

# **Improving Learning Outcomes and Quality through ICT in University Distance Education**

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## **Abstract**

*Most universities in Kenya have double intakes, for regular and parallel programmes where distance learning is preferred as a mode of study for students who may not want residential training. Due to mass intakes in Kenya since the inception of 8-4-4 system of education, resources are overstretched. The most affected students are those in distance learning where internet is not reliable and ICT experts are insufficient or students are not complaint with this system of learning. The purpose of this study was to investigate the place of ICT in university education and its effects on quality learning outcomes. Universities, both in regular and long distance study have drastically opened more learning campuses and centers to take learning to the people. This mass intake has put pressure not only on lecturers but also on ICT delivery and other learning resources with the risk of compromising quality education. To achieve clear outcomes, the study has employed both cognitive and quality education models to conceptualize the summary of the study. The study analyzed requirements of university education viz a viz the effects of ICT on quality education. Qualitative design and research methods such as purposive and random sampling were used to gather both primary and secondary data. Respondents were drawn among students, lecturers and relevant university management staff. Classroom discussions and workshops were also considered to generate informative data. To evaluate the significance of the study and its learning outcomes, detailed information related to ICT platforms was collected from two universities, Kenyatta University and St. Paul's University which represented public and private universities respectively. These results illustrate that the quality of ICT resources positively or negatively determine learning outcomes today.*

***Key Words: ICT, Education, Quality, Learning Outcomes, Resources.***

## **Introduction**

Distance education is increasingly getting preference in most universities not only in Kenya but globally. Oanda (2008)<sup>i</sup> established that the integration of private higher education with public universities is the most fundamental transformation that has taken place in Africa in the last three decades. Today, students who may not afford residential learning can easily enroll through distance learning. This study focuses on the situation in Kenya. There are over 40 universities in Kenya with branches spread all over the country. These are: Nairobi, Kenyatta, Moi, Maseno, Masinde Muliro and Jomo Kenyatta, among other public universities. Private universities include but are not limited to: St. Paul's University, Methodist University, Catholic University of Eastern Africa, Baraton University, Scott's University, Mount Kenya University, and Daystar University.

Both public and private universities also have phenomenally extended their services to the people through two main ways: opening of satellite campuses and beginning of several new programmes according to the demand in the market. This transformation has been necessitated by a high demand for university education due to the swelling number of students left out by the Joint Admission Board (JAB). The other reason is due to the many in the working class who have risen to the occasion to advance their education but within the reach of their working environment. Competition among universities has been an alarming trend in the creation of many off campus branches and programmes in the universities. The main problem that has motivated this study is the fact that lack of ICT resources, qualified lecturers and students has led to poor learning and teaching outcomes.

The study set out with the following three objectives: firstly, to identify and explain ICT platforms used in distance learning, secondly, to discuss challenges faced by both students and lecturers in distance learning and finally, to analyze mitigation measures to challenges in distance education or suggestions thereof to improve learning using ICT in distance education.

The study is presented in five main sections according to the objectives of this study: section one is introduction, section two discusses literature review and definition of concepts. It also gives a discourse and profiles main programmes in these universities. Section three is research methods. The fourth section is on findings and discussions, it analyses how to improve learning through ICT for better outcomes.

### **Literature review**

According to Oxford Advanced Learner's Dictionary<sup>7<sup>th</sup></sup> (e.d.) (2010), distance learning is a system of education which people study at home with the help of special internet sites and television and radio programmes, and send or email work to their teachers/lecturers. It may as well be said to be the teaching and learning where students, learners, and lecturers are separated from one another most of the time. Today, information and communication technology (ICT) and other media platforms come in handy where face-to-face contact is limited. Oanda (2008) and Wandiga (1997) have observed that the liberal market economy in education has relaxed various restrictions that limited the provision of higher education. Universities have taken this advantage to expand their services by creating more programmes and satellite campuses. Unlike regular programmes, distance learning and other related programmes where learners only come to campus for a few weeks depend heavily on ICT. This is specifically supported by analysis from these universities.

