# An Examination of Usage of Techonology in Learning and Teaching Processes: A case of Distance Learning Programme at Africa Nazarene University, Kenya

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***Abstract:*** *Open Distance and eLearning (ODEL) has gained significant popularity in recent past due to the explosion of latest technologies and the availability of the Internet. The use of this specific technology in learning and training has enriched the success stories of next generation learning technologies. However, the success of use of technology in learning depends, to a significant extent, on how the students actually use them for learning purposes. The purpose of the study was to examine the usage of technology in learning and teaching processes citing Africa Nazarene University as a case study. Data was collected from 234 IODL students. Findings from the study revealed that students were found to be using technology in learning and teaching processes in various ways through Google search, accessing reading materials on the computer, receiving/sending learning materials, and sending/presenting assignments. The use of technology was however limited as there were many other ways they could have taken advantage of technology for competitive advantage.*

***Keywords:*** Distance learning, Technology, Usage, Teaching and Learning, Africa Nazarene University

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## I. Introduction

The magnitude of new technologies introduced over the last ten years or so has also impacted tremendously on Open and Distance Learning practices (Weumin & Dhanarajan 2006). Bollag and Overland (2001), assert that many educational institutions are answering the challenge of increased enrolment and lack of physical space, by developing distance learning programs. The acquisition of quality higher education through technology within distance education has found remarkable levels of praise from various scholars. Moore et.al (1990) argue that through the integration of technology in distance learning, quality education has been made accessible at very low cost to people who are engaged in other activities of daily living that are likely to bar them from attending schooling on a regular basis (Bollag & Overland 2001).

Kenya has witnessed an unprecedented expansion of distance learning programmes to cater for the great number of people determined to enhance their skills and positions in the work place while still desirous of working and supporting their families. Technology has been hailed in the context of distance education as a variable that maximizes the use of limited physical and human resources and facilities used in these accepted institutions (Ayot 2005). One of the main challenges of using technology to support distance learners is that there are very few people who have the necessary skills to teach and learn using ICT in universities. The demand for e-learning has grown tremendously but the number of tutors and lecturers trained to guide learners on ICT has failed to meet the demand requirements. More students are willing to be taught and guided through computing skills than there are teachers to guide them in acquiring the skills (Singh & Means 2000). Most of the lecturers are not comfortable with using a computer. The perception, especially by the older generation, that computers require highly skilled personnel in their operations is strong. Even if this may not be true in some cases, management also fear that their students may be in danger when they access undesired sites while using the internet. The threat of virus infection to users' computers leading to data loss has also caused fears among the users. While this may be true to some extent, appropriate training on the proper use of computers to ensure safety can help alleviate some of these fears (Martin 2011).

Availability of ICT infrastructure is the first step towards adoption and use of technology in Universities. However, a study by Hennessy (2010) revealed that there is lack of adequate facilities like hardware, software and internet limited accessibility of ICT to a large segment of the population in sub-Sahara Africa. The study also found that other factors such as transport networks, electricity, import duties, network configuration and technical faults compounded the problem.

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**Africa Nazarene University Background**

Africa Nazarene University is essentially a contact institution which also offers distance education provision. It has a student population of over 4,000, with four departments and two schools, six campuses, offering support to distance education students. Currently, the distance student enrolment stands at 600. The IODL strives to keep abreast of developments in the rest of the world by putting more emphasis on the use of technology to support learning and teaching. There are presently over 500 personal computers on campus, but it is aimed to be increased to 1000 personal computers; creating a 1:1 ratio of computers to staff and a 1:5 ratio for students (Athoye 2013). The university also has embarked on putting up more computer laboratories, training of staff and students on using technologies for learning and teaching. To achieve this, the Institute has a Learning Management System (LMS), called the Comprehensive Academic Management System (CAMS) which they use for registration, student finance, and examinations. This allows students to check their assignment, examination and feedback results online. The institution has also established a Corporate SMS service, which allows students to communicate with the institution in obtaining fee balances, fee statements, examination results, important dates and emergency alerts. This has increased efficiency, effectiveness, and convenience in the means of communication between students and the university (Athoye 2013).

