the site. A threshold of a minimum of 10 views for each site was used to determine whether or not a site was active. If a site has less than 10 views, then it was concluded that the site wasn't active.

3.3 FACTORS AFFECTING ADOPTION

The factors that affect the adoption rates were identified using the data collected from the TAM2 questionnaire that uses PU, PEOU and social influence processes such as subjective norm, voluntariness and image and cognitive processes such as job relevance, output quality, results demonstrability and perceived ease of use to identify behaviors and attitudes of users towards the e-learning platform.

3.4 STUDY CONTEXT, TARGET POPULATION, SAMPLE SIZE AND SAMPLING PROCEDURES

In order to get statistically significant results, the study was aimed to elicit responses from the academic teaching staff at the UNZA. The study focused on all academic teaching staff as a target population from all the 13 schools at The UNZA. According to (Neuman, 2006) the main purpose of sampling in a study is to help the researcher get a small collection of units from a larger collection or population such that the researcher can study the whole smaller group and produce accurate generalization about the larger group.

A sample is a small set of the population that is used to draw conclusions about the bigger group. A sample size is the number of observations in a sample (Evans et al,2000). The sample size comprised a target group from the thirteen schools at The UNZA. The study targeted a sample size of the academic teaching staff as sampling units from all the thirteen schools. The sample size was obtained by selecting respondents from all the thirteen schools in each using a sampling procedure. The primary goal of selecting a small number from a much larger group is to enable the researcher to study and produce accurate generalizations about the larger group. Additionally, selecting a sample serves time and financial resources.

A sampling procedure refers to a process by which the entities of the sample have been selected. It is an important step in the research process because it helps to inform the quality of inferences made by the researcher that stem from the underlying findings (Onwuegbuzie and Collins, 2007). The study used one of the probability sampling designs known as the simple random sampling, (Alvi, 2016) In the simple random sampling procedure the population has an equal and independent chance of selection in the sample. The simple random sampling procedure was used to come up with the sample size and the lottery method was used to select the participants.

The study used this sampling procedure because it minimizes the chance of sampling biases and also because a better representative sample is produced using probability sampling

procedures. Additionally, the simple random sampling procedure reduces the chance of systematic errors

3.5 DATA COLLECTION

The data collection process aims at capturing quality evidence that will allow analysis which will lead to the formulation of convincing and credible answers to the questions raised by the condition of the low adoption rate of Moodle amongst academic teaching staff at The UNZA. This process involves the use of primary and secondary data. And the use of necessary data collection tools such as a questionnaire.

Primary data was collected using online questionnaires on LimeSurvey that was designed using Tam 2 constructs. The Data was collected using quantitative methods. These questionnaires were useful in the collection of statistical information which enabled the researcher to measure the factors that affect the low adoption rate of Moodle. And it is from this information that vital conclusions were made concerning the respondents.

3.6 DATA COLLECTION TOOLS

The data collection tool used in this study was a self-administered online questionnaire on LimeSurvey which was based on TAM 2 constructs. This questionnaire was used to collect primary data among the academic teaching staff and was distributed to them via email with a link to the questionnaire on LimeSurvey. Closed ended questions were used because they generate a limited set of responses that can be coded easily in a database and also open ended questions because they allowed for discovery of unexpected factors that the researcher did not anticipate. The tool is very appropriate because a large number of respondents were reached relatively easily and it was economical to use an online questionnaire in terms of time and finances. In addition, the online survey was convenient for both the researcher and the respondent because the researcher was able to distribute the questionnaire easily regardless of their location and availability of the respondent. As of the respondent it was for them to answer the questionnaire at the convenience of their own time.

3.7 DATA ANALYSIS

This study was a quantitative study therefore consisting of only quantitative data. This data was analyzed using descriptive statistics because it dealt with the presentation of numerical facts or data in either tables or graphical form. The data obtained through responses from LimeSurvey was exported to Microsoft Excel where tables and bar charts were produced. Microsoft Excel has a number of advantages over others in that it is easy to access and generate graphical representation on the computer for responses obtained.

The findings of this study were tested for reliability which referred to the stability of findings (Altheide and Johnson, 1994). In quantitative research, reliability refers to consistency, stability and repeatability of results. The result of a researcher is considered reliable if consistent results have been obtained in identical situations but different circumstances (Twycross and Shields, 2004). The type of reliability that was used here is internal consistency which described the extent to which all the items in a test measured the same concept or construct. The measuring scale used is Cronbach's alpha which is expressed between 0 and 1 (Gliem and Gliem, 2003).

CHAPTER 4

RESULTS

This chapter provides data presentation of the data obtained for this research project. Data was obtained from the UNZA CICT and also, links to the online survey were distributed to the respondents via email. The response rate obtained was relatively high. The collected data was then analyzed using Microsoft Excel.

