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Faculty perception of Moodle software as a teaching tool at the University of Zambia

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Abstract—In the existing educational milieu in the world today, there is an increasing application of electronic learning software in the delivery of tertiary education. However, one critical issue in the successful deployment of electronic learning platforms in teaching and learning is dependent on lecturers' ability and commitment to accept and use the systems. This paper describes the results of a questionnaire survey among academics at the University of Zambia in the aftermath of the implementation of Moodle software. The survey aimed to gather perceptions of lecturers toward the use of Moodle online environment, from which future practice could be informed. In this regard, the researcher used a survey design method with a sample of 42 respondents conveniently selected for this study. The survey was carried out in the third term of the 2017 academic calendar. Quantitative data was analysed with the help of Statistical Package for Social Sciences (SPSS version 20). The main findings were that there were low adoption levels of Moodle as a supplementary mode of lesson delivery and that a limited number of respondents agreed that Moodle had helped them improve their teaching, indicative that academics were still in a period of transition from shallow systems compliance to deep pedagogical change. Overall, the experience showed that the move to Moodle needs careful planning and communication and must be part of a wider strategy to integrate e-learning solutions throughout course design and institutional culture. Nevertheless, respondents indicated their willingness to participate in programmes to equip them with the requisite skills that would make them proficient in using Moodle. The main obstacles to the integration of Moodle were limited knowledge of Moodle functionalities on the part of the faculty and slow internet speed. These findings may be used to develop e-learning support structures critical to an effective implementation of Moodle as an integral part of the teaching and learning process. With continuous promotion and training of Moodle usage among the lecturers and students and increased training of faculty members coupled with improved broadband connectivity, Moodle holds the prospect for diversifying e-learning experiences that can support faculty members' professional learning outcomes.

Keywords: Moodle, virtual learning environment, academics, e-learning, higher education, University of Zambia

1. INTRODUCTION

As e-learning has developed into a universal change agent in higher education, it has become more diverse in its form and applications. Stein (2011) opines that the development of e-learning has become an important aspect of teaching and learning. Technology has touched many aspects of our lives with the education sector being one pronounced one. The current catchphrase of e-learning and distance education are the derivatives of modern technology, and has become prevalent in our current societies. This paper investigates University of Zambia faculty members' perception of the efficacy of using Moodle as a teaching tool.

2. VIRTUAL LEARNING ENVIRONMENTS

In recent years, there has been a proliferation of learning technologies. The use of these technologies has been developed among universities to support both students and academic. Virtual Learning Environments (VLEs) are an example of using technologies to help students learn and academics deliver content. VLEs provide facilities for educators to create courses and learning objects which allow students to access and interact with them.

The Joint Information System Committee (JISC) defines virtual learning environment (VLE) as a set of teaching and learning tools designed to enhance a student's learning experience by including computers and the Internet in the learning process. The principal components of a VLE package include curriculum mapping (breaking curriculum into sections that can be assigned and assessed), student tracking, online support for both teacher and student, electronic communication (e-mail, threaded discussions, chat, Web publishing), and Internet links to outside curriculum resources. In general, VLE users are assigned either a teacher ID or a student ID. The teacher sees what a student sees, but the teacher has additional user rights to create or modify curriculum content and track student performance.

Glover (2014) opines that a VLE is an online space that is used to support learning and related administrative processes.
VLEs provide dedicated areas for individual modules that allow students and tutors to interact in a variety of ways, such as sharing documents, submitting assessments, and communicating with each other. The VLE is usually linked to other institutional systems, such as the Student Record System or web portal, and makes use of the information from these systems to help automate many administrative processes, for example enrolling students on modules in the VLE. The VLE is generally so embedded within practice at institutions that it often becomes the 'online face' of a university as far as most students and tutors are concerned.

According to JISC, VLE's are now well established in educational institutions as a means to structure, manage and deliver learning activities and content. They are recognised as having strengths in student tracking and managing online assessments.

There are different types of VLE, which all work slightly differently but ultimately perform the same function and can deliver the same learning materials. These integrated tools may be one product (e.g. Blackboard, Moodle) or an integrated set of individual, perhaps open-source, tools with additional functions such as e-portfolios. Glover (2014) outlines a number of key features of VLEs which include some of the following:

2.1 Storage and Distribution of Learning Materials

As most VLEs are available to tutors and students round the clock over the internet they make an ideal mechanism to distribute files, such as lecture and tutorial materials. Tutors are able to upload information at a time and place that suits their working patterns and students can access them as they need, providing reassurance to both parties that the material is available when it is needed. Many VLEs have features that allow materials to be released to students automatically according to defined rules, such as on a specific date or after reading previous materials. This lets tutors upload a large amount of material, such as at the beginning of the course, without overwhelming the students.