Kenyatta University is now the largest university in Kenya with a student population of over 72,000 students and over 3,000 staff from its first batch of 200 students, at inception as a college in 1965. It became a constituent college of University of Nairobi in 1970 offering mainly Education programmes. It gained full-fledged university status in 1985. It has over twelve campuses offering certificate to Doctoral programmes, over eighteen schools that offer courses in open-learning, e-learning, school based, part time and full time teaching. The campuses include: Ruiru, Parklands, Kericho, Kitui, Mombasa, and Nakuru. Regional centres for the Institute of Distance, Open and E-learning (odel) now under the Digital School of Virtual learning are: Kakamega, Kisumu, Garissa, Embu, Nairobi, Nyeri among others.

Secondly, according to Onyango (2003)<sup>ii</sup>, St. Paul's University (SPU) was established in 1903 as a Divinity School by CMS in Freetown and later moved to Limuru to train leaders for the church in Africa. In 1955, the Divinity School changed focus and became a United Theological College, later to be named St. Paul's United Theological College (Onyango, 2003). On 14<sup>th</sup> September 2007, the college was granted a charter to operate as a fully-fledged private Christian university. By 2016, it had the main campus in Limuru and three other satellite campuses strategically located for ease of access in Nairobi Campus (Church House), Nakuru Campus which is located next to ACK Cathedral, and Machakos Campus which is in Kinyali and Anglican Church of Kenya (ACK) Machakos Building. SPU has grown from offering undergraduate and Diploma programmes to postgraduate programmes. According to SPU registry records, (2016) the current student population in all campuses has been growing gradually. Approximately, the Main Campus (Limuru) had 800 students, Nairobi Campus (Church house) had 3500, Machakos Campus had 300 and Nakuru Campus had 400.

Most of the students in these growing university campuses are not residential. Universities do not have the residential capacity to house everyone on campus given the huge intakes. The rationale for ICT enabled learning is that it helps those who are unable to take up campus based full time studies because of various reasons such as work, family ties, financial constraints, health issues, long distance among others.

According to Barbara (2010)<sup>iii</sup>, the 21<sup>st</sup> century learning aims for student-centred learning rather than focusing on lecturers as the route to quality progress. Student-centered learning aims at student full participation with lecturers' guidance. However, this also means that students who lack skills in information technology may have additional challenges in online interaction. For example, learners may have challenges in utilizing all the sources of assessment information such as observation of students learning process, diagnostic teaching which helps in identifying the strategies and skills of learners during face-to-face learning. Therefore for universities to engage in distance education and achieve greater results, they must put in place structures such as electricity and internet connectivity to facilitate ICT based learning. Effective learning is measured by the product or outcome. Massive intakes that disregard prerequisite requirements have produced graduates who lack the skills to engage in particular areas of their specialty. This has led to overhaul of the education system time and again to suit the market needs. In 2017, a plan to change from 8-4-4 system of education to another was put in place. This is why this study is timely as to establish ways to improve learning in distance education that is relevant to the needs in the market. Therefore, to achieve greater outcome, the learning process in education in the universities has to be redefined.

Burns (2008)<sup>iv</sup> defines education as involving the integration of knowledge with the self, where knowledge is defined by and helps to define the self. He further defines learning as a social interactive and constructionist activity. That is in order to learn, we must engage with other people and with knowledge claims in an active interactive way: we must be in a position to question and challenge the arguments and evidence that are put before us in lectures and other classes and in our reading. Ogula (2009) has ably identified some of the functions of a university, issues that touch on this study and the role performed by institutions of higher learning as regards to the expansion of programmes and university campuses. The areas that he refers to as core functions include but are not limited to: educate and train high skilled professionals, advance knowledge through teaching and scholarly research, to support and contribute to the realization of national, economic and social development and to participate in meaningful community service and development. For a university to fulfill these requirements it must be well established with relevant programmes and qualified lecturers in those specific areas of expertise. Most learning activities for distance education are ICT enabled. From the author's observation, every learning and teaching activity uses ICT in the following ways:

1. Teaching by designing of courses, selecting teaching and learning activities, evaluation of students' learning.
2. Research: Sourcing and manipulation of data done through ICT platforms since most of the data today is in soft form.
3. Learning: Besides full time students, the rest access their learning and information online. For effective quality learning processes, teaching and learning must be supported by ICT and universities also must install all ICT platforms with competent skilled experts.