4.1 CURRENT ADOPTION RATE OF MOODLE AT THE UNZA

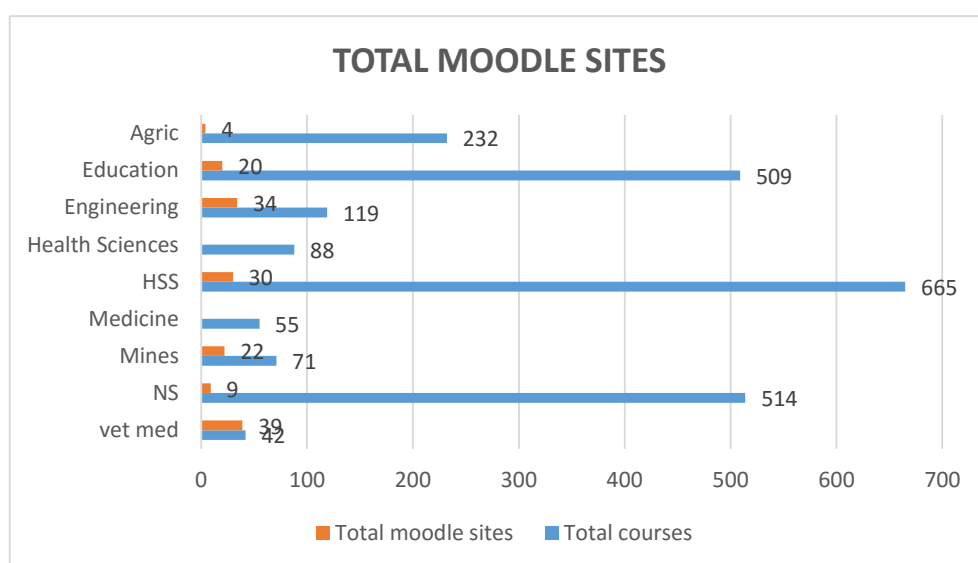


Figure 3: Current adoption rate of Moodle at the UNZA.

Figure 3 indicates that there were a total number of 158 active Moodle sites in the academic year 2017/2018. This represents 6.9% of the total number of 2295 courses offered at the UNZA. During the same period, of the total number of courses offered, 96% of the sites were for the School of Veterinary Medicine which had the highest total of Moodle sites active. The School of Natural sciences had 514 courses but only 1% had active Moodle sites. Furthermore, the School of Mines had 71 courses but only 30% of those had active Moodle sites. Unfortunately, there were no active Moodle sites for any of the 55 courses offered by the School of Medicine. The School of Humanities and Social Sciences only 4% of the courses had active Moodle site of its 665 courses. There were also no active Moodle sites in any of the 88 courses under the School of Health Sciences. The School of Engineering which had a total of 119 courses had 28% of them with active Moodle sites. The School of Education had 509 courses and 3% of the total had active Moodle sites. Additionally, the School of Agricultural Sciences had 1% active Moodle sites amongst 232 courses. Therefore,

as evidenced, it can be said that many courses at The UNZA do not use Moodle in teaching and learning.

4.2 FACTORS AFFECTING ADOPTION OF MOODLE BY ACADEMIC TEACHING STAFF

4.2.1 DEMOGRAPHIC DETAILS

Table 1: Demographic details

Item	Category	Count
Gender	Male	32
	Female	13
Period of Service	Less than 5 years	10
	5 to 9 years	15
	10 to 14 years	11
	15 to 19 years	2
	20 to 24 years	2
	More than 24 years	5
Highest Academic Qualification	Master's degree	28
	Doctoral degree	17
Designation	Lecturer III	11
	Lecturer II	16
	Lecturer I	11
	Senior lecturer	6
	Associate Professor	1
	Professor	0
	Faculty/School/Institute	Agriculture
	Graduate School of Business	0
	Education	24
	Engineering	6
	Humanities and Social Sciences	2
	Law	0
	Medicine	0
	Mines	2
	Natural Science	3
	Veterinary Medicine	0

	Health Sciences	2
	Nursing Sciences	1
	Public Health	0

Table 1: Demographic details of respondents

Table 1 shows that 32 males and 13 females took part in the survey. The School of Education had the majority of 24 respondents whereas Schools such as Graduate School of Business, Law, Medicine, Public Health and Veterinary Medicine had no respondents. Respondents that had 5 to 9 year's period of service were the majority followed by those with 10 to 14 years. Moreover, the survey had 28 respondents with master's degrees and 17 who had doctoral degrees. Lastly, 16 respondents were designated to lecturer II which was the highest, followed by Lecturer III and I which both had 11 respondents.

4.2.2 MOODLE USAGE

4.2.2.1 IF RESPONDENT HAS EVER USED MOODLE

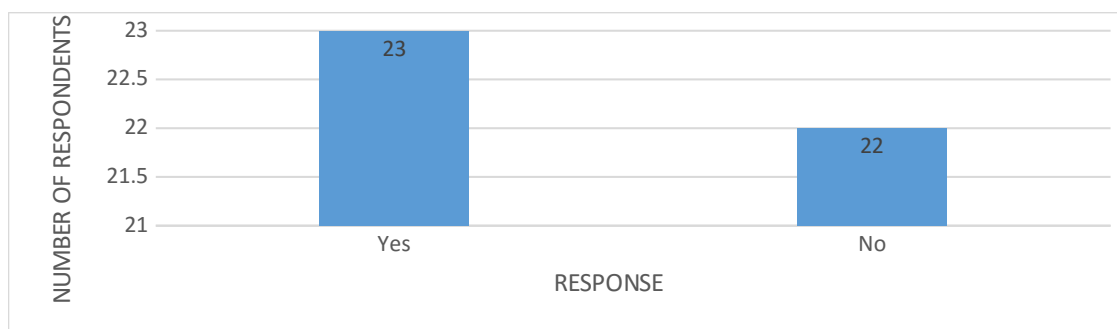


Figure 4: If respondent has ever used Moodle

Figure 3 shows that 22 respondents who represented 48% indicated they had not used Moodle whereas 23 representing 51% said that they had. This shows that there were more respondents who had used Moodle before than those who did not.

