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# Integrating ICT in Instructional Design – Meeting the Needs of a Distributed Learning Environment at Zimbabwe Government Correspondence School (ZGCS)

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**Abstract:** ***The backbone of all educational innovations in many countries today rests on how much technology has been integrated to enhance curriculum delivery processes. What is differing is the rate and challenges of integrating technology at Government Correspondence School (ZGCS), in Zimbabwe. As a discussion paper it focused on issues of connectivity, benefits, challenges and tentative solutions of financing Information and Communication Technologies (ICTs) integration not only in schools. The historical picture of ZGCS is exciting as it spans for over 80 years since its inception offering distance education to marginalised pupils and adults. Focus group discussions with key informants managed to provide the much needed data on major reasons for slow uptake of technology. The discussion made exciting recommendations on different ways of funding ICT integration.***

**Keywords**: Blended learning, Education, E-learning, Information and Communication Technologies, ICT Integration, Learner-centred approach, Challenges

**Main Objectives**

- To highlight current technology trends at Zimbabwe Government Correspondence School (ZGCS).
- To demonstrate role of Web based learning in educational institution.
- To evaluate implications of ICT integration in teaching and learning
- To analyse major challenges affecting smooth integration of ICT in schools and universities.
- To assess potential sources of financing successful ICT integration in the ZGCS's educational system.
- To make recommendations for increased uptake of ICT in the educational system

## 1. Introduction

Transforming the curriculum and the teaching and learning landscape to meet its ever increasing pressure in using ICT to teach or develop study materials seem to be issues confronting the educational system in Zimbabwe and the world at large. By examining the role of ICT integration at the Zimbabwe Government Correspondence School (ZGCS) in Harare, the presenter will focus on the issues of connectivity, benefits, challenges and tentative solutions of financing ICT integration not only in schools but also in universities and other tertiary institution. It should be appreciated that ZGCS was founded in 1930 to cater for geographically distributed learners throughout the Federation of Rhodesia and Nyasaland, now Zimbabwe, Zambia and Malawi.

## 2. Literature Review

### 2.1 Instruction Design at ZGCS

In the past few years ZGCS has shifted its focus on developing primary text based materials for its distance education learners to a broader group of learners in a variety of different learning situations. Traditionally, we have developed primary-based courses supplemented with some additional media (e.g, audio, video from the Education Technology Centre formerly Audio Visual Services) and delivered to students via the postal service. However, with our boarder mandate to provide resources and support for the regular classroom based learners, ZGCS is in the process of developing a distributed learning environment. This environment will allow for more flexible design and distribution of course materials to meet the various and ever-expanding needs of our learners. Future of this new environment will include:-

- a learner-centered approach to development of self instructional materials and choice of different delivery formats,
- electronic communication and use of resource rich media between students and teachers-cum- writers in Harare,
- a modular course development process based on structured information,
- synchronous and asynchronous interaction between students and instructors.

ZGCS's distributed learning environment will make use of technology and media to provide a student with choice beyond those normally available in a formalized environment like a classroom.

### 2.2 The role of the Web and the Internet in facilitating learning

#### 2.2.1 What is the Internet?

In order to have an appreciation of the role of ICT, the presenter gave introduced the topic by defining what an Internet was. Various sources agree to some extent that Internet is one of the world's largest computer network. In most cases it the network is connected through Twisted Wire , Fibre Optic, Wireless, Satellites, Radiowave and or Microwave. According to Kozma (1994), the Internet can be viewed as a collection of systems that speak the same language (technically) or some could prefer to call it the "Global Postal System". History has it that it began in the 1960's in U.S Department of Defence as a mechanism to communicate in case of a nuclear attack and it then spread to colleges and universities before finding its way in the Global Village. The main purpose therefore was to enhance communication between and among various stakeholders. When it is at organization level, it would be intranet and extranet when the communication is extended especially in areas like e-business ,e-commerce, e-learning, e-resources (Briggs, 1977). To increase interactivity among users, the Internet enhances participation in on line discussions, social chats as well as being used as library and dictionary for research work. Because of its capacity to link various search engines like Google, WebCrawler, MetaCrawaler, Yahoo, Blog, School net, Webmail, or Hotmail. The technological advancement gap continues to widen between the developed and least developed economies but the continued use of the Internet will provide both synchronous and asynchronous interaction globally.