2.2 Assessment and Feedback Tools

One of the most significant features of VLEs is their assessment and feedback capabilities. These help manage the administration of students handing in assignments and receiving their marks and feedback, meaning that students don't need to hand-in physical copies at a specific place (and time) as they can submit online from wherever in the world they are at the time and receive their results in the same way. This makes it easier for students to submit on time and reduces the likelihood of submitted work being lost. For tutors it means that they no longer need to wait for administrative staff to process and distribute the submissions before they can begin their marking and, for draft work in particular, students can receive their feedback as soon as the tutor has completed it – though in most cases feedback would be released to all students simultaneously. VLEs also frequently support tests and quizzes that can be used as an assessment method. Students are able to complete these at any time prior to the deadline, rather than using timetabled sessions for everyone to take the test at the same time.

2.3 Collaborative Activities

Most VLEs follow a 'Social Constructivist' attitude towards learning, essentially that learning takes place as a result of people's interaction and new knowledge is built from the shared understanding that this creates. As a result, they have different tools for students to share their ideas and comment on those of their peers, including discussion forums, wikis, and blogs. These tools are generally asynchronous and this means that students are able to interact with each other without needing to be online at the same time and can result in more considered interactions because it is possible to think about posts and responses before making them. These tools are particularly important for distance and blended learning students because they allow everyone to take part at a time that suits their own schedules.

2.4 Progress Tracking and Monitoring

Most VLEs contain ways to check that students are engaging with the materials and activities in their modules, for example, the Retention Centre in Blackboard provides reports of students who have yet to submit their assignment through the VLE or has low activity on a module. These types of tools provide tutors with an early warning of students who may be at risk of failing the module or dropping out of the course and who would benefit from further contact. For students, tracking and monitoring tools can help them with identifying their progress, attainment relative to their peers and, sometimes, projected grades, helping them manage their time and priorities.

2.5 Cohort Management

VLEs generally have tools that enable large groups of students to be divided into smaller ones. This is useful when working with large cohorts where subgroups are taught separately over a few days because it means that the students can be given materials and other information according to their personal schedule. Cohort management can also be used to divide students into groups for collaborative work, with each group having access to their own private collaboration spaces.

2.6 Communication Mechanisms

A major use of VLEs is to communicate essential information to students enrolled on particular modules, such as room changes and session cancellations. The advantages of using the VLE are that it guarantees that the message will be made available to all students on a module, typically through email, and that a copy of these communications will be visible on the VLE itself for future reference. The cohort management features mean that messages can be targeted at very specific groups of students without the need to maintain additional email lists. Some VLEs also include mechanisms that allow SMS messages to be sent to students' mobile phones in addition to email.

To this end, Higher Education Institutions, like the University of Zambia (UNZA), necessitates a cost effective and workable VLE which can exhaust the possibilities of teaching and learning experiences of participants, and at the same time, minimizes the development and operation cost. VLEs consist of software packages that can be used to implement ongoing course evaluation, facilitate collaborative learning, and enhance student learning. Although commercial VLEs are available for a licensing fee, many institutions are now adopting open-source applications, which carry benefits in terms of cost and functionality.

3. MODULAR OBJECT-ORIENTED DYNAMIC LEARNING ENVIRONMENT (MOODLE)

MoodleDocs explains that the word Moodle was originally an acronym for Modular Object-Oriented Dynamic Learning Environment, which is mostly useful to programmers and education theorists. It is also a verb that describes the process of lazily

meandering through something, doing things as it occurs to you to do them, an enjoyable tinkering that often leads to insight and creativity. As such it applies both to the way Moodle was developed, and the way a student or teacher might approach studying or teaching an online course. Anyone who uses Moodle is a Moodler.

Moodle is an open source course management system (CMS) - a software package designed to help educators easily create quality online courses. Such e-learning systems are sometimes also called Learning Management Systems (LMS) or Virtual Learning Environments (VLE)

Moodle course management provides the functionality to create and manage educational courses online. The Moodle environment is entirely free to use, is available under General Public License (GPL) and is developed in PHP.

Moodle's features include the ability to develop courses, enroll students, manage assignments, and provide quizzes, grading, wiki and discussion forums for thousands of virtual students at a time. Besides education, Moodle is used for various other related environments such as business communication and employee or system training. Moodle can also be used as a generic knowledge management system (http://moodle.org/).

Moodle has reinforced the ability and stimulus of universities to prop up teaching and learning in a novel way. Moodle is a free, open-source software package designed using comprehensive pedagogical principles, to help trainers create effective online learning communities.

According to its web site, Moodle claims to be designed to support a social construction in terms of educational psychology, which is composed of constructivism, constructionism, social constructivism, and connected and separate. These theories of learning will be explained in a later section. With the combination of web technologies and educational psychology, Moodle became a well-known tool for supporting online learning environments (http://moodle.org/).

