

Volume 3, 2019

---

**READINESS OF UNIVERSITIES FOR THE 21<sup>ST</sup> CENTURY DIGITAL  
ECONOMIES: A LOOK AT SELECTED LECTURERS FROM  
UNIVERSITIES IN BUFFALO CITY METROPOLITAN IN EASTERN  
CAPE PROVINCE SOUTH AFRICA**

---

Agyei Fosu\*

Walter Sisulu University, East London, South Africa [afosu@wsu.ac.za](mailto:afosu@wsu.ac.za)

\* Corresponding author

---

**ABSTRACT**

---

Aim/Purpose	The purpose of this study is to expand the knowledge base on factors likely to impede implementation and adoption of web-based learning management systems to blend with traditional methods of lecturing in universities to cater for the next generation of learners in Africa and Eastern Cape Province South Africa in particular.
Background	The shift from the industrial economies to 21st century digital and knowledge-based economies, fueled by rapid Information and Communication Technologies (ICTs) such as Internet, YouTube, Chatrooms, Skype, Social media networks and its introduction to the educational system not only resulted in a new teaching approach globally but also paved way to usher in new generation of learners (anytime, anywhere learners) in the higher education system. Despite the fact that universities and other institutions of higher education in developed countries and some Africa countries have since recognized that the 21st century global digital and knowledge-based economies evolution has ushered in the next generation of learners, and as a result have taken the necessary steps to blend the traditional method of lecturing in higher education with web-based learning management systems in order to accommodate these learners. However, in Africa not much research have been done on the readiness of higher education institutions in terms of blending web-based learning management systems with the traditional method of lecturing to cater for the next generation of learners.
Methodology	Quantitative and two non-probability sampling methods, namely, quota and purposive sampling was used to investigate the technological skills of selected lecturers from universities within Buffalo City Metropolitan as one of the core

Accepting Editor: Clarence S Bayne | Received: July 08, 2019 | Revised: September 02 & October 15, 2019 | Accepted: November 10, 2019

Cite as: Fosu, A. (2019). Readiness of Universities for the 21st Century digital economies: A look at selected lecturers from Universities in Buffalo City Metropolitan in Eastern Cape Province South Africa. *International Journal of Community Development & Management Studies*, 3, 65-77, Retrieved from: <http://ijcdms.org/Volume03/v3p065-077Fosu5523.pdf>

(CC BY-NC 4.0) This article is licensed to you under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/). When you copy and redistribute this paper in full or in part, you need to provide proper attribution to it to ensure that others can later locate this work (and to ensure that others do not accuse you of plagiarism). You may (and we encourage you to) adapt, remix, transform, and build upon the material for any non-commercial purposes. This license does not permit you to use this material for commercial purposes.

	component to check the readiness of their faculty for the next generation of learners.
Contribution	This research will add to the growing knowledge about the blending of web-based learning management with the traditional style of lecturing in higher education in the 21 <sup>st</sup> century digital economies.
Findings	The results indicated that the participating lecturers need to be trained and supported in the skills of using of the ICTs and computer programs applicable to enhance web-based learning in teaching and learning environment in higher education in order to cater for the next generation of learners associated with the 21 <sup>st</sup> century digital economies.
Recommendations for Practitioners	Much as there is a need for increased in investment in infrastructure within higher education institutions to support teaching and learning, continuous support and training for academics to be technologically literate and also be abreast on rapidly evolving field of ICTs is paramount as it can expedite the teaching and learning process in higher education.
Recommendation for Researchers	There is the need to explore in depth the other two components suggested by Mishra and Koehler (2007) which can serve as barriers for successfully integration of technology into teaching and learning by locus of knowledge.
Impact on Society	The research will assist stakeholders, policy makers and agencies tasked with transforming institutions of higher learning to identify the barriers likely to hinder transformation efforts and address them accordingly.
Future Research	Checking technological skills of students are critical in this context.
Keywords	ICTs, next generation of learners, teaching, technological skills, lecturers, web-based learning management system, 21 <sup>st</sup> century digital economies.

