

# Implementation of e-Learning System in a Traditional Learning Environment of Higher Institution: A Survey of Namibian Universities

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## Abstract

*The use of Information Communication Technology (ICT) has come a long way and has drawn interest in higher educational institutions as a catalyst for teaching, learning and assessing learning. A number of universities have embarked on a journey to delivering education to students with the use of ICT infrastructures. The aim of such delivery is to improve accessibility to teaching related materials to both students and lecturers. The services provided via the infrastructures are made accessible through computing devices. The accessibility of such materials on- and off-campus plays a major role in the success of e-learning implementation. In this paper, the implementation and accessibility of e-learning system in higher educational institutions in Namibia are investigated. Three higher educational institutions in Namibia were used for the study.*

**Keywords:** *e-learning, teaching, learning, assessment*

## 1. Introduction

According to Callum and Jeffrey [1], technology is one of the fast growing industries in the world and it has been shown by researchers that today's youth is more attracted to, very familiar with and always keen to know more on technology. Thus, it appears that the use of technology in learning will be highly accepted among larger proportion of students. Currently, web-enabling technologies are becoming common and according to Gunasekaran *et. al.*, [2] they have tremendous influence on the success of e-learning. The use of ICT for learning serves as an additional study resource to students and this has drawn interest in the higher education sector worldwide to delivering education to students in a more smooth and flexible manner. Abrami *et. al.*, [3] defined e-learning as the development of knowledge and skills through the use of ICTs, particularly to support interactions for learning with content, learning activities and tools, and with other people. It is not merely content-related or limited to a particular technology. It can also be a component of blended or hybrid learning. According to Catherall [4], e-learning will be more meaningful if it is defined as delivering learning resources or the use of communication between lecturers and students through the use of ICT equipment.

The use of e-learning technologies helps students to meet their personal learning goals as it offers them pace of learning, learning sequence and helps them to have full control over content [6-7]. Students view the use of e-learning as a bonus to their study process. It encourages students to be independent and at the same time allows students to interact with the lecturer and with one another [6]. According to MacGregor [8], e-learning is simply used to supplement face-to-face teaching and to mostly improve communication

among students and between students and lectures. It appears though that technology is required more in distance education than in face-to-face delivery which would imply that e-learning is more effective to distance students [3]. Gunasekaran *et. al.*, [2] is of the opinion that the quality of learning and access to education and training could be improved should technology be used for both classroom and distance learning.

Namibia has higher educational institutions that try to enrich their students' learning process by implementing e-learning systems. Namibia University of Science and Technology (formerly Polytechnic of Namibia), University of Namibia and the International University of Management are the only Namibian higher educational institutions that have implemented e-learning systems and are currently in use by their students and lecturers. In general, some of the media used in e-learning includes the internet (especially the web), video conferencing, virtual learning environments, interactive television and multimedia device. The internet is currently one of media that is mostly used for e-learning [4].

The current e-learning system in the three universities in Namibia is mostly useful to distance and part time students although resources to utilising the system to its fullest is limited. Most of the students are based in rural areas where network coverage is poor and access to computers is limited. In order to get the best out of e-learning, ICT skills is required and this may be lacking in some students due to lack of previous interactions with ICT devices. Thus, the lack of ICT skills presents a challenge and makes the use of e-learning system less effective to students lacking such skills [4].

As e-learning systems are implemented, it would be helpful to assess the use and possibly its effectiveness. Such assessment would suggest further improvements or any action that needs to be taken. This paper investigates the level of implementation of e-learning system and its effectiveness in the three stated higher educational institutions. Thus, the rest of the paper is organised as follows. Section 2 discusses e-learning technologies briefly, the methodology including sample population and, data collection and instrument are discussed in section 3. Results and data analysis are presented in section 4 while conclusions are drawn in section 5.

## **2. e-learning Technologies**

To deliver e-learning, technologies that will support its implementation must be available and in reach. This includes storage, updates and retrieval. Some of these technologies that make e-learning possible include CD-ROM, cell phones, internet, intranet, audio, video, satellite broadcast and interactive TV [4-10]. One of ways through which e-learning resources are made available includes e-book application. An e-book is a collection of readable texts in a digital format which could be accessed through some technologies including CD-ROM, intranet and internet. E-books could provide multimedia features that are not found in traditional paper textbook. It could also have animations and sound effects which help learners have a clear understanding of what really is happening especially to learners with some disabilities.