Today, Moodle is used by organizations of all shapes and sizes and in sectors beyond education. Most commonly, Moodle is used by businesses, corporations, hospitals and non-profits for online learning, training and in some cases (http://moodle.org/).

3.1 Main benefits of Moodle

MoodleDocs points out that Moodle has a number of benefits which include the following:

- Truly Open Source

Moodle is free to use for everyone; you needn't pay even a single penny for using it on your servers. However, if you need the servers or any services like customization, designing, etc., you need to pay for that. You are free to take your data and move your LMS to any other platform.

- Sound Educational Philosophy

While tool-centric LMSs give you a list of tools as the interface, Moodle builds the tools into an interface that makes the learning task central. Moodle is built on Social Constructionism pedagogy, including the tools which are truly required in an online learning environment.

- Proven and Trusted Worldwide

Powering around 80k websites all over the world, Moodle is trusted by institutions and organizations large and small, including Shell, London School of Economics, State University of New York, Microsoft, and the Open University.

- Designed To Support both Teaching and Learning

With over 15 years of development guided by Social Constructionism pedagogy, Moodle delivers a powerful set of learner-centric tools and collaborative learning environments that empower both teaching and learning.

- Easy To Use

A simple interface, drag-and-drop features, and well-documented resources along with ongoing usability improvements, make Moodle easy to learn and use.

- Always Up-To-Date

The Moodle project's open-source approach means that it is continually being reviewed and improved on to suit the current and evolving needs of its users. There is a new version release after every 6 months in May and November. The most recent version, i.e. Moodle 3.3, was released in May 2017 and the next version Moodle 3.4 is due to be released in November 2017.

- Community Support

Moodle has the biggest community of developers, teachers, and designers working all around the globe for making improvements to the product named Moodle. In 2015, Moodle Users' Association was formed to facilitate the individual Moodle users to propose and participate in adding new features into Moodle core.

- Great Documentation and Forum Support

One of the basic things missing in most of the other open source LMSs is the lack of appropriate documentation, whereas Moodle is the winner in terms of the documentation also.

- Highly Flexible and Fully Customizable

Because it is open-source, Moodle can be customized in any way and tailored to individual needs. Its modular setup and interoperable design allows developers to create plugins and integrate external applications to achieve specific functionalities.

- Language Options

Moodle is available in all of the popular languages so that you can teach students in your own language. Even you can also contribute to translate Moodle into your own language. As on date Moodle has been translated into 126 languages for the 3.3 Version.

- Interoperability

In supporting the seamless integration and use of content from different sources and multiple vendors, the Moodle platform is designed to exchange data using open industry standards for web

4. THE CONCEPT OF E-LEARNING

E-learning has become increasingly important in higher education institutions. The development and introduction of a variety of e-learning tools has been causing numerous changes in higher education institutions, especially with respect to their educational delivery and support processes.

E-learning is the utilization of information communication technologies (ICT) through innovative applications in the service of learning or learner support to enhance the learning capabilities through utilization of Internet (Aparicio et al., 2016). Generally speaking, e-learning has been viewed as the process of transforming the educational delivery from the traditional modes of learning toward those requiring content delivery via information technology. This is achieved by implementing creative and interactive models utilizing technological platforms aimed at sustaining the learning process.

Today's higher education institutions are encountering many challenging and complicated issues, including increasing student enrollment in their education programs and expanding an infrastructure—such as a Learning Management System (LMS)—in order to accommodate increased enrollment and diversified classes, and to support student learning and faculty teaching (Dobre, 2015).

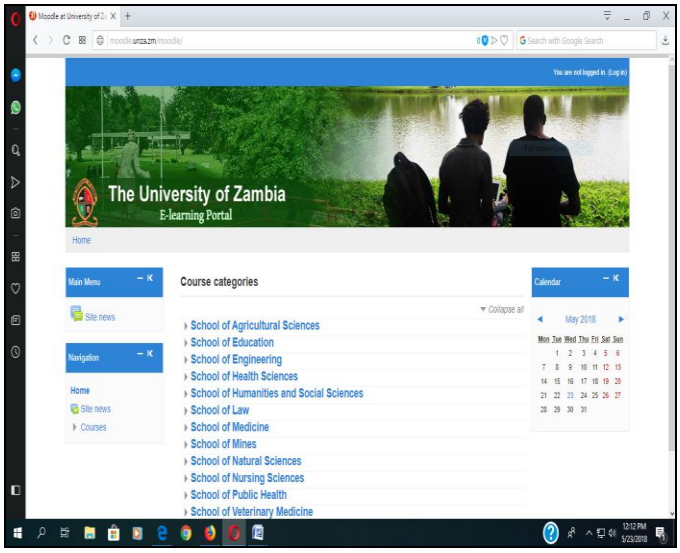

Fig.1. Layout of a page in Moodle@unza

4.1 E-LEARNING AT THE UNIVERSITY OF ZAMBIA

E-learning initiative at UNZA is a relatively new innovation. In 2012, UNZA adopted Moodle as its main e-learning environment for all courses. Additionally, an e-learning software called Astria was implemented in 2015 to carter for distance learning students under the Institute for Distance Education (IDE).This is in line with UNZA's 2018-2022 strategic directions which posts that by 30th June 2020, the University will have implemented a fully-fledged e-learning platform for all University programmes (UNZA, 2018).