## INTRODUCTION

---

Every evolution and revolution in any economy brings about a ripple change effect in sectors within that economy. The 21<sup>st</sup> century global digital and knowledge-based economies evolution powered by rapid advancement in ICTs with its gadgets have brought about a global wave of change in the education sector. Institutions of higher learning globally are taking advantage of the 21<sup>st</sup> century global digital and knowledge-based economies evolution by becoming innovative to increase enrolment through cost effective approaches by blending traditional lecture style of an institutional method of delivery with a web-based learning management system for virtual learning to supplement the conventional education at both the undergraduate and graduate levels (Aldosari and Mekheimer, 2013; Volery and Lord, 2000). This is to meet the growing need for higher education globally. This evolution according to Oxagile 2016 started with the introduction of the computer and the internet in the late 20th Century. The early years of computer or technology integration into learning environment (1900 - 2000) was more text based converted to electronic format and placed on the web for students to read. This kind of integration of technology into learning environment did not make use of the multimodal technology and computer-mediated instructional means. It only meant that printing costs were offloaded to the student (Caplan and Graham 2008, Minnaar 2011). With the rapid growth of internet and ICTs the wheels changed in higher education. Internet and ICTs made what was impossible now possible, with a tap on Smartphone or a click on the laptop, information is retrievable anywhere and anytime (ASTD 2008). The rapid growth of ICTs and internet has also led to design and adoption of web-based learning management systems in higher education which is designed to be anytime, anywhere learning changed the sphere of the traditional higher education system where a student is required to be either a full or part-time and be on campus in order to interact/get access to lecturers, tutors, etc. This transformation has created opportunities for learners who cannot afford being on campus still have access to higher education (whom I term the next generation of learners). This infers that the new generation of students is approaching work, learning and everyday life in a new ways. As a results, learning is shifting from a didactic teacher to learner approach to a networked, community-based approached.

Traditional formal educational systems desperately need to make fundamental change to strive for a better survival of formal education because learners' learning patterns and habits have been evolving along with the continuous growth of technology and the internet. This has significant implications for instructional design and development (Caplan and Graham 2008, Kinuthia and Dagada 2008, ASTD 2008, Bell et al. 2009). In other words, as indicated by Hwang (2014), integration of learning technologies and ICTs into learning environment not only enables learners to access digital resources and interact with learning systems in any place and at any time, also it actively provides the necessary learning guidance, hints, supportive tools or learning suggestions in the right place, right time and right form. Additionally, it would also solve the resource constraints traditional higher education institutions typically experience due to restrictions imposed by the physical conditions such as lecture hall size and limited student's residences. For instance, a university may restrict admissions to a particular course due to space constraints and other similar restricting factors. Thus, it is common for prospects' students to not be able to enroll in a course that they are much interested in, if the demand for that course is high. Blending of web-based learning management systems with traditional method of lecturing in higher education institutions supported by the advances in ICTs would eliminates those restrictions, enabling many of learners to enroll in courses and programs of their choice and interest. Phillippo and Krongard (2012 ), believes a learning management system is the "great enabler" of many current and future education initiatives, such as personalized learning, learner-centered decision making, staff productivity, and curriculum development in support of Common Core State Standards.

Studies have revealed that the adoption of web-based learning management systems into in higher education system is confronted with various challenges, such as inadequate training of lecturers and students, high cost of technology, poor decisions, poor IT infrastructure, unstable internet systems and unreliable electricity in developing countries (Maina and Nzuki, 2015, Macedo-Rouet, 2009, Alias et al. 2005). However, very little research has been done in Africa to investigate the factors that are impeding blending of web-based learning management systems and traditional method of lecturing in higher education to cater for next generation of learners.

### ***BACKGROUND AND PROBLEM STATEMENT***

This study seeks to investigate readiness of universities for next generation of learners using lecturers from various faculties of universities in Buffalo City Metropolitan Eastern Cape as case study. Advances in communication technologies (ICTs) and its gadgets like Internet, YouTube, Skype, Smart phones, Laptops, etc are the macroeconomic megatrends that will continue to shape the 21<sup>st</sup> century global digital and knowledge-based economies. These technologies without a doubt for the next few decades will be at the very heart of every sector of the economy to a point where we see 'traditional' telecoms as a sector morphing into a service with no discernible boundaries; one that is able to permeate and shape the development of the vast majority of industries present and yet to be created. Teaching and learning have taken a new dimension as teachers in tertiary educational institutions across the globe have taken advantage of information technology innovations to deliver lessons and fulfill other important roles as teachers to their students. According to Zhu et al. (2016) learning is defined as a process of acquiring competence and understanding thus the process requiring effective interaction and collaboration between the source of knowledge and the learner. For instance Bandura (1977) conceive learning as a social process that occurs through interactions, collaboration, and sharing information with each other. Many researchers like Bandura (1977), Vygotsky (1978), Bloom (1984), Cornford and Pollock (2003), Fosu (2017) just to mention a few have done a lot of study on the vital role of interaction, collaboration and the use of technology as a support platforms in the sphere of teaching and learning. The findings of Cornford and Pollock (2003) and Fosu (2017) suggest using technology in higher education have advantages to the learner. This illustrates and affirms the fact that these technologies are global, seemingly irreversible forces that requires every sector (including higher education institutions) within the 21<sup>st</sup> century global digital and knowledge-based economies evolution readiness for the manifestation and shaping of these technologies if they want to stay functional.