The university also has a Sage Accpac Enterprise Resource Planning (ERP) system which has seen integration of all financial data and processes in a single consolidated system. The Human Resource Management Information System (HRMIS) is used to capture staff records and staff-related processes. In the past, more focus was placed on enhancing the ICT infrastructure, hardware, and administration systems; the institution subsequently progressed on to use technology for e-learning and has recently introduced video-conferencing facilities to link its main campus to the Meru campus. This was made possible by the enhancement of the fibre-optic connection between the city of Nairobi and Meru town.

ANU has introduced e-learning using the e-Naz Moodle platform. More than 50 lecturers and facilitators have received appropriate training on the use of the e-Naz platform, while new students are provided computer literacy training, use of internet technology, and the use of the e-Naz platform. The university also regularly holds several training programmes seminars and meetings, to raise awareness of e-learning among lecturers (Athoye 2013). The institution's library catalogue is accessed through the University's Website. Other services accessed from the Website, include information on courses, programme, fees and so on. Mobile telecommunications and land lines are used for tutorials and other related services. The learners can also e-mail their queries to administrative staff.

## II. Literature Review

**Concept of Distance Learning**

Holmberg (1989) refined the definition by stating that Distance Education is a concept that covers the learning and teaching activities in the cognitive and/or psychomotor and effective domains of an individual learner. It is characterized by non-contiguous communication and can be carried out anywhere and at any time which makes it attractive to adults with professionals and social commitments (Holmberg 1989: 168). As communication technology has evolved, the possibilities for interactivity have increased. But the choices made have often involved the continued use of one-way technologies, which rule out the 'noise' that builds a vigorous and active life world (Holmberg 1989).

**Technology in Distance Learning**

The use of technology in the distant mode gives students an opportunity to study through self-learning methods. According to Nicole (2005), "University faculty members have been among the last educators to experience the educational thrust toward technology integration" . The study by Nicole (2005) responds to the need to establish the current practices of faculty members in developing nations in relation to technology use for learning and teaching following investments made to boost technology availability in the university. Factors influencing the utilization of new technologies (such as computers, the Internet and the World Wide Web) have been analysed through the lenses of several theories that have also informed similar research endeavours (Nertha et al. 2009).

Within the education sector, Internet use has been widely implemented in universities, high schools, business organisations and even the Not for Profit organisations for more than two decades with real impact in peoples' lives in their learning process. In a survey by the Pew Internet and American Life Project (2005), it was revealed that in the U.S., college students seemed generally positive about the Internet and its impact on their educational experience. The finding showed that for distance learning, projects did not enjoy much success, however. The survey also found that there appeared to be little interest among traditional college students of between 10 to 22 years old to abandon the face-to-face classrooms for online or distance learning. The study further showed that only 6% of students took online courses for college credit, and out of those 6% only half (52%) thought the online courses were worth their time, with the other half saying that they believed they

learned less from the online course than they would have from a face-to-face or physical class at campus. Gauging from the above findings, it is clear that for students already enrolled in traditional college courses, online education has a long way to go before it might challenge the traditional classroom.

On study habits, the findings showed that 73% of college students were using the internet as the primary site of their information searches rather than the library. The convenience of the internet was tempting students to rely very heavily on it when searching for academic resources as compared to the physical library. The survey by the Pew Internet and American Life Project (2005) also showed that distance learning projects have not found much success because students have the option of choosing between study in classrooms and online courses. But in remote areas, where the classroom is not available for those who are interested in studying, taking online courses may be the only choice and may be better than nothing. Although the scholar argued that this preference for online courses in remote areas could make distance learning helpful to people in those areas to communicate with others and to increase their knowledge by learning via the Internet since they have no chance to study in traditional classrooms, this may not be necessarily so. One reason could be that if these people genuinely cannot afford to construct a physical classroom, then other facilities such as electricity or computers could be equally challenging to access.