4.2.2.2 USES RESPONDENT HAD FOR MOODLE

Table 2: Uses respondent had for Moodle

Assignment submission	Manage classes
Uploading staff profiles	Interacting with students
Distribute lecture resources	Evaluation of teaching by students

Table 2 indicates that respondents used Moodle to manage their classes through the distribution of lecturer resources and assignment submissions. They also used Moodle to

interact with students as a result of Moodle having an evaluation module. Academic receive feedback from students on how they are teaching.

4.2.2.3 IF RESPONDENT HAS CREATED ANY SITE USING MOODLE

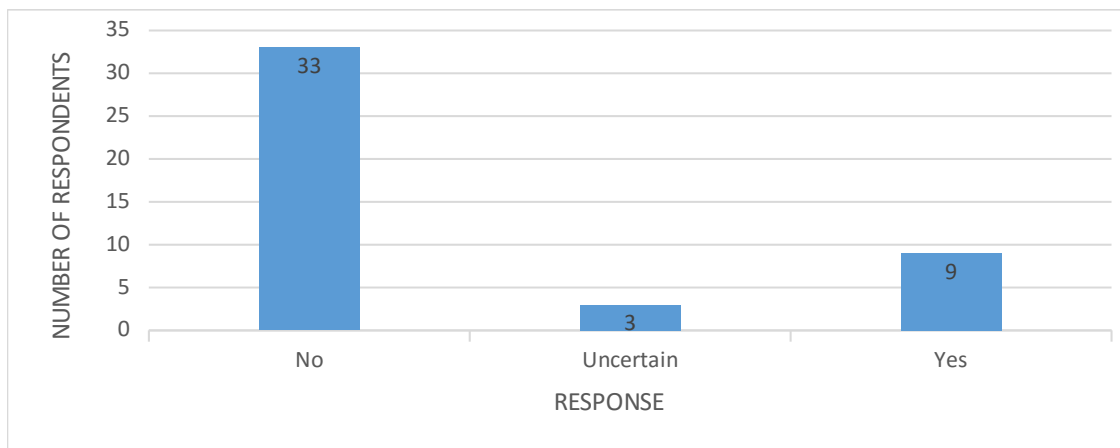


Figure 5: If respondent has created any site using Moodle

Figure 4: If respondent has created any site using Moodle, Figure 4 shows that 33 lecturers representing 73% had not created any sites on Moodle, 9 of them making 20% said they had whereas 3 who made 6% were uncertain. This indicates that although 51% of the respondents have used Moodle before, only 20% have actually created sites on it.

4.2.2.4 NUMBER OF MOODLE SITES RESPONDENT HAS CREATED THIS YEAR

Table 3: Number of Moodle sites respondents has created this year

Moodle sites	Number of respondents
1	3
10	1
5	1
3	1
2	1

Table 3 shows that amongst the 23 respondents who were aware of Moodle, only 7 of them had created a total of 21 sites.

4.2.2.5 OTHER LEARNING MANAGEMENT SYSTEMS RESPONDENT HAS USED

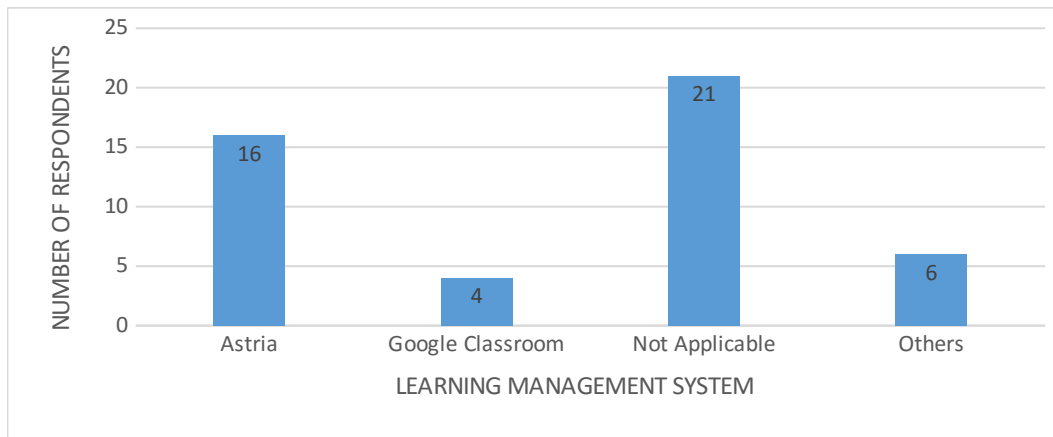


Figure 6: Different learning management systems respondents have used besides Moodle

Figure 5 shows that most respondents (45%) did not use any other learning management system whereas 16 (34%) used Astria and 4 (9%) others used Google Classroom. In addition, 6 (13%) respondents indicated that they used other learning management systems such as Blackboard.