Faced with this irreversible force, *a major question arises: how can lecturers who are the locus of knowledge within higher education system successfully integrate technology into delivering lessons and also to fulfill other important roles in order for universities to be ready for the 21<sup>st</sup> century global digital and knowledge-based economies evolution?* Mishra and Koehler in (2007) explained that at the core of good teaching with technology are three core components: Content Knowledge (CK), Pedagogy Knowledge (PK), and Technological Knowledge (TK), by correctly relating these three core components as suggested by Mishra and Koehler, one is led to successful integration of technology into delivering lessons. But as cautioned by O'Neill et al., (2004) that a hurried adoption of technology can create a hurdle for faculty and students who lack the necessary skills, experiences, and expertise to function successfully. This has given interest to the researcher to investigate technological skills of lecturers from various faculties of universities within Buffalo City Metropolitan as one core component to check the readiness of these universities in Eastern Cape Province for the 21<sup>st</sup> century global digital and knowledge-based economies evolution. Buffalo City Metropolitan has three public and a private universities branch campuses with estimated population of about 204 lecturers. South Africa has a history that is characterized by socio-cultural divisions along race and class lines. During the peak of apartheid, Homelands and black institutions of higher learning which were designed to be inferior to other race were purposeful created for blacks. Eastern Cape Province had two former Homelands-Transkei and Ciskei and majority of black institutions of higher learning. The province is mainly rural and an area of widespread and deep poverty where illiteracy, unemployment and poor access to basic and social services continue to be en-

demic. Furthermore, the province according to Westaway (2012) is characterized by a large rural population with agricultural based rural economy, a high proportion of young people faced with high levels of unemployment and a great need for sustainable socio-economic development. Access to quality and higher education is paramount to the economic development of the province since education contributes positively to the fight against unemployment, poverty and promotes growth and development.

### ***RESEARCH OBJECTIVES***

The main objective of this study is to examine the technological skills of the selected lecturers as one component to check the readiness of their faculties to offer a blended web-based learning management system with traditional method of lecturing to the new generation of learners. In order to achieve the general objective for this study, the following specific objectives guided the study:

1. To determine the highest level of educational qualification, academic ranks and certificate of competence in computer usage of the selected lecturers.
2. To analyze ease of use of basic computer and ICT programs on their personal computer (PC) and ICT gadgets.
3. To determine internet usage proficiency.
4. To determine overall perceived readiness of the selected lecturers for online and web-based learning.

### ***RESEARCH QUESTIONS***

The following questions guided the study:

1. What is the gender of participants?
2. What is the highest level of educational qualification and academic ranks of participants?
3. Length of service of participants in their current positions?
4. Do participant possess any certificate of competence in computer usage?
5. Do they have computer/Laptop in their office and Smart or Mobile phone with internet, social media apps?
6. Are they capable of learning new technologies?
7. Are they capable of sending, receiving and attaching files to email, WhatsApp, Facebook messages?
8. Are they capable of using standard word processing, copy and paste text using computer and their Smartphone as well as manage files on their computer and Smartphone?
9. Are they competent in internet browsing, downloading new software and installing when necessary?
10. Are they capable of using discussion boards and chartrooms online to disseminate information?
11. Are they ready as lecturers in terms of using technological tools for online or web-based learning in their departments?

### ***RESEARCH HYPOTHESIS***

The study takes a stand that the readiness of the participant's faculties for the next generation of learners will be hindered by their technological skills.