## **Improving learning process through ICT medium for quality outcome**

Improved outcome is about ‘quality’ which in education may refer to value judgment i.e. the relation between a subject and object. Etymologically, quality is derived from the Latin word “qualitas” meaning essential, with its specific characteristics. Hence it may be used to refer to the totality of features that influence the results gained in teaching and learning, research and community service (Ogula, 2009).

According to the Council for Education Accreditation (CHEA, 2005), quality learning and post outcomes thereof depend on the quality of the students, the quality of teaching, the quantity and quality of facilities, teaching learning materials, educational technologies such as ICT and the relevance of the curriculum to the labour market requirements. A series of symposia for trainers and facilitators of distance learning in Kenyatta University between 2010 and 2015 explored the main parameters for improving education. (No indication of where this was documented)

First, is the issue of quality of students: For better outcomes in university education, students must be skilled in computer and other technological systems. Most online and face-to-face courses are offered through satellite campuses that lack adequate facilities such as laboratories, libraries, computers and full-time lecturers. The students have very few hours to interact with lecturers. Therefore, teaching and learning in some satellite campuses can be a challenge. This means that students need first to learn ICT related courses before embarking on courses they are admitted to study.

Secondly, is the issue of quality of lecturers who should be well qualified and their subjects of teaching and also ICT skilled. This is the driving force for better outcome. Lecturer's quality is validated in competence to teaching, research, supervision, ICT skills and other relevant educational duties. Finally, there is need to avail adequate resources and ICT facilities that enable the learning process.

The learning process through ICT medium can mitigate challenges of poor outcomes if well handled. Learning takes place through distance mode: modules and learning manuals are used as instructional materials in the absence of the lecturer either in soft or hard copy or both. For improved outcomes, the following structures are imperative: (i) Minimal face-to-face interactions as done in online and distance learning (ODEl) or institutional/school based programmes (IBP). (ii) Universities to put in place regional and local centers for easy coordination and feedback. (iii) Install open and online accessible channels between the learner and trainer/lecturer. (iv) Set audio and video conferencing facilities.(v) Avail computer and internet facilities.

Even though much of the work is done online, a dual system of face-to-face, peer-to-peer and online discussions in distance learning is encouraged. ICT platforms such as social media, i.e. Facebook, Instagram, Telegram, emails among others can also be used. Information and learning technology (ILT) or the application of IT skills to learning situations using ICT to enhance learning is now operational. E-learning is a popular term in this program. According to Jarvis (2005), it refers to "internet or intranet<sup>v</sup> based training that enables many users to access the same material training courses at the same time on a desktop computer.

