Review

Equipping ICT skills to graduate trainee teachers whilst at tertiary institutions impacts the quality of national manpower development – case study for University of Namibia

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The current wave of technological trends made ICT a necessity and cross-cutting in all walks-of-life. In view of that, it was a matter of fact that all old and newly graduated employees such as medical doctors, nurses, pilots, engineers, accountants, actuarial, teachers, media, business men, etc., required basic ICT skills for them to fit in with the current and future technological trends. It was also a reality that these employees passed through a teacher especially at initial educational levels such as primary and secondary schools. Hence, producing a qualified teacher with at least ICT knowledge added value and a significant contribution to societal manpower development. It was against this background that the University of Namibia (UNAM) had intensified the integration of ICTs in the curriculum especially in Faculty of Education which trained teachers who would be deployed to teach at primary and secondary schools country wide. As this would have an impact on the teachers' approach to utilisation of ICT facilities to deliver their respective lessons. In this way, the graduated trainee teachers would be able to cope with this dynamic ICT technological trend which swept across the world.

Keywords: Information communication technology (ICT), UNAM, technological trends, trainee teacher, cross-cut, ICT facilities, faculty of Education, ICT equipment and manpower.

INTRODUCTION

This paper envisages the efforts of the Namibian Government to equip the ICT Skills or Information Literature to the Graduate Trainee Teachers or educators whilst at the tertiary institutions. Also one would wonder and pose a question why the Government Republic of Namibia decided to merge the primary and secondary school colleges into fully fledged University campuses?

Before answering the above question, the key concept in this work which is the ICT Skills or Information Literature in this paper abbreviated or referred to as ICT-SKIL should be analyzed. It is obvious that the current wave of technological trends has made ICT-SKIL a

necessity and cross-cutting in all walks-of-life. In most training institutions these days, learners are encouraged to equip themselves with ICT-SKIL before they join their new jobs. Hence, it is a matter of fact that all old and newly graduated employees such as medical doctors, nurses, pilots, engineers, accountants, actuarial, teachers, media, business men, etc., require basic ICT-SKIL for them to fit in with the current and future technological trends. When you look back, all the above cited employees, their educational background started at lower institutions such as Kindergarten, primary and secondary schools. Hence, it is a reality that most of the skilled employees in all walks-of-life passed through a Kindergarten, primary and secondary school teachers. Therefore such an ccretion or conclusion shows that it is important for an nation to build foundation of education that leads to capacity building to start at the Kindergarten, primary and secondary levels. Therefore, producing a

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qualified Kindergarten, primary and secondary school teachers with at least ICT-SKIL knowledge add value and a significance contribution to societal manpower development. It is against this background that the University of Namibia (UNAM) has intensified the integration of ICTs in the curriculum especially in Faculty of Education which train teachers who will be deployed to teach at Kindergarten, primary and secondary schools country wide. As this will have an impact on the teachers' approach to utilisation of ICT facilities to deliver their respective lessons.

Problem Statement

The merged Colleges of Education in Namibia used to train the candidates who would be teaching at secondary and primary schools. The curriculum of these colleges did not have the elements of ICT Skills or Information Literature (ICT-SKIL). In this work the concepts ICT Skills and Information Literacy are used interchangeably. This college education system deprived the educators' graduates with the knowledge of ICT-SKIL. Neither did these institutions have the IT/ICT facilities which completely denied information literacy to the educators. In this way it left secondary and primary school children deprived of adapting to the new educational technological trends as their teachers could not apply ICT-Skills to the existing curricula in order to be able to evaluate and use diverse the dynamic secondary and primary school's information sources. This is supported by the ACRL Board (2011) which pointed out that the development of information literacy tools and knowledge is fundamental to teacher education student's abilities to evaluate and use diverse and continually changing information sources in their academic work and pre-service teaching. Jenkins, (2006) also added that the quick changing information and technology landscape requires increasingly sophisticated information literacy skills for the navigation, evaluation, and use of information. He further emphasized that teachers play a key role in providing students with diverse opportunities to learn how to use information wisely. He went on clarifying that those preparing to become pre-kindergarten to twelfth grade (PK-12) teachers require a comprehensive understanding of information literacy to guide their own knowledge creation activities that will ultimately affect their future students.