## **LITERATURE REVIEW AND GAP TO BE FILLED**

---

Existing literature (Clay-Pedersen and O'Neill 2005, McLaughlin et al. 2014, Price 2015, Zhao et al.2009) indicates universities and other institutions of higher education in developed countries like USA, Britain, Australia, China, etc., have long recognized the 21<sup>st</sup> century digital and knowledge-based economies evolution and as a result have developed and integrated systems like learning management systems, mobile and ubiquitous learning systems, various artificial intelligence based adap-

tive and intelligent tutoring/learning into their learning environment. In Africa according to the works of researchers like Marfo and Okine 2010, Adjin-Tettey 2014, Asampana et al. 2017, Maina and Nzuki, 2015, a significant universities in Kenya and Ghana like Kenyatta University, Kwame Nkrumah University of Science and Technology-Kumasi, University of Education-Winneba, University of Professional Studies-Accra, just to mention a few are blending the environments of web-based learning management systems with traditional methods of lecturing to provide students with both online and face-to-face learning to enable working students to obtain their education in parallel with pursuing their personal goals as they are not always restricted to the lecture halls and also as a strategic tool for managing the growing number of students accessing tertiary education globally in recent years. In South Africa, the works of Fosu (2017), Damoense (2003), Kinuthia and Dagada (2008) shows that there are few universities like University of South Africa (UNISA), University of Cape Town, University of Johannesburg, University of Pretoria, all have implemented and blended web-based learning management system with traditional lecturing to provide students with studying and working at the same time opportunities. Universities in the Eastern Cape Province have not been adequately documented. This has given interest to the researcher to investigate universities situated in Buffalo City Metropolitan in Eastern Cape Province readiness in terms of technological skills of its lecturers to implement and blend web-based learning management system with traditional lecturing to accommodate next generation of learners. O'Neill et al., (2004:321) argued that a hurried adoption of technology can create a hurdle for faculty and students who lack the necessary skills, experiences, and expertise to function successfully. This assertion has been confirmed by numerous studies. The study conducted by Asampana et al., (2017) at the University of Professional Studies, Accra to investigate the factors affecting post implementation success of a web-based learning management system revealed that although the learning management system (LMS) has been integrated into the teaching and learning structures of the University for some time, its total embracement is low due to factors such as inadequate training and technical support, low internet connectivity, high down time of the LMS, and other infrastructural issues. Educators lacking the required skills and knowledge for effective web-based learning course instruction and delivery have been pointed out by Bagdon and Gross, (1997). Furthermore, a study by Cronje (2001) affirmed that lack of technological skills is major concerns for lecturers using WebCT in their teaching programs. In 2015 a study conducted at five Universities within Nairobi Metropolitan Kenya, found that expected performance, enabling infrastructures, institutional policies, training support and leadership and ease of effort use influence adoption of web-based learning management system in institutions of higher learning (Maina and Nzuki, 2015). Implementation of web-based learning management system in institutions of higher learning not only does it require resources such as computers, printers, multimedia projectors, scanners and many others, which according to Gulbahar (2007) may or may not be available in most educational institutions but also the necessary skills to use these gadgets effectively are equally important. The current study examine technological skills of lecturers within different universities faculties as one core component to check the readiness of the faculties to offer a blended web-based learning management with traditional method of lecturing to the new generation of learners.

### ***OVERVIEW OF GLOBAL EVOLUTION OF HIGHER EDUCATION SECTOR AND SOUTH AFRICA IN PARTICULAR***

The global demand for people to enhance their employment potential by means of higher education is as a result of the shift from industrial economies to digital and knowledge-based economies evolution which increased in economic need for skills such as exploratory skills to explore natural and physical resources, exploitation skills to convert these resources into consumable goods and services, management skills to manage the exploration, production and distribution of goods and services, negotiation skills to establish fair work rules, a reward system and internal and external terms of trade, conservation of skills to sustain development of future generations and moral and ethical skills. Enrolments in higher education globally with the dawn of the twenty-first century increased, according to the research of UNESCO, from 72 million in 1999 to 133 million in 2004 as highlighted

in (CHE, 2005). In South Africa, politics played a major role in the history of universities and other higher education institutions especially after the extension of the University Act of 1959 by the apartheid government. This led to the establishment of racially segregated higher institutions of learning in terms of white and black. Black institutions of higher learning in the apartheid era was crafted in all aspects to be inferior to the white institutions and black universities were constructed in the Bantustans or the former Homelands, namely in the Transkei, Bophuthatswana, Venda and Ciskei. Ten historically black universities and fifteen technikons (now Universities of Technology) were established during the apartheid regime. Seven of the fifteen technikons were historically white institutions, one was established for distance education and the rest were historically black. After dismantling the apartheid system, South Africa in the global knowledge-driven economy, the new government had to redress the inequalities that existed in the fragmented higher education system created by the former apartheid system. The initiatives of the process of an increase in participation of quality higher education led to the development of a single higher education system as the only way in which the inequities, ineffectiveness and inefficiency of the apartheid system could be eradicated (CHE, 2005).