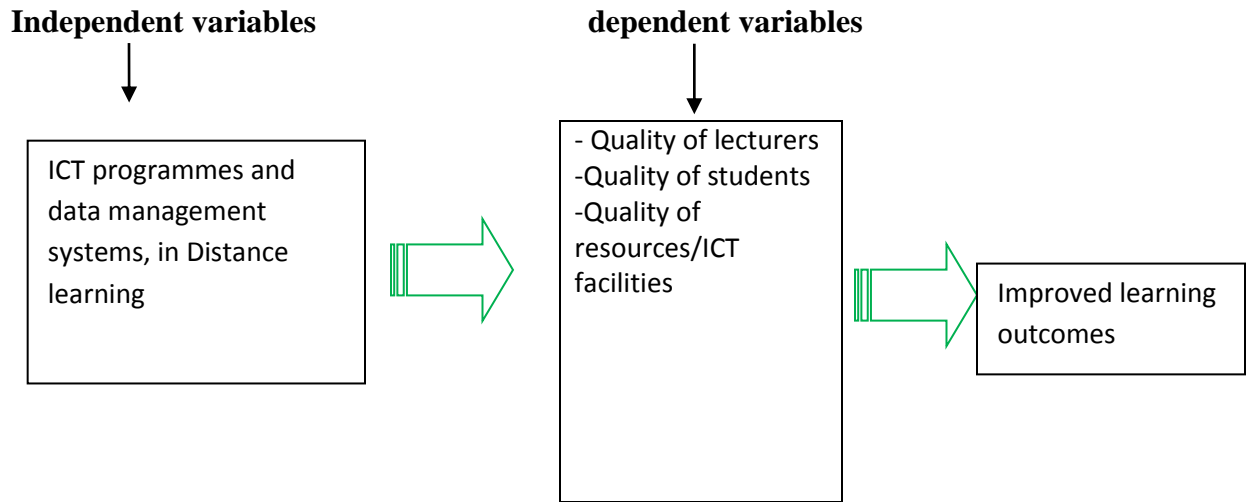


The ICT officers in these Universities explained the advantages that distance learning programmes can further utilize such as VLEs and Video Conferencing because of their importance to learning<sup>vi</sup>: VLE is Virtual Learning environment, an integrated system of software that performs several educational functions including delivery, assessment and tracking. VLE controls access to curriculum, tracking student activities, support of online learning, i.e. access to learning resources, assessment and guidance, communication between the learner, the lecturer and ICT support persons. It also links to other administrative systems internally and externally.

### **Theoretical framework**

Cognitive theory by Jean Piaget is sound in the conceptualization of quality education, the learning process and factors that affect this process. The theory states that for effective learning one has to consider both internal and external factors such as limitations on classroom teaching and curriculum development (Dembo, 1977). He contends that development stages right from infancy to adulthood teach both the learners and teachers to understand the thinking process and behavioural change in the learning process. Dembo (1977) states that if not adhered to, it has important instructional and learning implications especially on the development of intelligence. Distance education utilizes less face-to-face interactive periods, however according to Piaget, an adult learner's intelligence is not totally developed as to require less interaction from facilitators. Piaget's theory affirms three aspects of intellectual growth pertinent to this study: structure, content and function. As learners advance in learning, their structure and content change but their function remains the same. This theory can help us conceptualize and summarize main issues in the study:

## Components for effective learning outcome



Source: from own data

The figure above summarizes main components of quality education for improved outcomes: for improved learning outcomes, three pillars must work together, full facilitated ICT programmes by individual Universities supported by lecturers, students, and ample ICT resources. The following section explains the methodological framework in the study.

### Methodological orientation of the study

This study used a qualitative research design. This was aimed at creating openness to the possibility of bringing out latent, underlying or non-obvious issues, allowed descriptions, and flexibility in data collection procedures and laid emphasis on the lived experiences of lecturers, students, and management staff in their ICT engagement. Both primary and secondary data was collected through a critical review of the literature and interviews.

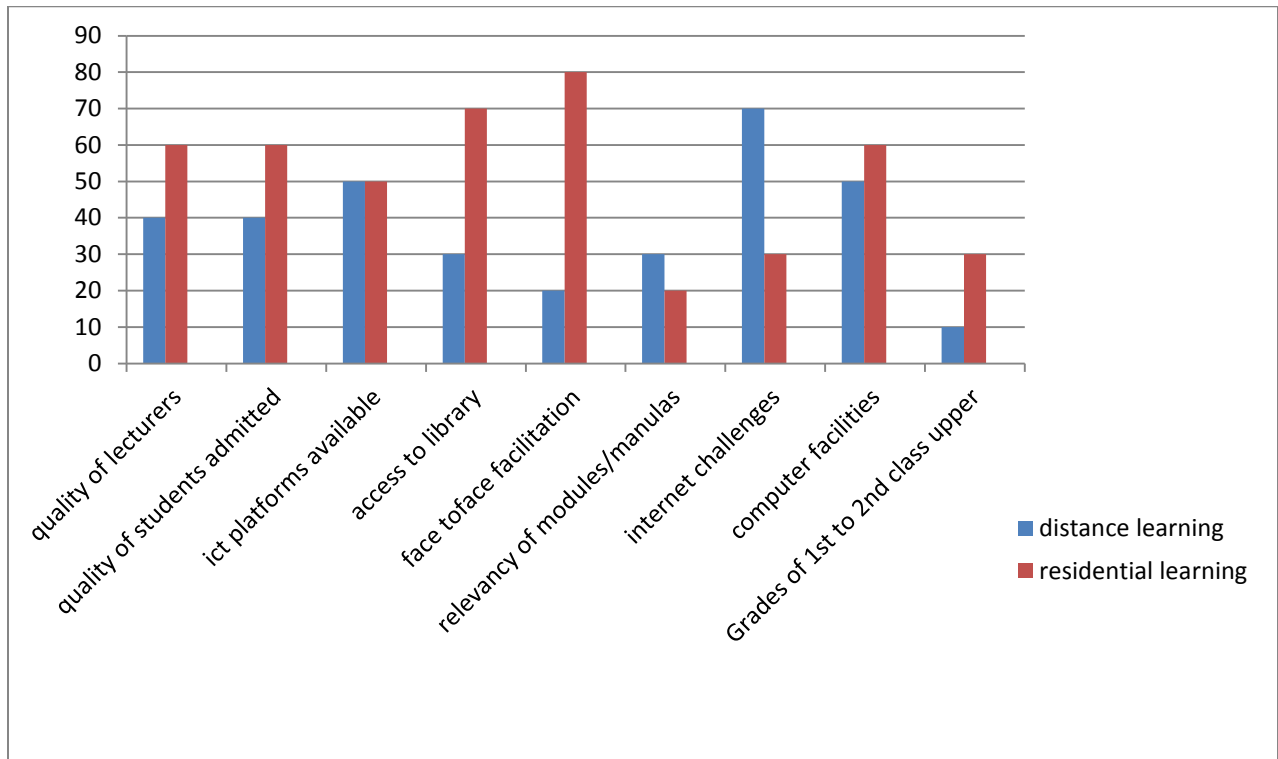
This was sampled through key respondents such as students, university lecturers, departmental/directors or coordinators of relevant programmes and ICT experts.