Moodle was selected as UNZA's main course management system (CMS) because of its constructivist theory of learning. Besides, Moodle is an open source technology and does not put any financial burden on the University. The software is managed by the Centre for Information and Communication Technologies (CICT) and accessible via the library webpage at: http://moodle.unza.zm/moodle/.

The implementation process was meant to complement the traditional chalk and talk teaching method. Based on blended learning method, Moodle software integrates the versatility and flexibility of self-managed learning with most of the learning material uploaded to the e-learning portal and actual face-to-face interaction.

Moodle has enhanced the learning process by making it more flexible and giving more opportunity for lecturers to deliver the content in variety format. It is user-friendly yet customizable. Moodle provides rich collaborative facilities for the learning activity such as forums, wikis and chat. It also offers various ways to deliver content to students and asses learning using assignments and quizzes. Moodle introduces the philosophy that through the interesting collaborative learning, students will be more motivated to engage themselves in the learning process (Moodle, 2010). Throughout the implementation of Moodle, a series of training has been conducted to encourage the lecturers to develop their online materials and explore the collaborative modules offered by Moodle.

5. STATEMENT OF THE PROBLEM

UNZA has clearly stated in its 2018-2022 Strategic Directions to integrate e-learning in its teaching and learning process since e-learning is a way of enhancing student centered learning. In this way, well packaged course materials can be prepared by lecturers and delivered to students. Hence, the study sought to underscore the awareness level of the lecturers, their perception of using the elearning tools, advantages associated with the use of e-learning tools, problems associated with using e-learning tools, and the improvements that need to be made in order to fully utilize e-learning tools for instructional delivery. The rapid adoption of Moodle has raised questions concerning faculty beliefs and attitudes about the value of instruction delivered through those technologies. Although UNZA has been using Moodle for teaching and learning since 2012, no research has been done to investigate faculty perception of Moodle as a teaching tool. These findings add to the limited body of knowledge on how UNZA can successfully integrate Moodle into the teaching/learning process to augment learner experience.

6. OBJECTIVES OF THE STUDY

The study was undertaken to discover faculty members' perception towards using Moodle for teaching at UNZA. Specifically, it aimed to:

1. Investigate the benefits of using Moodle for teaching
2. Examine faculty members' usage of Moodle for teaching
3. Recognize faculty members' perception of the online learning environment
4. Identify challenges of using Moodle for teaching

7. SIGNIFICANCE OF THE STUDY

This study provides information that may raise awareness among faculty members on the benefits of teaching in an online environment as it blends to the conventional face-to-face classroom scenario and its effectiveness on student learning achievements. The research is also a contribution to the relevant knowledge on technology acceptance among lecturers as well as their teaching progress in the UNZA context. It helps in creating opportunities by allowing the faculty to participate and share ideas with their peers and their students at the University.

8. LITERATURE REVIEW

Recent technological advancements in information communication technology (ICT) have facilitated the transmission of the practical dimension of e-learning globally to allow both lecturers and students access to educational curriculum, as well as essential and supported teaching materials within internal and external academic environment (Gamdi et al., 2016). With the rapid growth of e-learning, a technological revolution is currently taking place in institutions of higher learning (Sihar et al., 2011). The potential of e-learning technologies has enabled higher education institutions to reach new learners at a distance, increase convenience and expand educational opportunities. E-learning has, over recent years, become ever more popular and is gaining wide acceptance as a non-traditional mode for accessing higher education (Altbach, Reisberg, & Rumbley, 2009). Throughout the world, higher learning institutions are increasingly turning to e-learning to support and enhance their learning and teaching activities (Decman, 2015).

Lecturers play an essential role on how to ensure the successful e-learning implementation as an alternative teaching tool to replace the traditional face to face method in higher education. The study on perceptions of academic staff in using e-learning has been discussed by many researchers (Teo 2011; Teo & Ursavas 2012). Factors found to be influencing teachers' attitudes towards e-learning have been explored in several studies (Karaca, Can, & Yildirim, 2013; Inan & Lowther 2010; Yilmaz & Bayraktar, 2014).