### ***THE ROLE OF HIGHER EDUCATION IN A COUNTRY'S ECONOMIC SECTOR***

According to Kinuthia and Dagada (2008) the role of higher education in a country's economic sector worldwide is to fulfill several tasks including that of ensuring that graduates are suited to, and competent for the specialized labor skills required by the industrial sector of the economy. Also higher education is tasked with making a contribution to developing individual capabilities that further enables one to make a greater social contribution. As part of the attempts to redress the historically-based inequalities created by the former apartheid system, higher education institutions in South Africa are charged with meeting goals of equity and social development by the South African government.

### ***THE ROLE OF LOCUS OF KNOWLEDGE (EDUCATORS/LECTURERS) IN TEACHING AND LEARNING ENVIRONMENT***

Educators/lecturers are the locus and disseminators of knowledge when it comes to teaching and learning (Nampota, 2005). According to Shulman (1986), teaching involves a transformation of subject matter (content) into forms that are accessible to learners by the locus of knowledge. For instance, although the content and consequently, goals for the course may already be pre-determined by curriculum developers in the syllabi or course outlines, it is the locus of knowledge that in turn selects teaching methods in order to deliver them to the learners. The summary judgment from Shulman (1986) definition of teaching is that the locus of knowledge makes use of and consequently has a reasonable degree of control over most factors influencing the teaching and learning situation such as goals, general and subject specific teaching methods and the general conditions and context. This is the reason why locus of knowledge is regarded as a key leverage point in the teaching and learning environment.

## **METHODOLOGY**

---

Two non-probability sampling methods were used to select 62 participants in this study, namely, quota and purposive sampling. Babbie and Mouton (2001) describe quota sample as a type of non-probability sample in which units are selected into the sample on the basis of pre-specified characteristics, so that the total sample will have the same distribution of characteristics assumed to exist in the population being studied. To ensure fair representativeness, respondents were selected from each department within the various faculties across the selected universities. According to Bailey (1982), in purposive sampling the investigator uses his or her own judgment about which respondents to choose, and picks only those who best meet the purpose of the study. This was aimed at getting as

more relevant and valuable information for the research as possible. Quantitative method was used in the study and analysis of data was done using Microsoft Excel Package for the descriptive statistics, for closed questions on the questionnaire and thematic analysis related to the open-questions.

## ANALYSIS AND RESULTS

As it is evident that locus of knowledge and their skills are crucial resource to teaching and learning environment, Malloes and McNeil (2005) assert that, in order for locus of knowledge to address needs more effectively, they need to upgrade their skills of presenting lessons and subject knowledge regularly. Technological skills have become one of the skills required in the 21st century digital age (Jenkins et al. 2009). In 2007 Mishra and Koehler addressed the worrying question how to integrate technology into teaching by proposing that correctly linking the relationship between the three core components (Content Knowledge, Pedagogy Knowledge & Technological Knowledge: see Mishra and Koehler 2007 for more details) locus of knowledge must have, will lead to good integration of technology into teaching. Suggesting that if one or more of the three core component is lacking there will be difficulty in the integration process. The findings of the study are as follows: Table 1 below reveals the demographic profile of the participants. As noted by Venkatesh et al., (2003) gender, age, experience and educational background are key factors that influence usage and acceptance of technology in teaching and learning environment. The age distribution of the respondents who took part in the study is shown in Table 1. The results in Table 1 indicates majority of respondents were between 44 – 49 years (27.4%), followed by 32 – 37 years (21.0%), 16.1% were between 38 – 43 years and 50 – 55 years with the least 3.2% between the ages 26 – 31 years and 62 – 67 years. The proportion of male's respondents was 66.1% while that of female was 33.9%. The experience of respondents in Table 3 indicated that respondents had good lecturing experience with only three respondents representing 4.8% that fell below six years lecturing experience.

**Table 1: Demographic Profile of Participants (N = 62)**

Item	Frequency	Percentage
<b>Age</b>		
20 – 25	-	-
26 – 31	2	3.2
32 – 37	13	21.0
38 – 43	10	16.1
44 - 49	17	27.4
50 – 55	10	16.1
56 – 61	8	12.9
62 – 67	2	3.2
<b>Gender</b>		
Female	21	33.9
Male	41	66.1
<b>Educational background</b>		
PhD	11	17.7
Masters	30	48.4
Honors Degree	5	8.1
Postgraduate Diploma	7	11.3
Bachelor's Degree or Bachelor of Technology	9	14.5
<b>Experience of respondents</b>		
<b>Years</b>	<b>Frequency</b>	<b>Percentage</b>
1 – 5	3	4.8
6 – 10	6	9.7