The limited of the ICT-SKIL in the teaching of secondary and primary schools' curricula in Namibia has deprived the youth for their future potential career prospects. Fourie and Krauss, (2010) gives evidence by stating that the development of information literacy especially in the lower institutions such as lower and upper primary in the Sub-Saharan region is very low or inexistence. Emmons et al., (2009) added that the

literature dealing with information literacy training for teachers per se is, however, rather limited. From such statement it was clear evidence that such scenario affected the national's economical growth because of human manpower which could not cope-up with evolution of the dynamic technology trend, for the work force which was not prepared as per technological trends. The coping-up with the evolved technological trends need to start at the early stages of developing the human manpower and this has to start at the primary and secondary levels, if not at Kind garden. It was in view of this that the Namibian Government thought of preparing the primary and secondary educators with the ICT-SKIL whilst attaining the tertiary training. This was to prepare the graduates so that when deployed into primary and secondary schools, they should make use of the ICT-SKIL to be competent to adjust to the new technological trends that affect the curricula. In this way, the educators would definitely prepare the youths for future appropriate human manpower which will definitely spearhead the national economical development.

Whilst the secondary and primary colleges did not have adequate access to the ICT-SKIL and facilities, the University of Namibia (UNAM) had potential of such services. To start with, the University has adequate ICT-SKIL staff. In addition, UNAM has ICT-SKIL well equipped laboratories and technology. With such an infrastructure and adequate human capacity, the institution has an ability to adapt to ICT-SKIL technological trends. In this way, this compelled the Namibian Government to merge all the existing primary and secondary colleges into the University. In the beginning of 2010 academic year, the Government commenced the transition process of merging the Teacher Training Colleges (TTC) into the University. The College Merger Committee was set up comprised of representatives from the Ministry of Education, UNAM, Union, Legal and TTC. This committee was chaired by the Permanent Secretary of the Ministry of Education. The transitional college merger was well executed and in January 2012 the UNAM Education Lower and Upper Primary Campuses indicated in Figure 1 commenced. As at now the student educators in these merged UNAM campuses have privilege to use computers, internet and other ICT-SKIL training facilities such video conference room, smart boards, etc.