#### 2.2.2 What then is the World Wide Web (WWW)?

Readers should appreciate the relationship between Internet and World Wide Web. The Web is part of the internet, the most important part. As highlighted by Jegede (1994) in one of his studies of the opinions of distance educators and practitioners, Internet is about networking whereas the WWW is an electronic document of text, graphics and multimedia (integrated multimedia includes print, audio, video, animation.) It is like a "global library" where learners and researchers can access the most current information to enhance materials development as well as the teaching and learning processes. An interesting feature about WWW is that the thinking about the Web started in 1940's but not until 1980's did it become a reality. An interesting feature about the Web is that it uses the Hypertext communication with various links eg Home, About Us, Contacts.

### 2.3 Implications to the delivery modes

Views have been expressed at various academic and professional platforms on the benefits which accrue when using Web- based learning which involved the use of Internet and WWW. Of the benefits alluded to above, individuals become self directed with opportunities to make self-assessment on school assignments. Active learners search for answers for analysis and to evaluate prior knowledge to construct lifelong learning by continual upskilling and increasing one's knowledge bases. The new web based technology in education serves as guides, mentors, monitors, coaches, tutors, facilitators, analyzers of strategies to solve problems. One observation made by various scholars is that they provide assessment tools as learning materials and activities whilst creating a collaborative learning environment. Voos (2003) contend that web based learning helps learners to negotiate goals, objectives (depth and breadth of real-world projects). They are a platform to create learner opportunities for scaffolding to perform slightly higher than their ability.

### 2.4 Role of ICT: The teaching and learning process

Observations globally have shown a paradigm shift in the way technology has been diffused and finally integrated in educational systems. ICTs have transformed most human activities in various knowledge systems leading to greater innovations of providing learners with current educational trends beneficial for knowledge acquisition. Some authorities even suggest that technologies have made significant contributions and transformed the way people communicate, work and even play. A new global economy powered by technology, fuelled by information, and driven by knowledge has been created ICTs have made significant contribution in the social and economic sectors of countries globally for example in the following fields, education, transport, entertainment, transport, environment, agriculture, medicine, engineering and other fields. Recently, there have been calls for education reforms to improve the quality of education to adequately prepare students in the work place. An example is the Kenyan Ministry of Education heeded the call for reform and showed that they appreciated and recognised the fact that ICT has a critical role to play in helping education deliver its mandate. Consequently, the availability of ICT facilities over the past years in Kenya has increased substantially in most learning institutions. Teacher training colleges have been great beneficiaries of donations and investments of ICT equipment. At the moment, it is estimated that Teachers' Colleges have an average of 60 computers each with Internet connectivity. In spite of these developments in teacher education, there is a growing concern among scholars and researchers that the rate at which these technologies are transferred and integrated into the teaching and learning process is slow (Migwi, 2009). Many practicing teachers have little or no competencies in incorporating technology in the delivery process of the curriculum. From a Zimbabwean context, Teacher-educators in primary and secondary school teacher training colleges are not yet incorporating these technologies into their instruction in ways that make a difference in student-teachers' learning. The writer assumes that perhaps that is why most new teacher education graduates still have limited knowledge of how ICT which can be used in their professional activities. This is happening notwithstanding the belief of policy makers that integrating ICT in the educational system will lead to improved outcomes for the students. Placement of ICTs in learning environments is a not a guarantee that there would be **effective integration for teaching** and learning. Teacher-training is one essential requirement for successful use of ICT in education but however these have grossly contributed to the slow uptake of technology in schools. This means that teacher preparedness and professional development is not only desirable but also necessary for the success of learners, school and educational systems. It is obvious that teachers