Literature classified factors affecting teachers' attitudes towards a technology into two categories: internal and external factors (Teo 2009). Literature also associates teachers' attitudes by their personal characteristics (mediated factors) such as gender (Dong & Zhang, 2011), years of teaching experience (Karaca, Can, & Yildirim, 2013; Onasanya, Shehu, & Shehu, 2010), exposure to computers, (Karaca, Can, & Yildirim, 2013), and academic qualification (Rahimi & Yadollahi, 2011).

Several research studies have proven that the integration of Moodle in the education sector enhances learning beyond the classroom for both teachers and learners (Henderson 2010; Govender, 2009). Caliskan & Bicen (2016) investigated the efficiency of implementing Moodle in Remote Flipped learning environments by identifying the perceptions of teacher candidates at the Near East University, Cyprus. The findings show that the teacher candidates receive a high amount of Moodle in their remote flipped learning and that they have access to information when and where they want with remote learning, and lauded the remote learning system to be very useful and effective.

A study by Shchitov et al (2015) introduces possibilities and conditions of teaching Russian with the use of the learning modular system Moodle. The experience of using this platform of teachers of National Research Tomsk Polytechnic University (Russia) is analyzed. Conditions for the optimization of the learning process which includes the use of traditional and innovative technologies to form student's actual speech competencies with the help of digital educational resources, interactive technologies, and his independent work were considered.

Benta, Bologa, & Dzitac (2014) describe the experience in using e-learning platforms to support face to face instruction in teaching/learning at the University of Oradea, Romania. Moodle was used as an interactive e-learning tool to motivate students and involve them in resolving single and collaborative homework tasks. The paper proves the importance of using e-learning platforms in higher education. Similar studies have established the efficacy of Moodle in e-learning (Hui Hsu, 2012; Barge & Londhe, 2014).

In a study entitled potentials and challenges of adopting Moodle at UNZA, Chewe & Chitumbo (2012) found that majority of UNZA community were not aware of Moodle's existence and thus did not use it. It was however, established that despite people not knowing of Moodle's existence, a larger population was willing to support its adoption. The study also revealed that UNZA has the capacity to effectively implement Moodle due to the availability of skilled manpower, ICT facilities such as Internet/intranet connectivity and infrastructure.

9. THEORETICAL FRAMEWORK

The research was guided by the framework of Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), an extension of Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh in 2003. This model identifies performance expectancy (PE), effort expectancy (EE), social influence (SI) and facilitating conditions (FC) as direct determinants of behavioral intention and use behavior. The four variables (PE, EE, SI, and FC) directly affect intention and these variables; age, gender, experience and being voluntary directly affect the use. Its analysis unit focuses on user acceptance and use; hedonic motivation (HM), Price-value (PV) and habit (HB). UTAUT2 variables were adopted as measures to evaluate faculty perception of Moodle use as part of developing the data collection instrument.

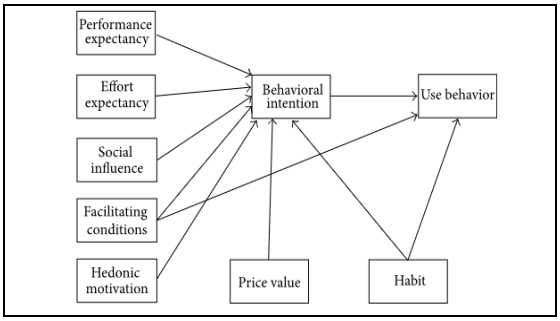

Fig1: Unified Theory of Acceptance and use of Technology (UTAUT2)

10. RESEARCH METHODOLOGY

The present study was undertaken to address faculty members' perceptions of the Moodle system as a teaching tool at UNZA where it is currently being used as part of instruction.

The study is a descriptive research designed to find out lecturer's attitude towards using Moodle for teaching. In order to achieve the objective of the study, which is to measure the faculty members' perception toward the use of Moodle software for teaching, a questionnaire was developed. This data collection instrument was piloted on three peer lecturers. Their input provided valuable information which helped the researcher to fine tune the research instrument. The final version of the questionnaire constituted of sections pertaining to faculty background and demographic profile, received training assessment, faculty perceptions toward e-learning, adoptability of e-learning, and type of e-materials used. The study population comprised the whole faculty community numbering about 600. The study sample consisted of 42 respondents of both genders selected from across the university academic community. The respondents were selected via purposive sampling method. The study targeted faculty members who had interacted with Moodle software. These were selected by visiting the Moodle page from which active users of the e-learning platform were identified and contacted. Consequently, a sample of 50 respondents was selected. Out of the 50 questionnaires distributed, 42 were completed and returned for data analysis. Quantitative data was analysed using Statistical Package for Social Sciences (Version 20) while qualitative data from open ended questions was analysed through content analysis.