11 – 15	33	53.2
Above 15	20	32.3
Academic rank of participants		
Rank	Frequency	Percentage
Professors	4	6.5
Senior lecturers	6	9.7
Lecturers	49	79.0
Associate/Junior lecturers	3	4.8

In South Africa, universities are divided into three main streams namely: (1) Traditional universities, which offer theoretically-oriented university degrees; (2) Universities of Technology, which offer practically-oriented diplomas and degrees in technical fields; (3) Comprehensive universities, which offer a combination of both types of qualification. Of the three sampled universities branch campuses based in Buffalo City Metropolitan, each grouping of universities in South Africa had one university campus fall under. It also explains why some respondents have a qualification of Bachelor of Technology (14.5%) in as lecturers. The findings in Table 1 also indicate most of respondents had good education of up-to PhD levels.

**Table2: Means of access to ICT at office and outside office (N=62)**

ICT device	Frequency	Percentage
Computer(PC or Laptop)	62	100
Mobile phone(With Internet function )	62	100

Table2: shows the means of access to ICT in and out of office of the selected participants. The result shows that all respondents (100%) have access to ICT in and out of office. However, as noted by Morrow, (2003) in the context of teaching and learning while physical access to e-tools and technology is vital, it does not guarantee epistemological access.

**Table3: Certificate of competence in computer usage (N=62)**

Statements	Frequency	Percentages
International Computer Driving License (ICDL)	7	11.3
Done short course in computer essentials (like word processing, excel, PowerPoint, internet usage, etc)	12	19.4
Not yet	43	69.4

Table3 shows certificate of competence in computer usage. Flippo (1960) have asserted that the confidence of one to participate in a subject is influence by one having acquired the right qualification or trained in the subject. Therefore, as academics, participants were asked in order to establish whether they do possess any certificate in computer usage. The results in Table 3 above indicate more than half (69.4%) have not received a qualification in computer usage.

**Table4: Ease of use of basic computer and ICT programs on PC and ICT gadgets (N=62)**

Are you capable of sending, receiving and attaching files to email, WhatsApp, Facebook messages?		
Statement	Frequency	Percentage
Excellent	58	93.5
Good	4	6.5

Average	-	-
Poor	-	-
<b>Are you capable of using standard word processing, copy and paste text using computer and your Smartphone as well as manage files on your computer and Smartphone?</b>		
Excellent	54	87.1
Good	5	8.1
Average	3	4.8
Poor	-	-
<b>Are you competent in internet browsing, downloading new software and installing when necessary?</b>		
Excellent	9	14.5
Good	15	24.2
Average	12	19.4
Poor	26	41.9
<b>Are you capable of learning new technologies?</b>		
Excellent	7	11.3
Good	17	27.4
Average	8	12.9
Poor	30	48.4
<b>Are you capable of using discussion boards and chartrooms online to disseminate information?</b>		
Excellent	7	11.3
Good	15	24.2
Average	16	25.8
Poor	24	38.7

Table 4 shows functions/programs participants are confident of using day-day on their ICT devices and PC. The poor results (48.4%, 38.7%) revealed in Table 4 by the study findings especially when it comes to the questions whether they are capable of learning new technologies and using online discussion board, chartrooms to disseminate information suggest that, respondents will have a challenge to disseminate effectively the content knowledge of their subjects from them to students in a case where they are using online learning management platforms to deliver lessons.

**Table5: Perceive readiness to use technological tool for online or web-based learning in respondent's department (N=62)**

Statement	Frequency	Percentages
Yes	28	45.2
No	34	54.8

Table 5 shows perceive readiness to use technological tool for online or web-based learning in respondent's department. The results shows that majority of respondents (54.8%) are not read to use technological tool for online or web-based learning.

## CONCLUSION AND RECOMMENDATION

The over findings from the study reveal shortcomings of respondents in terms of their readiness to blend web-based learning management tools with traditional lecturing method of delivering lessons to accommodate the next generation of learners. Substantial proportion of respondents based on the