cannot be prepared at one go hence Teacher-educators need to be effective teachers and good role models for teaching practices because it is not possible to prepare a new generation of teachers who can effectively use new tools for learning unless teacher-educators themselves are models for effective use of technology in their own classes. Thus, if student-teachers are to become confident users of technology in their own classes, then they need to see their tutors use them in instruction. This is because teacher-educators cannot model the use and integration of technology in their teaching if their knowledge, skills, and attitudes towards technology integration are low. While the potential benefits of ICT integration have been promoted by a number of international organizations such as IDCR, Intel, Nepad, UNDP, and USAid, research is needed to ensure that such organizations can benefit from practical information related to effective integration. Information on teacher-educators' levels of ICT integration in Kenya is scanty. Without such information, the Kenyan government may not develop a realistic plan to achieve its dream of having a technologically literate workforce and being industrialised by 2030 (Kinuthia, 2009). It is on the basis of this background that this study was designed to establish teacher-educators' level of ICT integration in a public primary school teacher.

### 2.5 Learner Educational Benefits of Integrating ICT

From an educational perspective, there are quite a wide array of benefits which accrue to institutions which have successfully integrated ICTs in their systems. There is unlimited access to current e-resources and major contributions made by academics globally. For a learner, interacting with multimedia is highly motivating as there is always immediate feedback and one graduates from one stage to another. As highlighted in the earlier part of the presentation, there is enhanced communication using text, graphics and multimedia which invariably encourages team work and collaborative projects. One cannot rule out improved decision making, high productivity, control and efficient utilization of resources. It is quite interesting that students take ownership over their learning experiences by continuous self assessment of learning activities.

### 2.6 Challenges of integrating ICT in the Zimbabwean educational system

Increasing the quality of teaching and learning has been a seemingly important concern for education since the beginning of this century. To be specific to Zimbabwe, the independence of 1980 ushered in a new era of high appetite to learn as this facility was partially afforded by the colonial masters. Colonial educational policies impacted negatively on a variety of social, cultural, economical, and technical challenges. By implication, developing new approaches and frameworks with information and communication technologies (ICTs enhances the dissemination of information and help to meet some of the challenges associated with providing quality education. From a basic understanding, ICTs comprise the use of at least a computer and the Internet as well as computer hardware and software, networks, and a host of devices that convert information (text, images, sounds, and motion) into general digital formats. A number of challenges are associated with the influence education has on physical access to the technology (computer hardware and telephone) installation of telephone infrastructure like fibre optic cables, microwave, radiowave transmissions and submarine cables. Pre-requisite skills needed for one to use this technology effectively and have access to the Internet services like tutorials, library, career guidance, counselling and academic and administrative consultations, must be available in a wide variety of forms, such as online chats, and via **SMS** (Short Message Services) email, online interviews using VOIP or SKYPE. Prudence therefore requires careful consideration of the interacting issues that underpin ICT use in schools which include; access, support for ICT, policy and planning, infrastructure development, human capacity, language and content, culture, equity, cost then curriculum. The focus in this case is to analyses and justify the major challenges facing the ZGCS

#### 2.6.1 ICT financing challenges

The greatest challenges in ICT use in education is balancing educational goals with economic realities as there is need for large capital investment. Developing countries need to be prudent in making decisions about what ICT modes are to be introduced and in what proportion basing on the Cost benefit Analysis made. The options of financing ICT integration in schools are wide but the returns might not be very encouraging, like charging an ICT related fees structure, partnering with corporate organizations or waiting for handouts from the state and donors. Financial challenges are wide from the purchase of hardware and software to installation of networks, maintenance and all other related variable costs. These to a greater extent affects the speed with which technology is integrated in a school.