4.2.3 RELIABILITY

Table 4: Cronbach's alpha

CONSTRUCT	ITEMS	ALPHA
Intention to Use	2	0.91
Perceived Usefulness	4	0.96
Perceived Ease of Use	4	0.85
Subjective Norms	2	0.97
Voluntariness	3	0.73
Image	3	0.92
Job Relevance	2	0.94
Output Quality	2	0.93
Results Demonstrability	4	0.40

Table 5 shows the factors or constructs that were analyzed using Cronbach's alpha. High reliability was demonstrated by 8 of the constructs employed in this study which ranged from 0.73 to 0.97 thereby exceeding the reliability estimate of $\alpha=0.7$. However, one construct demonstrated unacceptable internal consistency of 0.4.

The Cronbach alpha in this study was used to determine the internal consistency of the TAM 2 constructs before the data was analyzed in order to ensure reliability of the results. From the findings, it was established that 6 of the TAM 2 constructs demonstrated excellent internal consistency ranging from 0.92 to 0.962 and two other constructs demonstrated a good internal consistency ranging from 0.7 to 0.8 and one construct demonstrated unacceptable internal consistency of which according to the Cronbach alpha, a low value of alpha could be

due to a low number of questions, poor interrelatedness between items or heterogenous constructs (Cronbach, 1951).

From the Cronbach's test the study discovered that the Constructs were able to measure consistently because majority of the constructs had acceptable values of the Cronbach alpha which range from 0.7 to 0.95 thereby ensuring reliability of the results.

4.2.4 DESCRIPTIVE STATISTICS

Table 5: Descriptive Statistics of TAM 2 items

Item	Mean	Standard Deviation
Intention to Use	5.92	0.06
Perceived Usefulness	5.91	0.13
Perceived Ease of Use	5.79	0.36
Subjective Norm	4.22	0.12
Voluntariness	5.09	0.61
Image	3.25	0.09
Job relevance	5.46	0.15
Output Quality	5.33	0.27
Result Demonstrability	5.03	1.27

The descriptive statistics of the 9 constructs are shown in Table 4. All means are above the midpoint of 3.00. However, the higher means were under the PU and intentions to use constructs whereas the lower mean was related to the image construct. The results indicate that on average, most respondents agreed to the items of the questionnaire.

According to data presented in Table 4, the Intention to Use Moodle was 12.87%, Its Perceived Usefulness 12.85% and Perceived Ease of Use 12.59%. The Subjective Norm of Moodle was 9.17%, Voluntariness to use it was 11.07%, Image as a result of using Moodle was 7.07%, whereas Job Relevance of Moodle was 11.87%. Furthermore, the Output Quality of Moodle was at 11.59% and its Results Demonstrability was at 10.93%. From the aforementioned, it can be said that respondents had intentions to use Moodle and perceived it to be useful more than they considered it to boost image.

CHAPTER 5

DISCUSSION OF FINDINGS

This chapter illustrates critically the results of data in connection to the literature reviewed. It presents an enhanced investigation on the adoption rates.

5.1 INTENSION TO USE

The intension to use element for the users is dependent on two main elements PU and PEOU to the user but the element of voluntariness also plays a part in determining the user's intension to use (Venkatesh and Davis, 2000). Previous studies have empirically indicated that PEOU has indirect influence on intention to use, and PEOU influences intention to use through PU (Wu, Chou et al, 2011). From the responses obtained from the academic teaching staff on PU of Moodle the results of this study also showed that PU has an influence on intension to use and that their PEOU of Moodle affects their intension to use. Additionally, the study also established from the findings that the academic teaching staff at The UNZA had intension to use Moodle if they had access to it.

5.2 PERCEIVED USEFULNESS

When it comes to the use of any technological application or software users pay attention to how effective the application is in helping them reach their objective or obtain maximum productivity. From the findings of the study it was observed that the academic teaching staff at the UNZA use Moodle because it improves their job performance. In addition, the study found that the use of Moodle among academic teaching staff increases their job productivity as well as enhancing their job effectiveness. The study also discovered that members of the teaching staff at the UNZA find Moodle to be useful in their job. This is supported by a response obtained from the questionnaire stating that "The use of Moodle should be encouraged because it is very useful in the academia world". Another respondent stated that "The adoption and use of ICT's is relevant".

5.3 PERCEIVED EASE OF USE

It has been observed that humans like making use of technology when it requires them to use less physical or mental energy. From the finding of the study respondents indicated that that their interaction with Moodle is clear and understandable. The study further established that

the use of Moodle does not require a lot of mental effort and majority of the respondents finds it easy to use as well make it do what they want it to do.