## **3. Methodology**

A quantitative method was used in the study to obtain statistical measures that were used in evaluation and drawing conclusions from the data collected by means of questionnaires. Data were collected from a sample that represented the population; this was done in a form that would easily allow conversion into numerical indices. Students were asked questions to indicate how they access internet, whether at home, on campus, at work or at internet cafe. This data was used to count how many students have internet access. The research was done in the form of case study. This was an easy method to collect data as it allows statistical representation of data. Three case studies were used; these are Namibia University of Science and Technology (formerly Polytechnic of

Namibia), University of Namibia (UNAM) and International University of Management (IUM).

#### 4.1. Population

A target population for a specific survey is the set of units for which the survey data are to be used to make inferences [11]. University of Science and Technology (NUST), UNAM and IUM have a number of campuses in Namibia (countrywide), however the research only focused on students from the universities' main campuses in Windhoek. A total of 75 students from all the universities took part in the survey, regardless of their ages, genders and fields of study. Students who participated in the survey were on full- and part-time study modes. The range of participants by institution is as shown in Table 1. It shows that a total of 75 students participated in the survey, 25 from each of the three institutions (UNAM, NUST and IUM).

**Table 1. Range of Participants by Institution**

<b>Institution</b>	<b>Number of Participants</b>
UNAM	25
NUST	25
IUM	25
<b>Total Participants</b>	<b>75</b>

A further breakdown of Table 1, into modes of study (full- or part-time) is shown in Table 2. It shows that out of the 75 students who participated in the survey, 55 were full-time students while 20 were part-time. The 55 full-time students comprised of 15 from UNAM, 15 from NUST and 25 from IUM. The 20 part-time students comprised of 10 from UNAM and 10 from NUST. None of the IUM part-time students took part in the survey.

**Table 2. Range of Participants' Institution and Modes of Study**

<b>Mode of Study</b>	<b>UNAM</b>	<b>NUST</b>	<b>IUM</b>	<b>Grand Total</b>
Full-time	15	15	25	<b>55</b>
Part-time	10	10	0	<b>20</b>
<b>Total</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>75</b>

#### 4.3. Instrument

The instrument used for data collection as previously mentioned was questionnaire. More than 100 questionnaires in total were distributed in the main campuses of the three institutions, only 75 were successfully collected. The distribution of the questionnaires to the students was done in person and randomly regardless of their fields of study and academic levels. The questionnaire was designed to offer key information from the subject area and also tailored towards getting the required responses. Additionally, it contained questions which are ratable and require drawing students' feelings, attitudes, perception and views [12] towards the effectiveness of e-learning at Namibian universities.

The questionnaires had a section where students were required to provide their personal information such as names, name of institution and mode of study. However, there was emphasis that provision of student name is optional. This is to keep the students' participation anonymous. The questionnaire was structured with 6 questions, where each had 4 - 6 sub questions.

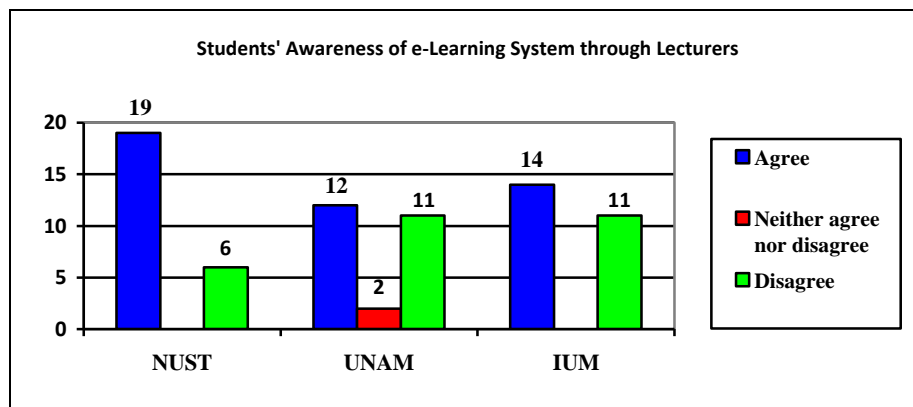
The questionnaire was close ended and it included point scales such as *Disagree*, *Neither Disagree nor Agree* and *Agree*, some sections had *Yes*, *No* and *May be*. This design made the participation time to approximately 5 – 10 minutes. To improve the understanding of the participants with regards to the questions asked, each participant was taken through the questionnaire. In most cases, this did not take long. The answered questionnaires were then collected at 3 different set dates and times per institution.

## 4. Results

The collected data from the questionnaires were analysed and the results are presented in 3 categories. These are students' awareness of institution e-learning system, students' readiness in the use of e-learning system and, students' access to e-learning resources on- and off-campus. These are discussed separately in the sections that follow.