A total of 120 respondents were sampled: 30 lecturers, 60 students, 10 ICT experts working in universities, and 20 top managers and directors. Detailed information was collected from two target universities: Kenyatta and St. Paul's, to represent public and private universities respectively. Out of 120 respondents, only 100 participated. St. Paul's has a policy that any one doing research must have an authorization first in order to collect data. This hampered many willing participants especially employed senior staff. However, enough information was found to warrant this study on distance learning and ICT platforms that include but not limited to the following programmes in distance learning: Institutional based (IBP) or school based, Online and distance learning (Odel). Kenyatta University's Digital School of Virtual Learning (DSVOL) at its main campus was instrumental in analyzing part of this data.

### **Findings and Discussions**

These findings are discussed according to the main objectives of this study: to identify and discuss ICT platforms in improving distance learning, challenges and mitigation measures to improve distance learning. This section shows a transformative trend in the university education sector in Kenya. From the respondents, it is clear that the nature of teaching and learning context has changed over the years: access to education is now more open to qualified students regardless of the distance from where they stay and the university they want to study. The quality and dynamics of a classroom which have been the center of knowledge has changed. Student and lecturer relationships in knowledge acquisition have also changed. Students who prefer distance learning seem to face many challenges.

Bar graph 1.1: Distance and residential student’s access to resources in percentages.



**Source: from own data**

In order to get a relative picture, the study compared distance learning and regular programmes in the use of ICT and other resources that facilitate learning. The study found out that apart from lecturers who feel the program is burdensome, students and universities have warmed up to it by over 50%. One registrar said the program is a great success and its place in the education sector is rapidly growing. More than half of the student population is currently enrolled through distance learning as per the figures given in the introduction of this study.

Demand for distance learning has changed the culture of learning in Kenya from class and residential based learning to technologically based education.

Those in the university management (directors, academic registrars, and deans) confirmed that universities are fast tracking on how to offer quality education by taking it to the students. They said that the main business now for the universities is to find innovative ways of taking education to where demand is and to where their products and services are most needed. Hence most universities crowd themselves in every urban center with a prospective market. Parallel programmes are an innovative way of spending less time travelling to institutions of learning by students, less time with facilitators on face-to-face but aimed at maximization of content and resources.

### **ICT platforms in improving learning outcomes**

The success of distance learning heavily relies on ICT as an instrument of instructional media and computer related technology. However, it was found that both lecturers and students still needed to be ICT skilled in order to teach and learn respectively. There have been seminars to train lecturers on using ICT platforms and facilities in distance learning. The study found out that trainings have been a success and the trainings are ongoing.

Timely access to information through social platforms like Skype and conferencing using ICT: The two selected universities have enabled ICT platforms to enhance the program but because of several technological reasons, they are not always in use across their various satellite campuses.