5.4 SUBJECTIVE NORM

In terms of subjective norm, responses show that academic staff are barely influenced by social norms in the adoption of Moodle. The results of the survey show that the majority feel neutral about this, meaning they may or may not be influenced by others to adopt the platform. However, a number though smaller shows that there is possibility of people being influenced by important or influential colleagues. Amongst the staff at the UNZA are people capable of influencing the actions of their fellow staff.

5.5 VOLUNTARINESS

According to TAM 2 voluntariness is the degree to which an individual chooses to use or not use a system (Venkatash and Davis, 2003). From the responses obtained from the academic teaching staff on Voluntariness of Moodle the results of this study showed that majority of the teaching staff voluntarily use Moodle thus they are not forced to use Moodle. Additionally, the study also established from the findings that it is not compulsory for the academic teaching staff at The UNZA to use Moodle. To support this a lecturer from the school Humanities and Social Sciences indicated that “I do not use Moodle in my job because it is not mandatory to use in the school of Humanities”.

5.6 IMAGE

Image is the extent to which use of an innovation is perceived as an enhancement of one’s social system (Moore and Benbasat,1994). The element of image is an indication of the prestige that is associated with the use of the platform. Some of the respondents strongly disagree to the claim that use of Moodle would be prestigious or would be affected by reputation. While most responses show that image has no effect on whether they use the system or not. A conclusion that can be made from these results is that the general attitude of the user is important to the element of image and that the attitude towards image is dependent on how users feel about Moodle.

5.7 OUTPUT QUALITY

Output quality or perceived output quality measures the quality the user believes that his or her work activities will be of quality due to use of a system. When users consider a system to be contributive to the execution of tasks, they perceive an improvement in work efficiency and such perception is what is known as perceived output quality. Previous studies have empirically indicated that output quality has a positive relationship with PU (Wu, Chou et

al,2011). If academic teaching staff at The UNZA are satisfied with the service or product quality of Moodle, they would perceive Moodle as useful. The results of the study show that the academic teaching staff's PU of Moodle improving their effectiveness in their job is high, according to the responses obtained their perceived output quality of Moodle is high bearing a mean percentage of 11.87% which shows that there is a positive relationship or interaction between the PU and output constructs of TAM 2 which further influences intension to use and improves adoption. However, a respondent stated that the output quality of Moodle was disappointing which was discouraging to use it "When I used Moodle for teaching evaluation only a few students were able to go online and provide feedback, this was disappointing and thus it should be made mandatory for students".

5.8 JOB RELEVANCE

Job relevance is a key component of the matching process in which a potential user judges the effects of using a particular system on his or her job. Keiras and Polson argue that the knowledge on job situations which can be used to determine what tasks can be performed within a given system varies with users (Keiras and Polson, 1985). The results of the study discovered that most respondents feel Moodle is relevant and important to their jobs. As one of the respondents commented "It makes life so easy and relieves one from the stress of marking tests, and quizzes can easily be administered online. Besides, it saves trees as well!" Meaning the system is useful to the users. When users show dependence on the system it means that the system has high relevance. It can be concluded that the relevance of Moodle to the jobs of the academic staff can be one of the factors that affect the adoption rate of the platform amongst the teaching staff.

5.9 RESULT DEMONSTRABILITY

With the result demonstrability construct the findings of the study results shows that the elements were not normally distributed. In addition, the study also established that the majority of the respondents indicated neutral to saying that the results are apparent to them. Furthermore, most of the academic teaching staff responded neutral when asked if they would communicate to others the consequences of using Moodle meaning they neither agree nor disagree. To support this a lecture from the school of Natural Sciences said "there are staff that do not know what Moodle is" hence this may pose to be a challenge in telling people about the results of Moodle.

5.10 SUMMARY

The elements of TAM 2 model that are considered to affect the user's attitude towards Moodle's adoption is Perceived Usefulness which mainly influences subjective norm, imagine, job relevance, output quality, result demonstrability and Perceived Ease of Use. Perceived Ease of Use is another element of TAM 2 model that affects user technology acceptance in three ways firstly as an independent factor on its own, secondly as a factor within Perceived Usefulness and as a factor affecting intention of use.

CHAPTER 6

CONCLUSION

6.1 LIMITATIONS

Although the research was carefully prepared and reached some of its aims there were unavoidable limitations that should be noted with. Firstly, only a few of the participants took part in the study and there were no responses obtained from some of the schools, this proved to be a limitation to the study because more responses would have helped provide more information for the study. The researcher was also limited in knowledge and skill in the use of lime survey, this limited the researcher's ability to make full and proper use of LimeSurvey.

6.2 RECOMMENDATIONS

The study recommends that UNZA management should plan carefully to ensure the proper implementation of the Moodle in all the thirteen schools at the University and it must ensure that there is communication in order for effective adoption to be achieved. The study further recommends that not only should implementation be done but management should also ensure that all the academic teaching staff have the required competences needed to operate Moodle by establishing training programs on the usage of Moodle.