### 4.1. Students' Awareness of Institution e-Learning System

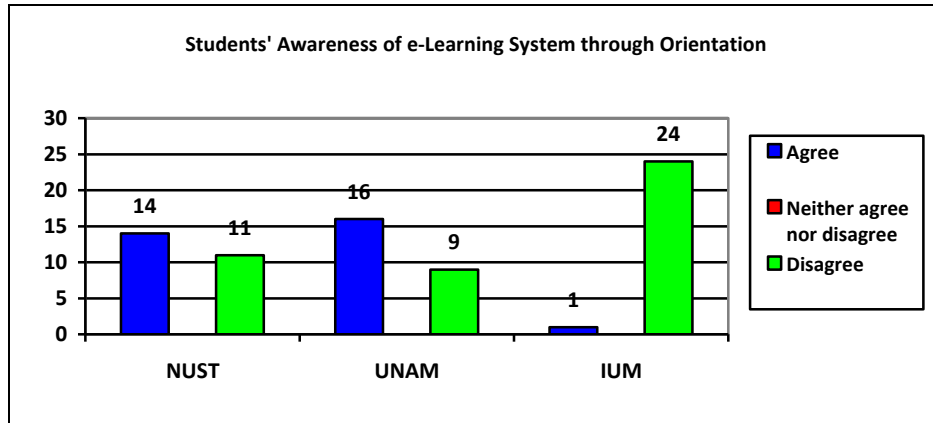
The focus in this category is to determine how students learned about the existence of e-learning system in their respective institutions. Awareness is considered as the first step towards adoption of an implemented e-learning system. Figure 1, shows awareness through instructors (lecturers), Figure 2, shows awareness through e-learning orientation while Figure 3 shows awareness through word of mouth.



**Figure 1. Students Awareness of e-learning System through Lecturers**

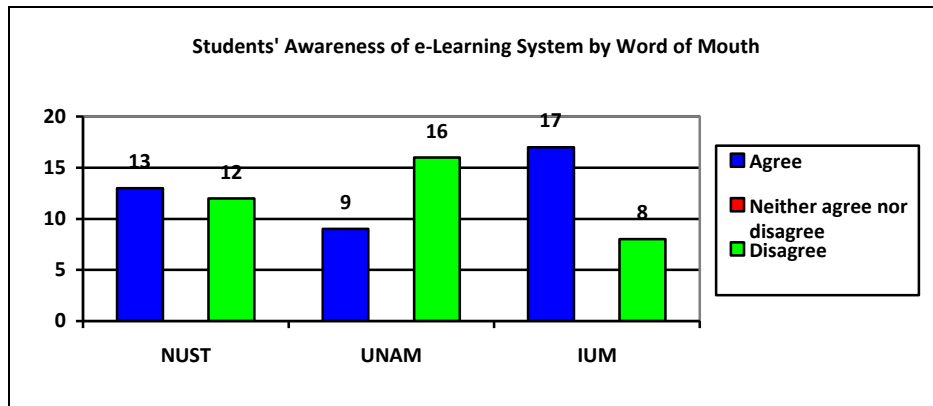
Figure 1, shows that most students from NUST learned about their institution's e-learning system from their instructors (lecturers) compared to the other institutions. This does not indicate that some of the students in the other institutions were not aware of their institution's e-learning system but may have learned about it from different sources. About half of the students from UNAM learned about their e-learning system from lecturers while a little over half of the students from IUM learned from their lecturers.

Figure 2, shows that more than half of the students from NUST and UNAM learned about their respective e-learning systems through orientation compared to IUM. None of the two categories of awareness (through lecturers and through orientation) was strictly considered separately, hence, an overlap is very likely.



**Figure 2. Students Awareness of e-learning System through Orientation**

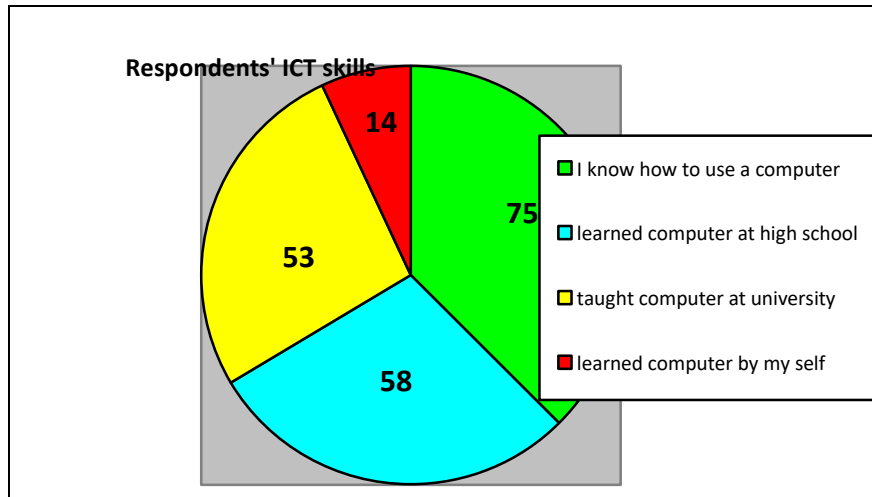
Figure 3, reveals an interesting finding. It shows the important role peer learning has among students. This is dominant from IUM students.