In contrast to the foregoing discussion. According to Donnellan (2002), Information and Communications Technology (ICT) projects run in various parts of the world such as the UK Education Departments have shown that the use of ICT in education provides a number of learning benefits. Such benefits include improved subject learning across a wide range of curriculum areas such as English, mathematics, science, history, geography, modern languages, art, technology, IT and careers, as well as independent study and cross-curricular project work; improved motivation and attitudes to learning; development of independent learning and research skills; improved vocational training; development of network literacy (the capacity to use electronic networks to access resources, create resources and communicate with others, these can be seen as complex extensions of the traditional skills of reading, writing, speaking and listening; and social development). A paradigm shift in teaching is signified by the integration of modern ICT technology and it's true that implementing technology may be catalyzing the process but its effectiveness in use requires a paradigm shift from teaching to learning. This requires adequate training in technology and also as technical support (Rogers& Donna, 2003).

## Distance Learning in Kenya

The initial policy put forward by the government to address open higher education was the Act of Parliament of 1966, which established the Board of Adult Education. Since independence, however, a number of commissions and reports have highlighted ODL as an alternative mode of education provision. For example, the Ominde Commission of 1964/65 recommended the establishment of an advisory commission on ODL; the Gachathi Report of 1976 emphasized the need for solving large scale educational problems by diversifying education to include ODL; the Mackay Report of 1981, the Kamunge Report of 1988 and the Koech Report of 2000 included the use of ODL in their recommendations.

The latest government initiative as contained in Sessional Paper No. 1 of 2005 recommended the establishment of an Open University and use of ODL in human resource development at all levels (Juma 2003). The practice of ODL in the country has been at all levels of education and provided by different institutions governed by their own institutional policies. Some of the major providers include: the Kenya Institute of Education (KIE); University of Nairobi; the Kenya Institute of Special Education (KISE); Kenyatta University; African Medical Research Foundation (AMREF); Ministry of Health; Ministry of Agriculture; Ministry of Education under school based teacher development program; and a number of cross border institutions. Furthermore, there are other institutions operating in this country that provide and manage distance learning. For example, the African Virtual University (AVU) which used to run programs in Francophone and Anglophone Africa but has since changed its mandate from providing distance learning directly to the learners to providing training to staff in institutions offering open and distance learning.

According to Juma (2003), this uncoordinated ODL practice has made some impact on education and development in the training of adult literacy teachers; primary school teachers; training of teachers in special education; cooperative practitioners; training of medical professionals; and primary school enrichment through radio programs and use of electronic modes. While online learning holds promise, a number of challenges would have to be tackled before it can be fully utilized in Africa. There are a number of resource-related and technological constraints that hinder distance learning. Telephone and other communication infrastructures outside of major cities remain inadequate. These challenges are in spite of a policy document by the Government of Kenya on ODL that is yet to be implemented (Republic of Kenya, 2006). The current state of the Internet, Internet usage in Africa, internet culture, internet access, the impact of the internet on peoples' lives, and use of the internet in education are critical. A key challenge that has been noted as highly impacting on the

effectiveness and efficiency of online and distance education is the internet. This is based on its being a platform through which online and distance learning can be facilitated.

**OBJECTIVE OF THE STUDY**
To examine how students are using technology in learning and teaching processes in Distance learning at Africa Nazarene University.

**RESEARCH QUESTION**
To what extent are distance learning students using technology for learning and teaching in Distance learning at Africa Nazarene University ?

## III. Methodology

The study adopted a mixed methods approach that encompasses the usage of both quantitative and qualitative data (Creswell 2009). To address the objective of the study on the usage of technology in learning and teaching, data was collected both qualitatively and quantitatively from 234 (39%) of 600 IODL students. After the administration of the questionnaires, the data collected was organized, collated, summarized, statistically treated and drafted in tables with the help of Statistical Package for Social Sciences (SPSS). Data was analysed descriptively and inferentially with the help of Statistical Package for Social Sciences (SPSS) computer software version 22.0. In accordance to McMillan and Schumacher (2010) and Schulze (2003), researches in the wider area of education require both quantitative and qualitative research approaches in enhancing the understanding of learning, teaching and other human phenomena

## IV. Findings And Discussions

**Demographic Information**

The biographic data of the respondents were analysed to determine the gender composition, age, computer usage, accessibility to laptop, frequency of use of Google search, means of accessing reading materials on the computer, preferred mode of receiving learning materials and preferred mode of presenting assignments as summarised in table 1 below.