6.3 CONCLUSION

From the findings, it was concluded that the low adoption rates of Moodle cannot be solely blamed on the lecturers but also on management's poor implementation of Moodle which has led to poor sensitization on the importance of Moodle. The study discovered that some academic teaching staff are unaware of what Moodle is which is also another contributing factor to the low adoption of Moodle. The other factors hindering Moodle that were identified by the study include poor ICT infrastructure, lack of technical support, lack of training and lack of policy framework.

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APPENDICES

APPENDIX 1: LIKERT SCALE SURVEY DATA

Item	Total	Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neutral (neither Agree nor Disagree)	Somewhat Agree	Moderately Agree	Strongly agree
Assuming I have access to Moodle I intend to use it	23	4.35%	0.00%	0.00%	17.39%	4.35%	26.09%	47.83%
Given that I have access to Moodle I predict that I would use it	23	4.35%	0.00%	0.00%	4.35%	21.74%	21.74%	47.83%
Using Moodle improves my performance in my job	23	4.35%	0.00%	0.00%	4.35%	17.39%	39.13%	34.78%
Using Moodle in my job increases my productivity	23	4.35%	0.00%	0.00%	4.35%	13.04%	43.48%	34.78%
Using Moodle enhances my effectiveness in my job	23	4.35%	0.00%	0.00%	4.35%	26.09%	30.43%	34.78%
I find Moodle to be useful in my job	23	4.35%	0.00%	0.00%	8.70%	8.70%	21.74%	56.52%
My interaction with Moodle is clear and understandable	23	0.00%	0.00%	0.00%	8.70%	8.70%	26.09%	56.52%
Interacting with Moodle does not require a lot of my mental effort	23	0.00%	4.35%	4.35%	17.39%	17.39%	26.09%	30.43%
I find Moodle to be easy to use	23	0.00%	4.35%	4.35%	13.04%	13.04%	21.74%	43.48%
I find it easy to get Moodle to do what I want it to do	23	4.35%	0.00%	0.00%	8.70%	21.74%	39.13%	26.09%
People who influence my behavior think that I should use Moodle	23	17.39%	4.35%	8.70%	21.74%	21.74%	17.39%	8.70%
People who are important to me think that I should use Moodle	23	21.74%	0.00%	0.00%	30.43%	17.39%	13.04%	17.39%
My use of Moodle is Voluntary	23	4.35%	0.00%	17.39%	0.00%	13.04%	21.74%	43.48%
My supervisor does	23	8.70%	4.35%	21.74%	17.39%	21.74%	4.35%	21.74%

not require me to use Moodle								
Although it might be helpful, using Moodle is certainly not compulsory in my job	23	4.35%	4.35%	4.35%	13.04%	30.43%	4.35%	39.13%
People in my organization who use Moodle have more prestige than those who do not	23	30.43%	4.35%	13.04%	26.09%	13.04%	4.35%	8.70%
People in my organization who use Moodle have a high profile	23	26.09%	13.04%	8.70%	34.78%	4.35%	8.70%	4.35%
Having Moodle is a status symbol in my vocation	23	26.09%	4.35%	13.04%	39.13%	17.39%	0.00%	0.00%
In my job usage of Moodle is important	23	8.70%	0.00%	4.35%	13.04%	26.09%	4.35%	43.48%
In my job usage of Moodle is very important	23	8.70%	0.00%	0.00%	13.04%	17.39%	17.39%	43.48%
In my Job usage of Moodle is relevant	23	8.70%	0.00%	0.00%	13.04%	17.39%	17.39%	43.48%
The quality of the output I get from Moodle is high	23	4.35%	0.00%	0.00%	8.70%	34.78%	26.09%	26.09%
I have no problem with the quality of Moodle of Moodle out put	23	4.35%	4.35%	8.70%	4.35%	34.78%	21.74%	21.74%
I have no difficulty telling other about the results of using Moodle	23	4.35%	0.00%	4.35%	4.35%	17.39%	34.78%	34.78%
I believe I could communicate to others the consequences of using Moodle	23	4.35%	0.00%	0.00%	8.70%	26.09%	17.39%	43.48%
The results of using Moodle are apparent to me	23	8.70%	0.00%	4.35%	8.70%	13.04%	30.43%	34.78%
I would have difficulty explaining why Moodle may or may not be beneficial	23	26.09%	8.70%	39.13%	4.35%	4.35%	8.70%	8.70%

APPENDIX 2: DEPARTMENTAL LETTER OF INTRODUCTION



UNIVERSITY OF ZAMBIA

SCHOOL OF EDUCATION

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

Telephone: 0211-291381

P O Box 32379

Fax: 0211-292702
Zambia

Lusaka,

=====

.....

.....

.....

.....

.....

.....

Dear Sir/Madam

REQUEST TO CARRY A RESEARCH IN YOUR INSTITUTION

Reference is made to the above-mentioned subject.

This serves to confirm that the following are Undergraduate students of The University of Zambia, School of Education and registered in the Department of Library and Information Science.

1.

2.
3.
4.
5.

As one of the requirements to graduate, final year students are required to undertake a research project. The title of this group's research is:

.....
....
.....
.....
.....
.....
.....

In this regard, I am requesting your office to allow the students to carry out this research in your institution.