#### 2.6.2 Policy framework and ICT integration

It has been observed that attempts to enhance and reform education through ICTs require clear and specific objectives of what you want to achieve. There is need for guidelines and time-bound targets leading to the mobilization of resources. Many countries are not clear about ICT policies hence limited political commitment at all levels to see the initiative through. Policy makers should therefore appreciate and improve their national programmes to integrate ICT in education through various policy directives since ICT plays a critical role in information societies' educational systems. The above view is supported by an observations made by Benzie (1995) which indicated that national programmes have not been successful to implement ICT into educational systems because they were formulated in non-educational realms and they were not supported with educational research. An interesting scenario is that consistency of ICT in the region was at variance with SADC initiatives to have national ICT policies because these have been going on for some time and a regional policy seems to be elusive. The SADC region is associated with weak economies except for a few countries and the use of models to help formulate policy documents may be unsuitable for developing nations. Interestingly a greater part of policy formulation and implementation work in developing countries is sponsored by external agencies which have their own agenda so therefore there is an additional pressure on these countries to be accountable and produce a document quickly. From a

policy point of view, the Zimbabwean government has been very supportive of ICT integration but there seems to be inconsistencies and emphasis in the implementation processes.

**21.6.3 Accessibility of ICTs in primary schools**

ICTs in general and e-learning in particular have reduced the barriers to entry to the higher education business. General understanding of how ICT can be used to enhance curricular contents, examine the design, development and delivery of curriculum through electronic documents and multimedia. The ICTs available in the school can be found in the administrative offices thereby denying potential users access to these technologies as well as associated competencies. In instances where ICTs are available the ratio of computer to users is very high and as a result the motivation component is lowered. ICTs require continuous practice as new hardware and software are updated almost every day. Accessibility cannot be associated with hardware only but the school policy itself can be self defeating.

**2.6.4 Infrastructure planning and related challenges in ICT-enhanced learning**

Various studies have been carried out and there is consensus that providing access to ICTs was not enough, the supporting infrastructure was not even more relevant to the demands of various educational institutions. Apart from buildings another basic requirement as highlighted in the above discussion is the availability of electricity and telephony. In developing countries large areas are still without a reliable supply of electricity and the nearest telephones are miles away. Power and network also play an important role in ensuring that there is continued ICT use. Africa, where Zimbabwe is found has abundant sunshine which can be utilized as alternative power source but there has been little progress in this direction. The most frustrating scenario would be power cuts, load shedding and network loss because of the limited strength of bandwidth all militate on the successful utilization of ICTs**.** Experience in some countries in Africa, Zimbabwe in particular point to wireless technologies (*such as VSAT or Very Small Aperture Terminal*) as possible levers for leapfrogging but the process of having an integrated and synchronized approach is still a pipe dream. Studies in Nigeria investigated the extent of ICT infrastructure provision and integration for the implementation of national policies and there was a low level of infrastructure of ICT across universities and schools. There is therefore evidence in the continent that adequate infrastructure and integration have not been provided to enhance the implementation of policies in Africa as a whole especially when large economies like Nigeria project such discrepancies. In general, ICT use in education should follow use in society, not lead it hence the need for lecturers to be competent, highly skilled and satisfied with their work loads. Other studies carried to investigate the main barriers and possible enablers for integrating information and communication technologies (ICTs) in Turkey's pre-service teacher education programs indicated that the majority of the stakeholders believe that lack of in-service training, lack of appropriate software and materials, and lack of hardware are the main barriers for integrating Based on these findings, the researcher proposes the use of several strategies that should enhance successful ICTs integration in Zimbabwean schools..According to UNESCO (2006) poor infrastructure, few computers ( a low ratio of computer to staff and research students ) and the high cost of connectivity which makes high speed internet services unavailable militates against use in the teaching and learning processes. Coupled with these barriers is the absence of competent support staff who would assist and man technology related interruptions Furthermore the staff are unable to access journals online in order to update the knowledge on recent developments in their field of research. Computer based technology can change the way teaching occurs and at ZGCS this is an essential ingredient in integration of ICT in materials designing, development and distribution.

**21.6.5 ICTs, curriculum delivery and the associated challenges**

Generally from a wide section of studies undertaken at secondary schools, colleges and universities (ODL and Dual mode) there is need to integrate ICT in the curriculum in all schools' delivery processes. Policy availability and implementation process coupled with the availability of ICT standards and measurement criteria tend to inhibit smooth integration of ICTs in schools. Whilst there is greater need to integrate new technological trends in the teaching and learning processes, funding of ICT initiatives still poses a serious challenge especially when looking at the different economic strata most students come from as well as the schools they attend. The ZGCS as a distance education centre would require a highly interactive client system for example in the areas of e-learning, e-library and even M-learning to enhance the dissemination of educational materials and communication with the tutors and supervisors. The later has been put to good use by Econet, a mobile providing organization which has gone further to introduce e-farmer for its geographically distributed stakeholders and all those who would like to ride on the technological superhighway.