**Figure 3. Students Awareness of e-learning System by Word of Mouth**

#### 4.2. Students' Readiness in the Use of e-Learning System

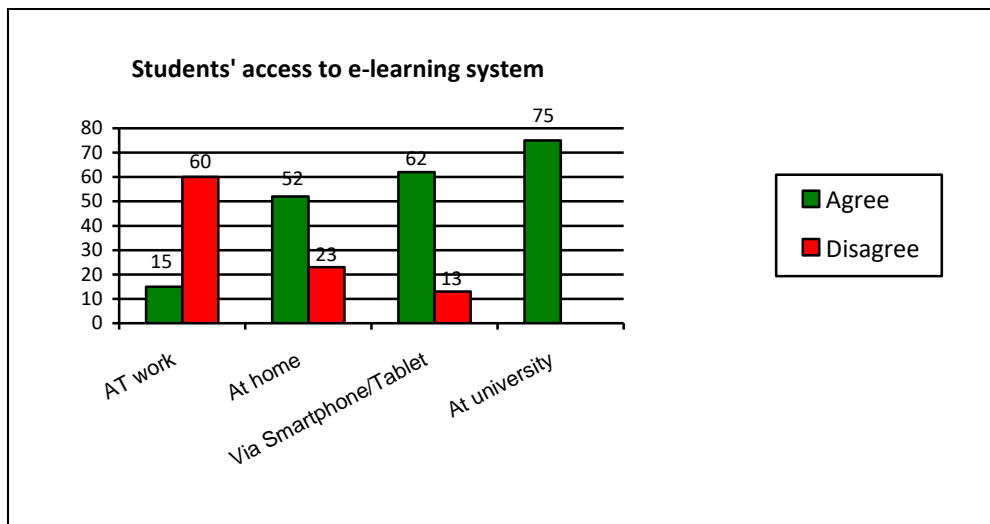
A first step in the use of any ICT solution is the ability of potential users to interact with the system successfully. Such ability may come from the basic knowledge of the use of computer systems. Thus, in this section results regarding students' ICT skills are presented as shown in Figure 4. The figure shows that all the participants possess such skills. Other factors looked at include where students gained such skills. The figure shows that 14 of the students learned how to use computer by themselves. The remaining 61 gained the skills in some formal settings. However, for the fact that the study did not take into account the first time ICT skills were gained, the results seem to overlap. For instances, 58 of the students learned computer from high school and 53 were taught how to use computers at university. The results obtained is an indication that implementation of e-learning system in higher institutions is not a challenge in terms of computer user skills.



**Figure 4. Students' ICT Skills**

#### 4.3. Students' Access to e-learning Resources On- and Off-Campus

This section shows the results obtained in terms of students being able to access e-learning systems on- and off-campus. Figure 5, is a collation of all the three institutions.



**Figure 5. Students' Access to e-learning System**

The figure above indicates that all students from the three respective universities have access to e-learning system on-campus. This is either through computers available in the universities or their laptops. Only few students access e-learning system from work. This is entirely due to work commitments while the few that indicated access from work do so during breaks. The results also indicate that majority (62) of the students access e-learning via smartphone or tablet. Similarly, a large number (52) of the students have access at home via broadband.

## 5. Conclusions

The study has clearly indicated that besides the computers available at the three universities, most students have computers at home to access e-learning resources. Additionally, most of them use their smartphones/tablets to access the resources. Also, based on the participants involved in the study, all of them possess computer skills which

indicate their readiness for the use of e-learning system. One of commendable features is the ability of students to access e-learning systems on- and off-campus. In addition to the traditional face-to-face teaching and resources that lecturers will be able to provide, students have access to numerous resources. The study has shown that based on the participants of the study, accessibility of e-learning system in all the three universities is high. However, in order to exhaustively study the accessibility, further work is required in the following areas.

- To perform a similar study that will include segregation of students in terms of year of study
- To investigate accessibility among students living with disability

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