Yours faithfully

K L Daka (Mrs.)

RESEARCH COURSE CO-ORDINATOR

APPENDIX 3: QUESTIONNAIRE

Factors affecting adoption and use of Moodle by academic teaching staff at the University of Zambia.

Dear Respondent,

We are fourth students undertaking a research study on the factors affecting the adoption and use of Moodle by academic teaching staff The UNZA as an academic requirement. You are among the many respondents that have been randomly chosen to take part in the study. Your honest responses to the featured questions will be of great value as far as the objective of this study is concerned. Mostly importantly you are guaranteed that your responses and the information you will share will be treated with the utmost confidentiality and anonymity. This survey will take you approximately 10 minutes to complete.

There are 37 questions in this survey.

DEMOGRAPHIC DETAILS

1. Gender

Choose one of the following answers

Please choose **only one** of the following:

- Male
- Female

2. Period of service

Choose one of the following answers

Please choose **only one** of the following:

- Less than 5 years
- 5 to 9 years
- 10 to 14 years
- 15 to 19 years
- 20 to 24 years
- More than 24 years

3. Faculty /School / Institute *

Choose one of the following answers

Please choose **only one** of the following:

- Agriculture
- Graduate Business
- Education
- Engineering
- Humanities and Social Sciences
- Law
- Medicine
- Mines
- Natural Sciences
- Veterinary Medicine
- Health Sciences
- Nursing Sciences
- Public Health

4. **Highest Academic Qualification ***

Choose one of the following answers

Please choose **only one** of the following:

- Master's degree
- Doctoral degree

5. **Designation ***

Choose one of the following answers

Please choose **only one** of the following:

- Lecturer III
- Lecturer II
- Lecturer I
- Senior lecturer
- Associate Professor
- Professor

6. Have you ever used Moodle? *

Please choose the appropriate response for each item:

Yes Uncertain No

7. **If yes to the previous question, what have you been using Moodle for?**

Please write your answer here:

8. **Have you created any sites on Moodle? ***

Please choose the appropriate response for each item:

Yes Uncertain No

9.

If yes to the above question, how many sites have you created this year?

10. ~~What other learning management systems have you used besides Moodle?~~

Check all that apply

Please choose **all** that apply:

- Astria
- Google Classroom
- Not Applicable
- Other:

INTENTION TO USE

11. **Assuming I have access to Moodle, I intend to use it. ***

Please choose the appropriate response for each item:

	Neutral						
	(Neither						
Strongly	Moderately	Somewhat	Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
	nor						
	Agree)						
		Somewhat	Moderately	Strongly			
		Agree	Agree	Agree			

12. **Given that I have access to Moodle, I predict that I would use it. ***

Please choose the appropriate response for each item:

			Neutral			
			(Neither			
Strongly	Moderately	Somewhat	Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree	Disagree	nor	Agree	Agree	Agree
			Agree)			

PERCEIVED

USEFULNESS

13. **Using Moodle improves my performance in my job. ***

Please choose the appropriate response for each item:

			Neutral			
			(Neither			
Strongly	Moderately	Somewhat	Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree.	Disagree	nor	Agree	Agree	Agree
			Agree),			

14. **Using Moodle in my job increases my productivity. ***

Please choose the appropriate response for each item:

			Neutral			
			(neither			
Strongly	Moderately	Somewhat	Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree	Disagree	nor	Agree	Agree	Agree
			Agree)			

15. **Using Moodle enhances my effectiveness in my job. ***

Please choose the appropriate response for each item:

Neutral
(Neither
Disagree
nor
Agree)

Strongly Disagree **Moderately Disagree** **Somewhat Disagree** **Somewhat Agree** **Moderately Agree** **Strongly Agree**

16. I find Moodle to be useful in my job. *

Please choose the appropriate response for each item:

Neutral
(Neither
Disagree
nor
Agree),

Strongly Disagree **Moderately Disagree** **Somewhat Disagree** **Somewhat Agree** **Moderately Agree** **Strongly Agree**

**PERCEIVED
EASE OF USE**

17. My interaction with Moodle is clear and understandable. *

Please choose the appropriate response for each item:

Neutral
(Neither
Disagree
nor
Agree)

Strongly Disagree **Moderately Disagree** **Somewhat Disagree** **Somewhat Agree** **Moderately Agree** **Strongly Agree**

18. Interacting with Moodle does not require a lot of my mental effort. *

Please choose the appropriate response for each item:

Neutral
(Neither
Disagree
nor
Agree),

Strongly Disagree	Moderately Disagree.	Somewhat Disagree	Somewhat Agree	Moderately Agree	Strongly Agree
----------------------	-------------------------	----------------------	-------------------	---------------------	-------------------

19. I find Moodle to be easy to use. *

Please choose the appropriate response for each item:

Neutral
(Neither
Disagree
nor
Agree)

Strongly Disagree	Moderately Disagree	Somewhat Disagree	Somewhat Agree	Moderately Agree	Strongly Agree
----------------------	------------------------	----------------------	-------------------	---------------------	-------------------

20. I find it easy to get Moodle to do what I want it to do *

Please choose the appropriate response for each item:

Neutral
(Neither
Disagree
nor
Agree).