**Table 1 Biographical data of the Respondents**

| Variable | Frequency | Percentage |
|---|---|---|
| **Gender:** | | |
| Male | 124 | 51.2 |
| Female | 118 | 48.8 |
| **Age:** | | |
| Less than 20 | 7 | 2.9 |
| 20- 29 | 74 | 30.6 |
| 30- 39 | 116 | 47.9 |
| 40- 49 | 35 | 14.5 |
| 50 and above | 6 | 2.5 |
| **Computer Usage:** | | |
| Less than 1 year | 47 | 19.4 |
| 1 - 3 years | 68 | 28.1 |
| 4 - 6 years | 46 | 19.0 |
| 7 - 9 years | 35 | 14.5 |
| More than 10 years | 42 | 17.4 |
| No response | 4 | 1.7 |
| **Access to Laptop:** | | |
| Yes | 202 | 83.5 |
| No | 40 | 16.5 |
| **Frequency of use of Google search for information:** | | |
| Every day | 128 | 52.9 |
| Two or three times a week | 76 | 31.4 |
| A few times a month | 33 | 13.6 |
| No response | 5 | 2.1 |
| **Means of accessing reading materials on the computer** | | |
| Read it on my computer | 153 | 63.2 |
| Print it to read it | 79 | 32.6 |
| Read it on my computer or print and read it | 8 | 3.3 |
| No response | 2 | 0.8 |
| **Preferred mode of receiving your learning material** | | |
| Hardcopy (printed book) | 95 | 39.3 |
| Electronic book | 79 | 32.6 |
| Doesn't matter | 63 | 26.0 |
| **Preferred mode of presenting assignments** | | |
| Face to face Video (via YouTube) | 17 | 7.0 |
| Audiotape | 3 | 1.2 |

| | | |
|---|---|---|
| Online (via a discussion forum, IR or chat) E-Naz | 82 | 33.9 |
| Email | 133 | 55.0 |
| E-Naz and Email | 7 | 2.9 |

Regarding age, the respondents were grouped as shown on the table above. The majority of the respondents were in the age group 30-39 (47.9%), followed by 20-29 years (30.6%), 40-49 years (14.5%), less than 20 years (2.9%) and lastly above 50 years old (2.5%). The younger respondents aged 20-29 could be understood as pro-technology in terms of its being widespread during their age while the upper ages could be understood as coping with the challenges of technology as it emerges. This influences their choices and possibly attitudes. A small percentage of 2.5% of the respondents did not respond to this item.

On computer usage, the study found that the highest percentage of respondents (28.1%) had used computers for 1-3 years followed by 19.4%, 19%, 17.4%, and 14.5% who had used computers less than 1 year, 4-6 years, more than 10 years and 7-9 years respectively. Those who had used computers for 3 years and below constituted 47.5% of the sample while those who had used computers for more than 3 years were 50.9%. This means that those who had computers for more years had a higher potential of understanding how to perform various activities using computers. On respondents' having access to laptops, empirical evidence showed that 83.5% had access to laptops while 16.5% did not have access to laptops.

Regarding frequency of use of Google search, 52.9% of the respondents were found to be daily users, 31.4% as using it twice or thrice a week, and 13.6% as using it only a few times a month. The more one uses a technology or platform, the more conversant they become with it and consequently perceived ease of use. Five respondents constituting 2.1% did not respond to this item of the questionnaire. When respondents were asked the means they were using to access reading materials on the computer, it was noted that a majority constituting 63.2% had picked ICT trend by reading from the computer while 32.6% were printing first in order to read and 3.3% were using either of the above. On the preferred mode of receiving reading materials, the respondents we sharply divided with 39.3% preferring hard copy (printed Book), 32.6% preferring electronic book and 26% preferring either or minding less about the form of the document (whether hard copy or electronic). Regarding the respondents' preferred mode of presenting their assignments, the findings showed that email was the most preferred at 55% followed by online presentation (via discussion forum, IR or chat) E-Naz at 33.9%, a combination of E-Naz and email at 2.9% and face to face video (via You Tube) at 7% and audiotape at 1.2%.