Literature Review

The concerns raised by UNAM to improve the education background of the Namibian nationals to start at primary and secondary schools were equally researched by other scholars. Sajda Qureshi (2010) stated that many studies explore the ways in which information techn-ology can bring about improvements in people's lives by
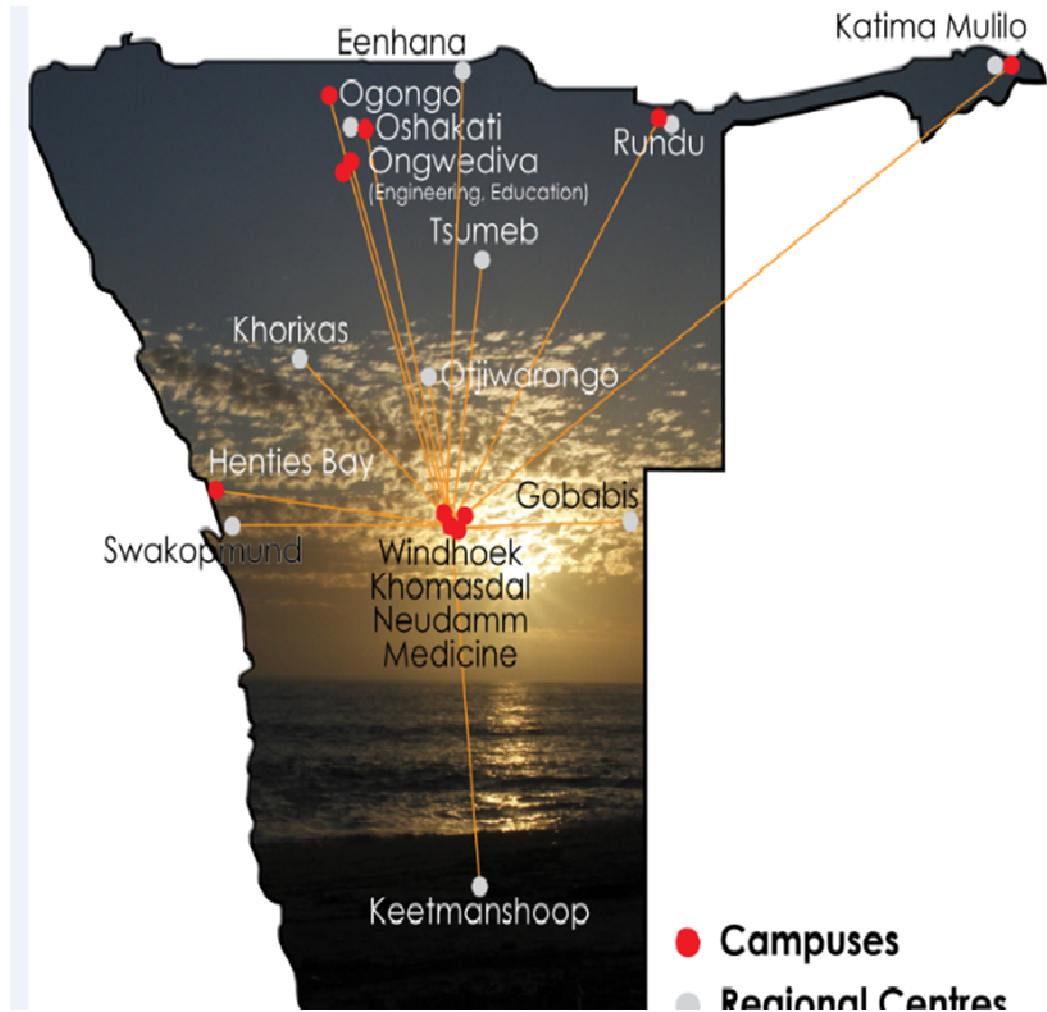
Figure 1. University of Namibia Showing Education Merged Campuses

considering aspects of how it is used, applied in various communities and countries and how it affects certain key economic indicators such as growth. This is in line with the efforts the Namibian Government equally took to explore the ways in which the ICT-SKIL could improve the pedagogical of the primary and secondary curricula to built career for the youths so that they would fit in the industry and any walks-of-life in near future. The Government of Namibia has put a priority to ICT-SKIL as done by other scholars who have shown that this concept is primary. Rockman (2004) supports this concepts and he particularly defined Information Literacy (IL) as the ability to find, evaluate, analyze, integrate, communicate, and use information to solve problems, create new ideas, make informed decisions, and turn data into meaning. Also Fourie, I. and Krauss, K. (2010) emphasizes that these are critical skills if teachers are to implement evidence-based practices in classrooms in ways that benefit their students. From such emphasis from other researchers, it shows how the ICT-SKIL is crucial to the primary and secondary educators of Namibia. This is also supported by the American Library Association (ALA) which pointed out that the ALA Presidential Committee on Information Literacy declared Information Literacy (IL) as a survival skill in the information age and recommended that librarians, teachers, and academic and government education agencies incorporate IL into research and practice.

Other researchers have looked into the standards that can build a primary and secondary school educator. For instance, Emmons et al., (2009) pointed out that the ACRL outlines that an Information Literate individual is able to : (a) determine the extent of information needed, (b) access the needed information effectively, (c) evaluate information and its sources critically, (d) incorporate selected information into one's knowledge base, (e) use information effectively to accomplish a specific purpose, and (f) understand the economic, legal,

Figure 2. Installed Multipoint Bridge

and social issues surrounding the use of information, and access and use in information ethically and legally. From these articulated standards, it is obvious that they are indicators of the attributes a competent primary and secondary school teacher should have. Hence the merging of the said colleges would make the UNAM graduates acquire the ICT-SKIL for they will be exposed to the available resources and technologies.