**2.6.6 Capacity building as a challenge to ICTs integration**

ZGCS is comprised of staff and supervisors/tutors with varying degrees of computer competencies and this on its own will to a great extent impact negatively on the overall uptake and use of ICTs. The overreliance on text as mode of delivery makes the teaching and learning process very uninteractive and "Cold" the simple logical thing is that ICT can help to broaden access to education and improve learning outcomes. Therefore, training teachers to be able to use ICT and to integrate ICT into teaching is crucial for achieving improved educational outcomes with ICT. The Government of Zimbabwe, which employs most teachers has not done much to equip the teachers with pre-requisite skills to teach using ICTs after training. For ZPCS the development of ICT integrated study materials need competencies and positive attitudes in the designing and development and use of CDs, DVDs, online modules, communication networks as well as curricular change and innovations related to the use of IT (including changes in instructional design). Research on the use of ICTs in different educational settings over the years invariably identify as a barrier to success the inability of teachers to understand why they should use ICTs and how exactly they can use ICTs to help them teach better. Unfortunately from a

Zimbabwean Colleges curriculum, most teacher professional development in ICTs are heavy on "teaching the tools" and light on "using the tools to teach. One assumption is that lecturers have fear of being replaced by technology or losing their authority in the classroom as the learning process becomes more learner-centered. Technical support specialists are a critical resource and as highlighted above, there is a strong correlation between technical support and collaboration, it could be in the form of timely training and arranged peer review of targeted activities.

**2.6.7 Provision of Administration Services**

ZGCS faces some challenges share by other institutions which are associated with the provision of teaching and learning facilities in a technology driven institution. Some of the challenges include the following; material development, production and distribution, assignments and examinations submission and checking for results. For ZGCS to improve utilization of ICTs collaborative projects and research of both learners and teachers, library and media usage should be enhanced to support learners in the ten provinces of Zimbabwe and extra-territorially. Administration services play a pivotal role as different thoughts about teaching space, security concerns of databases plus both hardware and software is critical as data and important information can be lost. There is great need for physical protection devices, operational security, system backups and guarding against viral infection (Boot sector, document, network or any other source). Most institutions which use different modes of delivery have challenges associated with the envisaged lecture theatre to accommodate Internet access for researching, distributed multimedia curriculum on line, access to digital libraries and powerful online resources, distance education courses and remote collaborative tools. Information on demand for students is not available especially those which include video, live video broadcast, desktop and video conferencing. Access to individualised diagnostic testing and assessment of progress, managed by technology still lacks in ZPCS. Whilst effort needs to be put in place, limiting budgets and relevant skills still haunt effective and efficient utilization of technology which should translate the learning landscape of the distance education learner.

**2.6.8 Studies on Work Motivation and ICT integration**

Work motivation is a set of energetic forces that originate both within as well as beyond an individual's being, to initiate work-related behavior and to determine its form, direction, intensity, and duration. This component of human behaviour or what drives people towards goal attainment is critical in both teachers and learners for successful accomplishment of tasks. Thus, motivation is a psychological process resulting from the interaction between the individual and the environment. Various studies found that there is a positive relationship between work content (skill variety) and work motivation, and between erosion of work content and emotional exhaustion. George & Zhou (2002) found that negative rather than positive mood correlated significantly with creativity. Negative moods signal that the status quo is problematic; hence employees exert effort to generate useful ideas rather than stop because of their satisfaction with the status quo. Observations have indicated that employees high on personal initiative are able to change the complexity of and control over their workplaces even when they do not change jobs. In a study of salespeople, Brown et al. (2001) found that self-efficacy moderates the effectiveness of information seeking from supervisors and coworkers regarding role expectations and performance. Similarly, Heslin & Latham (2004) found that managers in Australia change their behavior in a positive direction in response to feedback when they have high self-efficacy to do so. Nease et al. (1999) found that self-efficacy tends to be influenced by numerous rather than single instances of feedback Audia et al. (2000) found that past success increased strategic decision makers' satisfaction, and satisfaction led them to increase their past strategies. Higher satisfaction was associated with higher self-efficacy and higher performance goals that increased dysfunctional persistence subsequent to a radical change in the environment.