results of Table 4 are perceived to have inadequate technological skills to enable them to integrate or use web-based learning management tools to complement the traditional lecture style of course delivery. For example looking at the percentages of poor results (41.9%, 48.4%, and 38.7%) in terms of internet browsing, downloading and installing, using discussion boards and chatrooms to disseminate information in Table 4 reveals a shortcoming. E-learning platform like BlackBoard for instance, requires setting up, updating, managing files and documents as well as downloading additional study materials like educational videos from YouTube, Internet or sometime making a lecture video to upload on the platform for students but with these results of high percentage of poor skills, there will be a struggle on the side of respondents to successfully use the BlackBoard tool. This finding confirms the assertion of Palloff and Pratt (2010) that says, the skills of using the online or web-based learning management tools should be seen as electronic pedagogy thus, even seasoned academics should be trained in electronic pedagogy. In this regard, the caution a hurried adoption of technology can create a hurdle for faculties and students who lack the necessary skills, experiences, and expertise to function successfully cannot be overlooked. Thus, the hypothesis of the study cannot be rejected considering the results in Table 5 (54.8% of not ready). From the results and discussion above, it is clear that respondents have inadequate technological skills to integrate web-based learning management tools with the traditional lecturing style of course delivery in institutions of higher learning. Thus, their faculty's readiness to cater for the next generation of learners introduced by the 21<sup>st</sup> century global digital and knowledge-based economies may be hindered by the component of technological skills of their locus of knowledge.

According to Calitz (2000), the lack of support for educators especially in the areas of provision of in-service training and necessary teaching tools to empower them to upgrade their teaching skills and successfully deliver lessons in most Africa educational institutions is characterized by lack of state funding. In line with what Kuo, (2009) recommends, administrators and funders of institutions of higher learning in Africa must be proactive in their encouragement and support of all teachers as they integrate technology in teaching and learning environment. Technology integration into teaching and learning must be seen as a continuous effort that requires not only support but also knowledge of instructional web tools and course integration techniques in order to achieve successful development and teaching of courses (Kinuthia and Dagada 2016). Furthermore, with the fast-paced development of technology and ICTs, the support administrators can give will be in this case training in and availability of latest technology for academics to keep abreast with the fast-paced of technology and ICTs.

## REFERENCES

---

- Alias, N. A., & Rahman, N. S. N. A. (2005). The supportive distance learning environment: A study on the learning support needs of Malaysian online learners. *European Journal of Open, Distance and e-learning*, 8(2).
- Asampana, I., Akanferi, A. A., & Ami-Narh, J. (2017). Reasons for poor acceptance of web-based learning using an LMS and VLE in Ghana. *Interdisciplinary Journal of Information, Knowledge, and Management*, 12, 189-208.
- Bear, D. J., Tompson, H. B., Morrison, C. L., Vickers, M., Paradise, A., Czarnowsky, M., & King, K. (2008). Tapping the potential of informal learning. *An ASTD research study*. Alexandria, VA: American Society for Training and Development.
- Babbie, E., & Mouton, J. (2001). *The Practice of Social Research* (Cape Town: Oxford University Press South Africa).
- Bagdon, K., & Goss, H. (1997, July). Teaching and learning on the Internet: Developing a resource for academic support. In *AusWeb97 Conference Program and Papers*. [Online]. Available: <http://ausweb.scu.edu.au/proceedings/goss/index.html> [December 6, 1997].
- Bailey, K. (2008). *Methods of social research*. Simon and Schuster.
- Bandura, A. M. DC (1977) Social learning theory. *Englewood Cliffs, NJ: Prentice-Hall*.