10.1 Limitations of the Study

While it is important to conduct a comprehensive study, as it is needed, the research, however, limited the study to a target population and focused on making accurate conclusions. One of the major limitations was the small number of subjects recruited to participate in the study. Obviously, a smaller number of subjects would negatively affect the overall reliability of the results and findings. In this case, the number of respondents was limited to 42. Therefore, the sample size is small for the findings to be generalized. Thus, the results may not be generalized to other universities. Perceptions toward and use of Moodle could differ based on the size and location of each institution.

10.2 Sample characteristics

Table 1: Gender of respondents

Variables	Frequency	Percent
Male	24	57.1
Female	18	42.9
Total	42	100.0

Table 1above indicates that out of the 42 respondents, 24 (57.1%) were males while 18 (42.9%) were females.

Table 2: School of respondents

Variables	**Frequency**	**Percent**
Education	13	31.0
Humanities	7	16.7
Natural Sciences	6	14.3
Mines	5	11.9
Engineering	4	9.5
Agricultural Sciences	4	9.5
Veterinary Medicine	3	7.1
Total	42	100.0

In terms of their faculties/schools, table 2 above shows that, out of the 42 respondents, 13 (31.0%) came from the School of Education, 7 (16.7%) were from the School of Humanities and Social Sciences, Natural Sciences had 6 (14.3%), Mines had 5 (11.9%), Schools of Engineering and Agricultural Sciences contributed 4 (9.5%) each while the School of Veterinary Medicine had 3 (7.1%).

Table 3: Academic credentials of respondents

Variables	Frequency	Percent
Masters	38	90.5
PhD	4	9.5
Total	42	100.0

With regard to their academic qualifications, table 3 depicts the following: Master' degree (38 = 90.5%) and PhD (4= 9.5%). All respondents were full time lectures at UNZA.

11. RESULTS AND DISCUSSION OF FINDINGS

11.1 Response rate

Out of the 50 respondents that were targeted for the study, 42 questionnaires were duly completed and retrieved representing a response rate of 84%.

11.2 Awareness and use of Moodle software for teaching

Lecturers were asked if they were aware of what Moodle e-learning platform was. This was aimed at establishing as to whether they knew the importance of the Moodle system. If at all a lecturer was not aware of what the system was, it was most probable that he/she was not using the system. Results revealed that majority of respondents (34 out of 42) had basic knowledge of Moodle software while a minority (8 out of 42) had no knowledge of it. This result differs from that of Chewe &

Chitumbo (2012) who found that majority of UNZA community in 2012 were not aware of Moodle's existence and thus did not use it. It is important for all stakeholders in the institution to know the existing ICT facilities and services and their importance in relation to their specific tasks. Lack of awareness goes along with attitude. Positive attitude towards ICTs is widely recognized as a necessary condition for their effective implementation. Full involvement of all stakeholders in the implementation process is a key to addressing awareness and attitude problem. Formally organized awareness programmes, visits to similar institution where success has occurred, and short trainings can contribute to raise the awareness and change the attitude of stakeholders towards facilities and services.

11.3 Use of technology for teaching

Lecturers were asked of their use of any form of technology for instructional delivery. Their responses are reflected in Table 2 below.

Table 2: Type of technology used by lecturers

Variable	Frequency	Percent
IT-based (PC, Laptops, PowerPoint, Internet, etc.)	31	73.8
I do not use technology	11	26.2
Total	42	100.0

Table 2 depicts that 31(73.87%) of respondents use one form of technology (such as use of power point presentations) or the other to facilitate teaching whilst 11(26.2%) do not use any form of technology. UNZA should therefore leverage new and relevant technology to facilitate blended teaching and learning in the digital age.

Table 3: Use of Moodle for teaching

Variables	Frequency	Percent
Yes	29	69.0
No	13	31.0
Total	42	100.0

Results in table 3 above show that out of 42 respondents, 29 (69.0%) had made an effort to fully integrate Moodle into their teaching while 13 (31.0%) do not use it. Generally, results indicate that the lecturers have a positive acceptance towards using Moodle or positive perception of the usage of Moodle in their teaching activity because of the benefits they got from it.

The 29 lecturers who indicated that they used Moodle to deliver course material and communicate with their students expressed confidence in their ability to use Moodle platform.

Pursuant to the above, the participants were asked to state if they had been introduced and trained to use the Moodle platform. It was apparent that all of the staff involved in the study had been trained in the use of Moodle.

11.4 User friendliness of Moodle software as a teaching platform

Regarding the user friendliness of Moodle platform as a teaching tool, majority (21) of the respondents agreed that it Moodle was user friendly, 13 disagreed, 5 strongly disagreed and 3 strongly agreed that it was user friendly. Tung and Chang (2008) found that the perceived usefulness and the perceived ease of use of an e-learning system have a significant effect on the behavioral intention to either use that system or not.