Some of the information technologies that are used in these universities include:

Video conferencing: This allows learners and lecturers to communicate from different locations. It saves the cost of several lecturers in different campuses hence one can teach several satellite centers at the same time. Three components of ICT are key in further improving learning and teaching outcomes and quality as found in this study:

1. Browsing: students and lecturers can now use the intranet to locate and access existing information in IBP, school based and other E-learning courses.
2. Interaction: they can now use the intranet to narrow down and access specific information by interacting with the system. The School based programme has been orienting both lecturers and students about the operations of these services
3. Collaboration: it was noted that there is an active engagement with other users to obtain and generate information using the intranet, though the percentage use is less than 50%.

There was compact content of course materials in forms of notes and assignments, already in laptops or online in Kenyatta University while St. Paul's was yet to launch a laptop issuing exercise to students. There was also easy accessibility to higher education unlike before when most of the quality courses Kenyans sought abroad are now available locally to whoever qualifies for university admission.

Distance learning programmes bring huge income to universities besides the money received from regular students. In the two universities, over 60% of their student population is on parallel programmes. This too means additional money to lecturers besides their regular pay and students are not forced to resign from work to travel and study far away from their work stations.

The following are some of the challenges observed from the respondents:

**Challenges in using ICT platforms:**

1. Qualified lecturers: most professors prefer staying and teaching in main campus as found out in the study. Part-timers or Masters Holders therefore get the opportunity to teach even though they may not be very competent and experienced. 60% of the respondents said that students in distance learning lack the advantage of the presence of the lecturer who could reinforce different

approaches and effects such as behavioristic, cognitive development and humanistic approaches. The time set for face-to-face studies where applicable is short for gainful knowledge.

2. Accessibility to ICT related resources and materials, computer, library, internet, etc. in comparison to residential students: Distance learning facilities are inadequate in satellite centers. 60% of the respondents said that there is inadequate facilities and resources such as lecture halls books, journals, ICT experts particularly in satellite campuses for quality education. Large classes make it impossible for student meaningful interaction such as online chatting, individual discussions, assignment administration, poor internet connectivity in some parts of this country which leads to delayed communications or limited access to ICT or poorly functioning ones, among others. Lecturers struggle to enter examinations marks online. Some offices lack internet connectivity. Only HODs and some office bearers are assured of ICT facilities.

3. Lecturers find it difficult to improve their skills in ICT because not all Universities have provided computers or adequate training and time to engage in online facilitation. They have to supervise, teach, and write for publication and so on. 80% of lecturers said that due to massive intakes and intensified parallel teaching programmes, they are highly stressed.

It also affects the balance between personal lives and work, turning some lecturers into non-social beings. What comes out clearly is that lecturers are not well equipped for distance learning programmes and some have a very heavy workload to handle besides teaching distance learning which is seen as an added load. Online interaction with students consumes a lot of time.

4. Students joining university are not ICT skilled. Some come from centers and areas without electricity, internet availability and necessary resources. Therefore instead of interacting online, they prefer the manual system to send their assignments.

5. Others only sit for only one continuous assessment test (CAT) sent to centers manually and avoid the online transmitted CATs. This affects their overall performance.

In summary, learning in higher education has already gone digital. Distance learning has myriad challenges though the situation is redeemable. Learning outcomes can be improved if the following are mainstreamed as recommended here: Provision of adequate ICT resources and platforms, hire more qualified teachers, revise and make modules and manuals relevant according to market demands, among others.

### **Recommendations**

These recommendations aim at improved outcomes in distance education. It was noted that quality education sits on several pillars such as quality of lecturers, quality of students, quality of resources and facilities.

1. **Quality of lecturers:** It was found that most lecturers are overwhelmed with heavy workloads. PhD holders are rather few while some have not published at all and are not motivated. Motivation of lecturers is key to quality education and better learning outcomes. More lecturers should be employed to meet staggering student/lecturer ratio.