Strongly Disagree	Moderately Disagree.	Somewhat Disagree	Somewhat Agree	Moderately Agree	Strongly Agree
----------------------	-------------------------	----------------------	-------------------	---------------------	-------------------

SUBJECTIVE

NORM

21. People who influence my behavior think that I should use Moodle. *

Please choose the appropriate response for each item:

Neutral
(Neither
Disagree
nor
Agree),

Strongly Disagree	Moderately Disagree.	Somewhat Disagree	Somewhat Agree	Moderately Agree	Strongly Agree
----------------------	-------------------------	----------------------	-------------------	---------------------	-------------------

22. People who are important to me think that I should use Moodle. *

Please choose the appropriate response for each item:

			Neutral			
Strongly			(Neither			
Disagree	Moderately	Somewhat	Disagree	Somewhat	Moderately	Strongly
e	Disagree	Disagree	nor	Agree	Agree	Agree
			Agree)			

VOLUNTARINES

S

23. My use of Moodle is voluntary.*

Please choose the appropriate response for each item:

			Neutral			
			(Neither			
Strongly	Moderately	Somewhat	Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree.	Disagree	nor	Agree	Agree	Agree
			Agree),			

24. My supervisor does not require me to use Moodle.

Please choose the appropriate response for each item:

			Neutral			
			(Neither			
Strongly	Moderately	Somewhat	Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree.	Disagree	nor	Agree	Agree	Agree
			Agree)			

25. Although it might be helpful, using Moodle is certainly not compulsory in my job. *

Please choose the appropriate response for each item:

			Neutral			
			(Neither			
Strongly	Moderately	Somewhat	Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree	Disagree	nor	Agree	Agree	Agree
			Agree),			

IMAGE

26. People in my organization who use Moodle have more prestige than those who do not. *

Please choose the appropriate response for each item:

				Neutral			
				(Neither			
Strongly	Moderately	Somewhat		Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree.	Disagree		nor	Agree	Agree	Agree
				Agree),			

27. People in my organization who use Moodle have a high profile.*

Please choose the appropriate response for each item:

				Neutral			
				(Neither			
Strongly	Moderately	Somewhat		Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree.	Disagree		nor	Agree	Agree	Agree
				Agree),			

28. Having Moodle is a status symbol in my organization.*

Please choose the appropriate response for each item:

				Neutral			
				(Neither			
Strongly	Moderately	Somewhat		Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree.	Disagree		nor	Agree	Agree	Agree
				Agree),			

JOB

RELEVANCE

29. In my job, usage of Moodle is important. *

Please choose the appropriate response for each item:

				Neutral			
				(Neither			
Strongly	Moderately	Somewhat		Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree.	Disagree		nor	Agree	Agree	Agree
				Agree)			

30. In my job, usage of Moodle is relevant *

Please choose the appropriate response for each item:

Neutral
(Neither
Disagree nor
Agree)

Strongly Disagree **Moderately Disagree.** **Somewhat Disagree** **Somewhat Agree** **Moderately Agree** **Strongly Agree**

**OUTPUT
QUALITY**

31. The quality of the output I get from Moodle is high *

Please choose the appropriate response for each item:

Neutral
(Neither
Disagree nor
Agree),

Strongly Disagree **Moderately Disagree.** **Somewhat Disagree** **Somewhat Agree** **Moderately Agree** **Strongly Agree**

32. I have no problem with the quality of Moodle output. *

Please choose the appropriate response for each item:

Neutral
(Neither
Disagree nor
Agree),

Strongly Disagree **Moderately Disagree.** **Somewhat Disagree** **(Neither Disagree nor Agree)** **Somewhat Agree** **Moderately Agree** **Strongly Agree**

**RESULT
DEMONSTRATION
ABILITY**

33. I have no difficulty telling others about the results of using Moodle.*

Please choose the appropriate response for each item:

Neutral
(Neither
Disagree nor
Agree)

Strongly Disagree **Moderately Disagree.** **Somewhat Disagree** **Somewhat Agree** **Moderately Agree** **Strongly Agree**

34. I believe I could communicate to others the consequences of using Moodle.*

Please choose the appropriate response for each item:

				Neutral			
				(Neither			
Strongly	Moderately	Somewhat	Disagree	Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree.	Disagree		nor	Agree	Agree	Agree
				Agree)			

35. The results of using Moodle are apparent to me.*

Please choose the appropriate response for each item:

				Neutral			
				(Neither			
Strongly	Moderately	Somewhat	Disagree	Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree.	Disagree		nor	Agree	Agree	Agree
				Agree)			

36. I would have difficulty explaining why using Moodle may or may not be beneficial.*

Please choose the appropriate response for each item:

				Neutral			
				(Neither			
Strongly	Moderately	Somewhat	Disagree	Disagree	Somewhat	Moderately	Strongly
Disagree	Disagree.	Disagree		nor	Agree	Agree	Agree
e				Agree),			

37. Do you have any comments or concerns about this study?

Please write your answer here:

Thank you for participating!