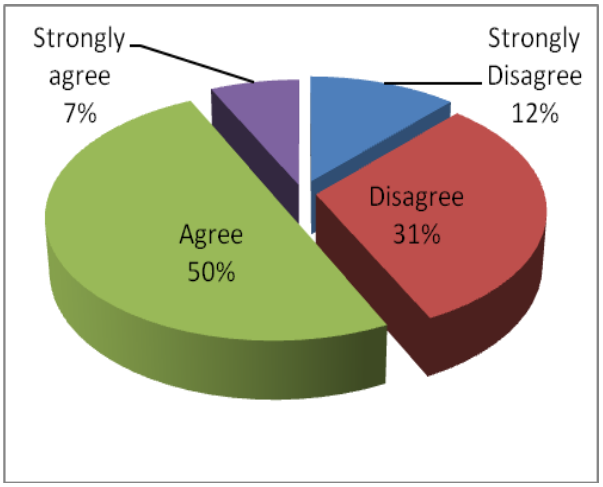

Fig3: Moodle is user friendly

11.5 Satisfaction with Moodle usage

When asked about their overall satisfaction levels with Moodle, 25 out of 42, 59.5%) respondents said they were satisfied with the overall performance of the system while 17 (40.5%) were dissatisfied. Those who were satisfied were of the view that Moodle had greatly improved the quality of their work performance and had made their work easier. This finding is similar to that of Caliskan & Bicen (2016) which shows that Moodle had proved to be very useful and effective. It is therefore imperative that Moodle users are motivated with incentives to continue using the system so that in the long run the non users can be encouraged to follow suit.

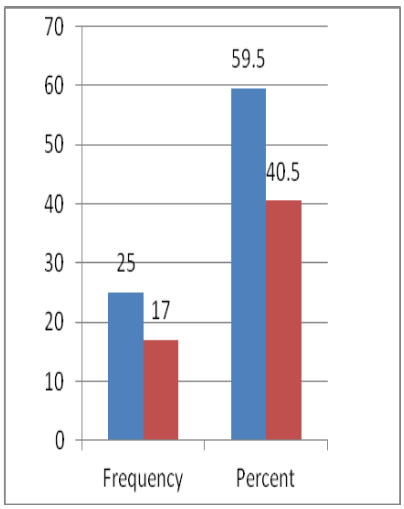

Fig. 4: Satisfaction with Moodle platform

Respondents were asked about their overall satisfaction levels with Moodle. 59.5% indicated that they were satisfied with the

overall performance of the system while 40.5% were dissatisfied with Moodle. Those who were satisfied were of the view that Moodle had greatly improved the quality of their work performance and had made their work easier. It is therefore imperative that these Moodle users are further motivated with incentives to continue using the system so that in the long run the non users of Moodle can be encouraged to follow suit. This finding is similar to that of Caliskan & Bicen (2016) which shows that MOODLE had proved to be very useful and effective.

11.6 Benefits of Moodle in teaching/learning

Using Moodle to supplement traditional classroom teaching provides many benefits. Figure 3 below depicts that majority (37 out of 42, 88.1%) of the respondents observed that Moodle was very beneficial in their teaching process while 5(11.9%) saw no benefit in Moodle.

When prodded further to state specific examples of benefits brought about by Moodle, it was established that there is improved performance when blended learning using Moodle is done. This result is in consonance with the claim of Lopez-Perez, et al (2011) that marks of students improved because of its constructive effect. The other benefit is that Moodle saves lecturers' time in lesson preparation. The posted course materials can be retrieved from the existing files and carried over to the semester where the material is needed. As such, more time is devoted to interaction with students and quality discussions. This finding agrees with a study by Benta, Bologa, & Dzitac (2014) who supports the importance of using e-learning platforms in higher education while Hui Hsu (2012) opines that Moodle allows faculty to build dynamic and effective online learning sites for students.

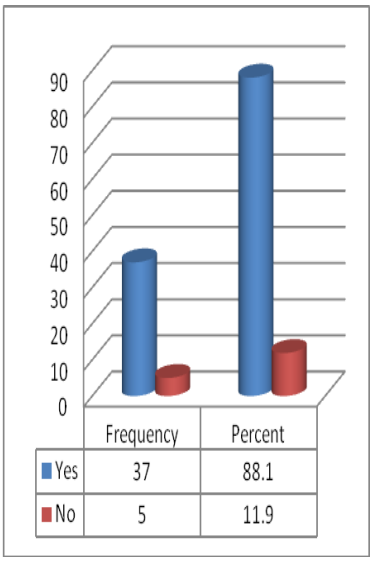

Fig. 5: Benefits of using Moodle for teaching

Table 9 above depicts that 37 (88.1%) of the respondents observed that Moodle was very beneficial in their teaching process while 5(11.9%) did not see any benefit in using Moodle. As can be seen from the results, most respondents (37 out of 42) believe that the e-learning platform has revolutionalised their teaching experience. The study shows that the lecturers do not have negative attitudes towards using the tools available in Moodle. Using Moodle to supplement traditional classroom teaching provides many benefits. Therefore UNZA should harness this system in order for the institution reaps desired benefits of e-learning. This finding agrees with Barge & Londhe (2014) who found that Moodle was being effectively used for teaching, learning and continuous assessment in India. Similarly, a study by Benta, Bologa, & Dzitac (2014) proves the importance of using e-learning platforms in higher education and Hui Hsu (2012) opines that Moodle allows faculty to build dynamic and effective online learning sites for students.