**2.7 Potential sources of financing successful integration of ICT in schools**

Whilst a number of challenges bedevil the successful implementation and integration of ICTs in schools and ZGCS in particular, Whyte(s.a) suggests that there are a number of options as potential sources of financing successful integration of ICTs in schools. These include grants, public subsidies say from central government, private donations, fund-raising programmes, public sector partnership (PPP), community support (Rent free buildings), membership fees, tuition fees targeted at ICT, revenue earned from core business eg office service- photocopying, scanning, Audio – Visual Aids, revenue earned from ancillary services eg Business services which has a wide variety of Word Processors, Spreadsheets, budget preparations or printing.

**2.8 General overview and summary**

The presentation made a situation analysis and highlighted current technology trends at Zimbabwe Government Correspondence School (ZGCS). It went on to demonstrate the role of Web based learning in educational institutions whilst at the same time evaluating implications of ICT integration in teaching and learning globally and Zimbabwe in particular. An analysis of major challenges affecting smooth integration of ICT in schools and universities was made. The presentation proffered some options of potential sources of financing successful ICT integration in the educational system and made recommendations for increased uptake of ICT in the educational system. According to Laudon and Laudon (1998) some of the challenges to ICT integration include access, in other words, how many students have a computer and access to the Web? Capacity building which involves getting teachers on board and providing technological support and training. The quality of resources is a critical issue as currently there are no standards for publishing on the Web hence the need to be selective when using Web based resources. Many institutions face networking challenges with regards to costs of computer hardware and software plus maintenance especially when it comes to balancing educational goals with economic realities. In most developing countries there is unreliable power supplies coupled with viral infection

through networks. As highlighted in the preceding chapters, incompetent education administrators affect the integration and use of technology. Accordingly they should have a broad understanding of the technical curricula, administrative, financial and social dimensions of ICT use in education. In terms of human capacity, technical support specialists are required with competencies in installation, operation, network and database administration as well as network security. Last but not least policies and language plus content provide serious challenges on the use of English as a dominant language (80%) and jargon on the internet related to computer programmes. It can therefore be argued from different sources' point of view that computer based learning has serious issues with the standardisation of content. The ZGCS has potential to grow a highly efficient ICT system although valuable lessons may be learned from best practices around the world. It is true that there is no one formula for determining the optimal level of ICT integration in an educational system and readers should appreciate that what fits well in one organisation cannot obtain similar results in another even if they are in the same geographical location. Interestingly the ZGCS has made significant progress in digitalizing its self-instructional materials and these can now be accessed online. There is still need to capacitate the writers-cum teachers with pre-requisite skills needed in quality development of instructional materials. Significant challenges faced by all those involved in the provision of web-based learning should not be deterrents as to successful integration of ICTs in schools.