In fact, the study of the relevance of utilizing ICT in teaching has attracted convening of workshops in most part of the world. Dorothy A. Williams and Caroline Wavell (2006) give of the workshop where teachers described information literacy in relation to their own professional experiences and priorities. While the accepted that information literacy is embedded within the curriculum, there was also a sense that for many teachers information literacy was considered as cross-curriculum skills building, separate from the subject rather than away of learning and teaching. A few teachers identified ways in which they could tackle aspects of information literacy that were immediate concern and make positive changes to student learning. Teachers described information literacy in relation to the student context, and suggested that some students have the ability to see connections and develop skills required to be information literate more naturally than others. These students were considered to be motivated to learn, to be

competent readers, to have an enquiring mind, good general knowledge, support from home and have achieved appropriate developmental stage earlier. Teachers also recognized that many students lack skills to find and use information and were not confident that they knew how they could influence the development of information literacy.

Utilisation of ICT-Skill facilities at UNAM

Teaching and integrating computer literacy across the university curriculum

Computer Literacy has been offered as a compulsory course to all incoming University of Namibia (UNAM) students. This has fostered a sense of awareness, rising confidence and competence in utilizing ICTs in courses across many curricula. This course offers students the opportunity to acquire ICT skills, covering: hardware and software, categories of computers, usage of computer devices and peripherals, windows operating system. Other topics are word processing with MS Word, spreadsheets, database construction from Microsoft Access, presentations with Microsoft PowerPoint. Additionally the course also covers the communication tools that include: Internet usage that involves the use of

Figure 3. A Professor Teaching five connected education campuses – postgraduate classes

web browsers, search engines, downloading and uploading files, creating email accounts and sending messages. Hence, with such compulsory resource to all first years, then the enrolled primary and secondary school educators would automatically benefit on the acquisition of ICT-Skil. In fact not only will the educators benefit, the offering of this course has also enabled UNAM graduates who were exposed to this training to fit in their post-graduate jobs especially where the application of ICT are/were required.

ICT Technologies

Namibia is one of the largest countries in size on the continent of Africa but possesses a very small population scattered across its remote regions. Nevertheless, the Government has built learning institutions in these remote areas, including some of the merged campuses. These remote institutions, have suffered with problem of understaffing, as many qualified lecturers opt to be in urban areas. To overcome this situation, UNAM acquired a Multi-point Bridge indicated in Figure 2, to facilitate the video conferencing sessions to reach out many campuses.

This Multi-Point Bridge allows the video conference facilities to connect at most twenty-five sites when there is adequate bandwidth. In this way, one lecturer can teach many campuses at a given session.

Figure 3 shows the Multipoint Bridge's technological capacity to connect many campuses using video conferencing into a single class session. In this figure, about six campuses are connected, where a Professor from the Faculty of Education was offering a lecture to postgraduate students. This was a clear evidence of how the employed ICT technology has facilitated the dissemination of teaching/learning materials to areas where there no enough staff. This would definitely give advantage and opportunities to the students in the campuses from the remote sites. In addition, the student educators would acquire experiences of interacting and using such ICT-Skil technologies.

Community Support

This initiative and effort of merging the education colleges into University Campuses was overwhelmed supported by the community and well-wishers.

Japan Funds Donation:

The Japanese Government through the UNESCO project donated funds to the University for Purchase of ICT equipment for the merged campuses. Various ICT equipment was purchased at a cost of One Hundred and Seventy Eight Thousand Seven Hundred and Twenty