11.7 Willingness to adopt Moodle to supplement face to face teaching

On whether or not they were willing to adopt Moodle to supplement their face to face teaching, 32 (76.2%) were affirmative. Only 10 (23.8%) indicated their unwillingness to supplement teaching and learning with Moodle. This clearly shows that lecturers were in support of this e-learning innovation. This result agrees with a study by Chewe & Chitumbo (2012) which established that despite people not knowing of Moodle's existence, a larger population was willing to support its adoption. The study indicated that participants hold a strong interest in Moodle and they were willing to attend more professional development programs to learn about Moodle tools and applications. The study deduced that lecturers saw Moodle as an effective and powerful tool for enhancing teaching and learning and should therefore be embraced by all.

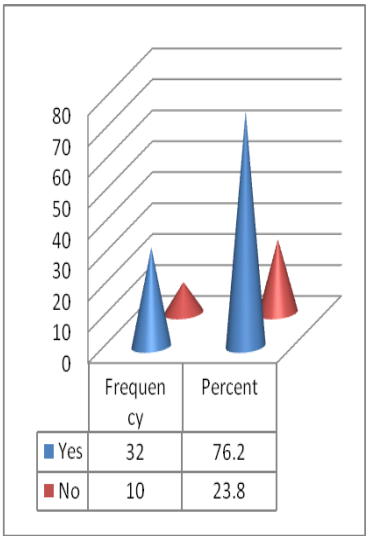

Fig. 6: Willingness to adopt Moodle

11.8. Challenges in using Moodle

The foremost challenge in adopting Moodle as a supplement to teaching and learning is lack of knowledge and some computer applications. Other challenges cited include the following:

- lack of knowledge in Moodle
- lack of time for preparation of materials

- It was not user friendly
- Poor Internet infrastructure for students
- Lack of ICT skills among lecturers

There was a consensus among faculty members that utilization of Moodle needs significant time to streamline the course to adapt it for online delivery, communicate with and provide feedback to students. This is in line with a finding by Unwin, et al. (2010), which revealed that even among experienced users in some African Universities; they used only a small number of the features available to them in their local VLEs.

Academics lamented that students had no reliable access to Internet laboratories after classes and for those who had computers to access learning materials had challenges with Internet connectivity. This study deviates from the findings of a study by Chewe & Chitumbo (2012) who revealed that UNZA has the capacity to effectively implement Moodle and sustain it due to the availability of skilled manpower and ICT facilities such as Internet/intranet infrastructure.

12. CONCLUSION

Higher learning institutions play an important role in ensuring the successful use of e-learning. As part of an institutional strategy for the effective deployment and management of Moodle, the issue of educating staff in the use of technology is one amongst a host of issues. However, appropriate training remains vitally important to the successful adoption of technology. Educators need to be aware of the labour intensive nature of online learning and the resources available to assist with the development of effective online instruction. The university's reward and promotional system should acknowledge lecturers' activities by developing successful online learning and mentoring other staff members in their schools and departments.

In this paper, the researcher has reported findings from the questionnaire survey aimed at finding out faculty members' perception toward Moodle software for teaching at UNZA. The overall picture is that most respondents have a positive perception of Moodle platform. There are however, some limitations on its use due to Internet infrastructure and lack of knowledge on the part of faculty members.

Nevertheless, the current survey revealed greater scope for Moodle to influence teaching and curriculum design at a deep level. This would involve a shift in attitudes away from seeing Moodle as a pump and dump repository', towards becoming the frontier of innovation in teaching.

It is a big challenge to realise, attract, motivate, and create trust and confidence of the lecturers involved in e-learning. However, in order to achieve the university's target that all courses offered at UNZA apply Moodle, there is need for continuous promotion and training of the usage of e-learning among the lecturers and students. Lecturers and students must have technical and cognitive skills in ICT so that they can become effective users of the technology.

Besides that, UNZA's institutional Management should develop a roadmap for e-learning as the virtual learning environment becomes more multifaceted. The roadmap should be used to guide the strategic direction, to assist in faculty development, and provide insight into the application of central resources to best achieve the teaching and learning mission. The study recommends that apart from continuous technical training for faculty members and other stakeholders, Internet infrastructure should be improved as well.

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