## References

[1] Barker, K. (2002). Canadian Recommended E-learning Guidelines (Can REGs), Vancouver:
[2] Bernard, R. M., Abrami, P. C., Lou, Y., &Bork,A.1999. Learning with the World Wide Web.International Journal of Instructional Media,27(3)235-245.
[3] Briggs L.J.(1977).Instructional Design Principles and Application,Englewood Cliffs: N.J.Educational Technology
[4] Butcher, N. (2001). "Educational technology policy in Southern Africa." *An information policy handbook for Southern Africa*, T. James, ed. Ottawa: IDRC. Borg, W.R. & Gall, M. D. (2007). *Educational Research: An Introduction*. (6th Ed. New York: Longman
[5] CANARIE: *E-Learning program projects and objectives*. http://www.canarie.ca/funding/ learning / projects.html
[6] Christensen, T. K.. (2003). "Finding the Balance: Constructivist Pedagogy in a Blended Course." Quarterly Review of Distance Education, 4(3):235-243.
[7] Cottrell, D. M., & Robison, R. A. (2003). "Blended Learning in an Accounting Course." Quarterly Review of Distance Education, 4(3):261-269.
[8] Earle, R.S. (1997). The integration of instructional technology into public education: promises and challenges. *Educational Technology*, 42(1)5-13
[9] Dr Kujeke, E.C., Prof Dr Kennedy, T. and Prof Dr Nyaruwata, L.T. 2014. "ICT Integration in Universities in Relation to ICT Challenges and work motivation of lecturers in Zimbabwe." *International Journal of Science and Research (IJSR)* (IJSR) 3 (5): 790-797. Accessed May 2014.
[10] Dr Kujeke, E.C., Prof Dr Kennedy A.T. and Prof Dr Nyaruwata, L.T. "An Impact Evaluation of ICT Utilization in Zimbabwean Universities' ODL Administrative and Delivery Processes." A Case of 4 Harare Universities (2009 - 2011). International Journal of Science and Research (IJSR) 3(6):2267 – 2275. Accessed June 2014
[11] Gay, L. R. (1980). Educational Evaluation and Measurement Competencies for Analysis and Application, London: Charles E. Merryl Publishing Co.
[12] Gough,E.(1981).Distance Education at Deakin University and University Sains.Malaysia Open Campus 3(1) 10-15
[13] Gronland, N.E. and Linn, R.I. (1990). Measurement and Evaluation in Teaching. New York: Macillan.
[14] Inglis,A.,Ling,P.&Joosten,V.(1999).Delivery Digitally:Managing the Transition to the Knowledge Media.London:Kogan Page.
[15] Jegede, O. J. (1994). Distance education research priorities for Australia: A study of the opinions of distance educators and practitioners. *Distance Education, 15*(2), 234-253.
[16] Kafu P. A. (2011). Teacher Education in Kenya: Emerging Issues. *International Journal of Curriculum and Instruction,* 1(1) 43 – 52.
[17] Keengwe, J.(2007). Faculty integration of technology into instruction and students perception of computer technology to improve students learning, *Journal of Information Technology Education*, 6, 169-180.
[18] Kinuthia, W. (2009). Educational Development in Kenya and the Role of Information and Communication Technology. *International Journal of Education and Development using ICT [Online], 5(2). Available:* http://ijedict.dec.uwi.edu/viewarticle.php?id=740.
[19] Kozma,R.B.(1994).Will media influence learning?Reframing the debate.Educational Technology Research Development,42(2),7-19.
[20] Mishra, S. (1998). Distance education research: a review of its structure, methodological issues and priority areas. *Indian Journal of Open Learning, 7*(3), 267-282.
[21] Olcott, D. and Schmidt, K. (2000). "Refining faculty policies and practices for the information age." *Higher education in an era of digital competition: Choices and challenges,* Madison, Wisconsin: Atwood Publishing.
**[22]** Payam, Hanafizadeh., Mohammad, Reza. Hanafizadeh. & Mohsen, Khodabakhshi. (2008).Extracting Core ICT Indicators Using Entropy Method. *Tehran:* The Routledge, Taylor and
[23] Siaciwena,R. Prof (2000). Case Studies of Non-formal Education by Distance and Open Learning, The Commonwealth of Learning, Vancouver. Rogers, D. (2000).A paradigm shift: technology integration for high education in the new Millennium, *AACE Journal*. 1 (13), 19-33.
[24] Tinio, V. (2002). *ICT in education*. Available online at:m http:www.eprimers.org.
[25] Yildirim, S. (2000). Effects of an educational computing course on pre-service and in-service teachers: A discussion and analysis of attitudes and use. *Journal of Research on Computing in Education, 32*(4), 479−495*ate programmes.* http://www.wascweb.org/

[26] Yin, R. K. (1989). *Case Study Research: Design and Method*. Newbury Park: CA: S

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