Table 1. ICT Resources Purchased by UNESCO

Qty	Item	Description	Price(Namibian Dollars)
12	Computer	HP Pro 3300 MT i5-200S 2.5GHZ 500G 2GB DVD+/-RW MCR Win 7 Pro 64bit Office Ready 1-1-0	N$ 66,660.00
12	Monitors	Samsung 23" Wide, 1920 x 1080, MEGA Contrast, 2ms, Analogue/DVD-D, Tilt Stand, Glossy Black	N$ 23,976.00
12	2GB Memory Modules		N$ 150.00
4	Laptops	HP Probook 4530s – Intel Core i5-2430M, 4GB 1333 DDR3 1DIMM, HDD 640G 5400RPM, DVDRW, 15.6 HD(1366 x 768) AG + CAM, FPR, WWAN, BT, WLAN 802.11 b/g/n, NO Case, 1-1-0	N$ 29,920.00
4	Security Lock Common All		N$ 600.00
12	Projector	Acer Projector – P1201 XGA, DLP 3D, 3700:1, 2700Lm, ECO, CBII, zoom, bag, Autokeystone, 2.5Kg, 2 yr FRR Warranty	N$ 31,740,.00
Total			**N$ 178,728.00**
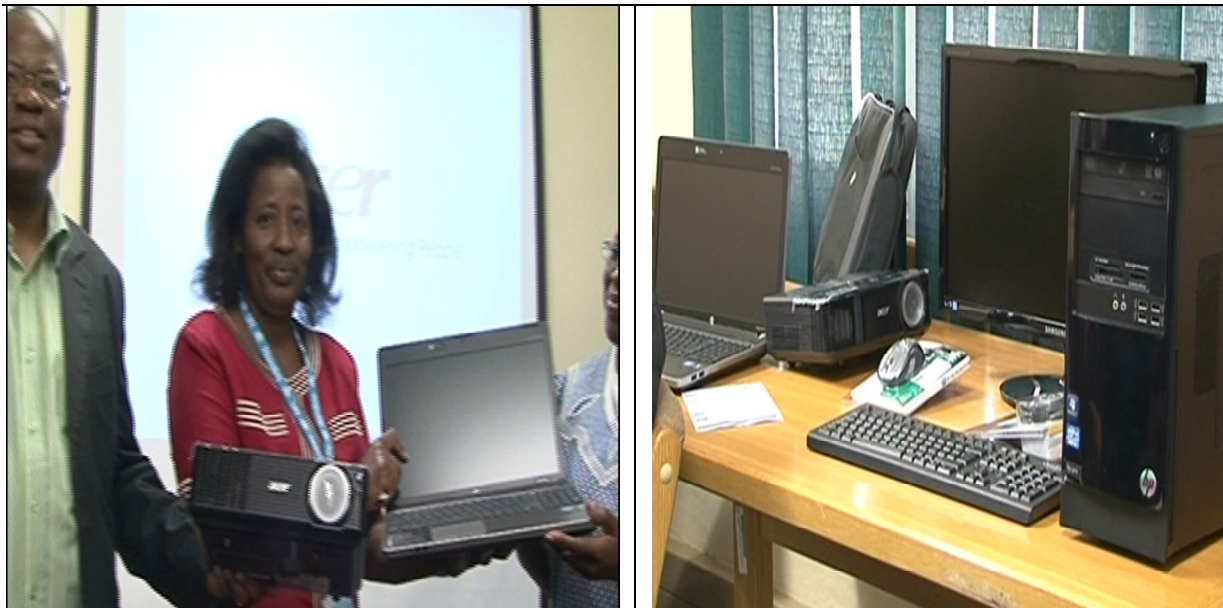
Figure 4. Handover of Equipment from UNESCO Representative to UNAM Management

Eight (N$ 178,728.00) Namibian dollars as indicated in Table 1

This equipment was officially handed over to UNAM by the UNESCO representative at a ceremony handover shown in Figure 4, which was held at UNAM on 25th November 2eir012. Thereafter, the equipment was distributed to their respective merged campuses.

Network Resources

The University has network connected from main campus to all satellite sites in the country. The network is a star topology. However, the University student enrolment is increasing every academic year. In order to de-congest the students from the main network, the institution has introduced the wireless. Though the introduction of wireless had is challenged by the meager availability of the bandwidth which is 17 MB/s. In view of this, such resources have given at least opportunities to all students access Internet. They are able to navigate the net in order to down load the teaching/learning resources.