Reliance on part-timers compromises the quality of education because some spend more time moving from one university to another, hence the cause of poor delivery. Part-timers who mostly teach full time in primary or secondary schools should also be inducted to avoid duplication of course content from one university to another. Course material and content should be constantly developed or revised for ICT compliance and too many new developments in research. Professors, lecturers who have been teaching for long without research publications and using archaic notes ever year, should be retooled to acquaint



themselves with new theories and developments in their field of study. On staff development and promotion, the university's management should offer research grants and award those who merit promotions without too many hurdles and bureaucracy.

2. Quality of resources and learning facilities: Big classes limit performance, lecturer/student ratio hence quality of delivery and response compromised. Before accreditation is given, programmes should meet set standards like library, laboratories, and classrooms, situated in a conducive learning environment, curriculum development, and academic resources to support it among others. Collaborating universities can build centers of excellence for sharing resources which should be equipped to meet global standards. This will attract international students for quality education.
  
3. Quality programmes and accreditation: Universities should come up with quality, marketable programmes with quality course content that will attract well-qualified students. Parallel programmes offered under online and distance e-learning, and school based programmes should be revised. Schools at times close for two weeks, which is not enough for students to meet and do examinations during this short period. Even in part-time and weekend forms of delivery, students come to class late due to congestion in the cities and tiredness from work hence spend less time for class discussions. CUE should follow up on establishment of new courses and campuses that come up yearly without proper accreditation, planning or are a replica of other courses. This will ensure quality education. Universities should avoid the temptation to run several parallel programmes for the sake of money without the corresponding resources and facilities being available according to their niche and strategic plan.

4. Quality students: It was noted that students who join regular learning are top notch from tertiary or secondary with a grade B+ and above. The rest are absorbed through parallel programmes thus anybody with a grade C+ can join certain courses. The working class, politicians included, who want to upgrade their studies for promotion, political mileage or prestige also joins through this mode. Those joining postgraduate courses find the going so tough that they take more than the stipulated period to graduate. Only qualified students should be admitted for respective courses in which they qualify.
  
5. Lastly, distance learning should not be entirely by single model or open and only rely on online facilitation. A dual mode of education that utilizes both face-to-face and distance facilitation should be encouraged. Other modes can also be emphasized such as consortia where several universities participate in offering parts of the same course separately, i.e. in Southern African development cooperation, SADC.

## **Conclusion**

From the foregoing, Distance education has cut a big space in the education sector. Students who could not join university because of the JAB cut off points and working demands can now access learning so long as they can afford it. However there are several challenges hampering long distance education. There is need to balance between courses offered, market demands and facilities available to offer such programmes. In summary, the following mitigation measures are relevant to improve parallel programmes and ensure quality delivery: The Commission of University Education should ensure a balance of expanding programmes and globally expected quality standards through monitoring, controlling and evaluation of any upcoming courses and campuses, adequate remuneration, motivation of lecturers and availability of research grants.

Activities done by lecturers like registration of new students should be done by ICT staff and encourage lecturers to be innovative through research and knowledge dissemination. To improve and create more learning resources and facilities such as enough lecturers who are ICT compliant, enough classes, computers, increase the number of ICT staff in the universities to enhance quality programmed course content.

Education should aim at quality learning and assurance. This is possible if the quality of students admitted is good, and the quality of lecturers and facilities are reasonable.

## End notes

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<sup>i</sup>Besides Oanda, I.O. 2008.Wandiga, S.O. 1997. Has an elaborate information on university education in, *Capacity building and institutional development in higher education in Kenya. Paris. UNESCO HEP.*

<sup>ii</sup>Emily Onyango did her research over a decade ago capturing the inception and gradual growth of St. Paul's University. A lot has changed since that time and those changes are included in this study same page.

<sup>iii</sup>Barbra has discussed adequately modes of learning. This study enriches earlier studies by providing the ICT link to learning.

<sup>iv</sup>Burns definition of the meaning of education can be done differently by others but this is the perspective this study has taken.

<sup>v</sup> Intranet is a web or a network based system open to approved users'. It helps to create a learning community. See Leask,M,I. Issues in teaching using ICT, London, Routledge Falmer, in Jarvis (2005)

<sup>vi</sup> Also see national learning Network 2004. Learning technologies.Avaliable at [www.Ccm.ac.uk/itech/ill/default.asp](http://www.Ccm.ac.uk/itech/ill/default.asp) accessed 10 June 2015.

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