**Findings on students  usage on technology in learning and teaching processes**

Findings related to this objective were answered by the items on the demographic information especially from item 5 to 8 of the questionnaire. The findings showed that students were using technology in learning and teaching through Google search (97.9%); accessing reading materials on the computer (63.2%); receiving/sending learning materials (58.6%) and sending/presenting assignments (100%). These included diverse ways such as use of electronic books (32.6%); face to face video via You Tube (7%); audiotape (1.2%); online (via discussion forum, IR or chat);E-Naz (33.9%); emails (55%) and a combination of E-Naz and email (2.9%).

## V.  Conclusion

From this study the results show that students were found to be using technology in learning and teaching processes in various ways. The findings showed that students were using technology in learning and teaching through Google search, accessing reading materials on the computer, receiving/sending learning materials, and sending/presenting assignments. Other than the afore-mentioned, the respondents also used technology through electronic books, face to face video via You Tube, audiotape, online discussion, E-Naz, emails and a combination of E-Naz and email. How students use technology was however limited as there were many other ways they could have taken advantage of technology for competitive advantage.

## VI. Recommendations

It is recommended that Africa Nazarene University engages adequate and competent personnel to improve students competency levels in terms of the knowledge and skills needed engaging in Learning. The study further recommends the promotion of development of active IT platforms and service competence, by promotion of online teamwork though rewarding lecturers and students who engage in knowledge sharing in the institution's online repositories.

## References

[1]     Weumin, Y & Dhanarajan, G. 2006.Learner Support in Open and Distance Learning: Training Kit. British Colombia: The Common Wealth of Learning and Asian Development Bank.
[2]     Bollag, B & Overland M A. 2001. Developing Countries Turn to Distance Education. *Chronicle of Higher Education* 47 (40) 29-31.
[3]     Singh, R & Means, B. 2000. Effects of Technology on Classrooms and Students: U.S. Department of Education Office of Educational Research & Improvement.  Available from http://www.ed.gov/pubs/EdReformStudies/EdTech/effectsstudents.html.

[4]     Ayot, H O & Briggs, H. 1992. Economics of Education. Nairobi: Education Research and Publication.
[5]     Athoye, G. O. 2013. African Nazarene University (ANU). URL: http://www.anu.ac.ke (accessed: 12.10.2013).
[6]     Mugenda, O. M., &Mugenda, A. G. (2003). Research Methods: Quantitative & Qualitative Approaches.
[7]     Donnellan, C 2002.The impact of the Internet, Independence..
[8]      McMillan, J H & Schumacher, S. 2010. Research in Education: Evidence-Based Inquiry. 7th Edition. Boston: Pearson.
[9]     Moore, M G, Thompson, M M, Quigley, A B, Clark, G C & Goff, G G. 1990.*The Effects of Distance Learning: A Summary of the Literature.* Research Monograph No. 2. University Park, PA: Pennsylvania State University, American Centre for the Study of Distance Education (ED 330 321).
[10]    Schulze, S. 2003. Views on the Combination of Quantitative and Qualitative Research Approaches.Progressio 25(2): 8-20.
[11]    Pew Internet and American Life Project 2005.A decade of adoption: how the Internet has woven itself into American life, Available from http://www.pewinternet.org/pdfs/Internet_Status_2005.pdf (accessed on 10-01-2015).
[12]    Kothari, C R. 2003. Research Methodology: Methods and Techniques. New Delhi: W. Prakashan.
[13]    Creswell, J W. 2009. Research: Qualitative, quantitative and mixed methods applications. Los Angeles, CA: Sage.