Integration of ICT into Education Sectors in Namibia

After gaining independence in 1990, Namibia realized the importance and benefits of integrating ICT into the education sector. This was due to the realization of how critical ICT was as a cross-cutting tool to all curricula courses. It was perceived as a tool that would add value to teaching/learning outcomes. According to ETSIP (2005) reported that the main objective of the Government was to develop an education system that would integrate ICTs as a cross curricula tool by identifying themes within the subject areas of Mathematics, Science and English where ICT could add value to the learning outcomes. This report further pointed out that the aim was to provide standard solutions for ICT integration in all schools, such as standard software for science selected using a transparent evaluation instrument which was developed. The teacher guidelines and support materials were also developed enhancing ICT literacy skills competency framework that which was covered at the three levels: foundation, intermediate and advanced. Other reports such as the NETA (2005) narrated that ICT integration workshop for teacher training was conducted at Kasote Combined School, Brendan Simbwaye Primary, Katima Combined, Omaalala Primary, Amutanga Combined and Eden primary schools. The report further pointed out that the training was set to encourage and motivate teachers to start fully integrated ICT in the lesson plans and presentations. That workshop had since at least witnessed a remarkable progress in the way the teachers view ICT integration. In view of that, the Government had not relaxed as ICT was not yet second nature to most of the teachers in the country wide. However, at least, some of them had become more and more comfortable with the utilizatiosn of ICT tools.

ETSIP (2005) again reported that as long ago as 1995, Namibia was fully aware of the importance of ICT when the first ICT Policy for Basic Education was adopted by the government through the National Institute for Educational Development (NIED). That report also emphasized that such an effort was to keep up with the rapid changing nature of ICT and education, and the policy was further revised in 2000 and 2004. In 2005 the Cabinet approved and launched the policy. The policy recognized the unlimited possibilities that ICTs hold in promoting sustainable national development that were in line with Vision 2030, the Public Service Informative Technology Policy, the National ICT Policy, the Second National Development Plan (NDP 2), the Strategic Plan for the Ministry of Basic Education (2001-2006) and Information for Self-Reliance and Development. That launched policy's educational goals emphasized much more on the pedagogical use of ICT as an integrated tool in the teaching-learning process at all levels in the educational system.

Challenges in equipping ict skills to graduate trainee teachers in remote campuses

Despite an effort by the Government to expand the access levels of ICTs in the teaching/learning environment, the learning institutions had been experiencing some challenges. As discussed earlier, the University of Namibia merged the primary and secondary school colleges into University faculty of education campuses. Some of these campuses are in remote areas where accessibility is difficulty. In such campuses, they experience lack of ICT facilities and in-adequate teaching manpower. According to Jameson Mbale (2012) points out that while the institution has managed to reach out the remote campuses in disseminating the teaching, it has also met some operational challenges such as no enough skilled technicians and qualified lecturers. He further emphasised that the postgraduate staff are very few if none in such remote campuses to teach or supervise masters and supervise PhD candidates. Some of the severe shortages of resources were the limited bandwidth which hinders internet access by teacher educators and student teachers. The other constraint is the insufficient budget allocated to ICT infrastructure and integration.

CONCLUSION

The teaching career is the mother of all the professions, because every training in any sector of work has gone through the hands of a teacher in one way or another. Such type of career in this current era requires being equipped with the ICT-Skil. Thus, there is a great need to change the attitudes of teacher educators and student teachers towards ICT use and implementation across the curriculum in teacher education and training. Therefore, the Teacher educators and student teachers should have knowledge of ICT use and integration in order to bridge the digital divide in today's technological age. The emphasis here is that the use and integration of ICT should be implemented across the curriculum in order to ensure the full integration and use of ICT in teacher education.

In conclusion, one would ask a question about the status of the existing teachers who are teaching. To answer such a question, one would suggest that teacher educators should be given in-service training on how to upload and update their subject materials into web based e-learning platforms. Other recommendations would be to train staff development through workshops and short courses for teacher educators in ICT should be encouraged and strengthened.

The other suggestion is for the institution to put ICT-Skil a priority by focusing on the increasing of the ICT budget in order to support ICT use and integration.

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