## Readiness of Universities for the 21<sup>st</sup> Century Digital Economies

- Beldarrain, Y. (2006). Distance education trends: Integrating new technologies to foster student interaction and collaboration. *Distance education*, 27(2), 139-153.
- Calitz, M. G. (2000). *Guidelines for the training content of teacher support teams* (Doctoral dissertation, Stellenbosch: Stellenbosch University).
- Clayton-Pedersen, A., & O'Neill, N. (2005). Curricula designed to meet 21st century expectations. *Educating the net generation*.
- CHE, (2005). *Annual Report of the Council on Higher Education 2004/2005*, January 2005
- Cornford, J., & Pollock, N. (2003). *Putting the University Online: Information, Technology and Organizational Change*. Routledge Customer Service, 10650 Toebben Drive, Independence, KY 41051 (hardback: ISBN-0-3352-1006-6, \$95; paperback: ISBN-0-3352-1005-8, \$30.95).
- Cronje, M., & Murdoch, N. (2001, September). Experiences of lecturers using WebCT, from a technology adoption perspective. In *3rd Annual Conference on World Wide Web Applications, Rand Afrikaans University, South Africa* (pp. 5-7).
- Damoense, M. Y. (2003). Online learning: Implications for effective learning for higher education in South Africa. *Australasian Journal of Educational Technology*, 19(1).
- Fosu, A. (2017). Technology versus quality education in an underdeveloped region: A case study of UNISA students in former Ciskei homeland in Eastern Cape. *Informing Science: International Journal of Community Development & Management Studies*, 1, 1-11.
- Flippo, E. B. (1976). *Principles of personnel management*. McGraw-Hill.
- Gülbahar, Y. (2007). Technology planning: A roadmap to successful technology integration in schools. *Computers & Education*, 49(4), 943-956.
- Hwang, G. J. (2014). Definition, framework and research issues of smart learning environments—a context-aware ubiquitous learning perspective. *Smart Learning Environments*, 1(1), 4.
- Jenkins, H. (2009). *Confronting the challenges of participatory culture: Media education for the 21st century*. MIT Press.
- Kinuthia, W., & Dagada, R. (2008). E-learning incorporation: an exploratory study of three South African higher education institutions. *International Journal on E-learning*, 7(4), 623-639.
- Kuo, H. M. (2009). Understanding relationships between academic staff and administrators: An organisational culture perspective. *Journal of Higher Education Policy and Management*, 31(1), 43-54.
- Macedo-Rouet, M., Ney, M., Charles, S., & Lallich-Boidin, G. (2009). Students' performance and satisfaction with Web vs. paper-based practice quizzes and lecture notes. *Computers & Education*, 53(2), 375-384.
- Maina, M. K., & Nzuki, D. M. (2015). Adoption determinants of e-learning management system in institutions of higher learning in Kenya: A Case of selected universities in Nairobi Metropolitan. *International Journal of Business and Social Science*, 6(2).
- Mallows, D., & McNeill, R. (2005). Special report numeracy. *The Magazine of NRDC*, 1(2), 01.
- Marfo, J. S., & Okine, R. K. (2010). Implementation of e-learning in Ghanaian tertiary institutions (A case study of KNUST).
- Minnaar, A. (2011). Student support in e-learning courses in higher education—insights from a metasynthesis “A pedagogy of panic attacks”. *Africa education review*, 8(3), 483-503.
- Mishra, P., & Koehler, M. J. (2007, March). Technological pedagogical content knowledge (TPCK): Confronting the wicked problems of teaching with technology. In *Society for Information Technology & Teacher Education International Conference* (pp. 2214-2226). Association for the Advancement of Computing in Education (AACE).
- Morrow, W. (1993). Epistemological access in the university. *AD Issues*, 1(1), 3-4.
- Nampota, D. C. (2005). *School to university transition: the relationship between the school integrated science curriculum and university science and technology programmes in Malawi* (Doctoral dissertation, University of Bath).

- O'neill, K., Singh, G., & O'donoghue, J. (2004). Implementing elearning programmes for higher education: A review of the literature. *Journal of Information Technology Education: Research*, 3(1), 313-323.
- Obisat, F. M., Alrawashdeh, H. S., Altarawneh, H., & Altarawneh, M. (2013). Factors affecting the adoption of e-learning: Jordanian universities case study. *Computer Engineering and Intelligent Systems*, 4(3), 32-39.
- OECD. (2005). E-learning in tertiary education. Policy Brief, 1-8. Available at: <http://www.oecd.org/dataoecd/27/35/35991871.pdf> [Accessed : 15th January 2018]
- Oxagile. (2016). History and trends of learning management system. Available at: [contact@oxagile.com](mailto:contact@oxagile.com) [Accessed: 15th January 2018]
- Palloff, R. M., & Pratt, K. (2010). Beyond the looking glass. *Handbook of online learning*, 370-386..
- Phillipo, J., & Krongard, S. (2012). Learning Management System (LMS): The missing link and great enabler. *Massachusetts ASCD Perspectives*, 1-7.
- Selim, H. M. (2003). An empirical investigation of student acceptance of course websites. *Computers & Education*, 40(4), 343-360.
- Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational researcher*, 15(2), 4-14.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.
- Vygotsky, L. (1978). Interaction between learning and development. *Readings on the development of children*, 23(3), 34-41.
- Welman, J. C., & Kruger, S. J. (2001). *Research methodology for the business & administrative sciences*. Oxford University Press Southern Africa.
- Zhao, J., McConnell, D., & Jiang, Y. (2009). Teachers' conceptions of e-learning in Chinese higher education: A phenomenographic analysis. *Campus-Wide Information Systems*, 26(2), 90-97.

## BIOGRAPHY

---



Agyei Fosu is a lecturer in the Department of Information Technology at the Walter Sisulu University where he lectures Information Technology Skills as well as mathematics for IT. He is actively involved in ICT in education and in business research.