

# ICT Integration in Universities in Relation to ICT Challenges and Work Motivation of Lecturers in Zimbabwe

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**Abstract:** *The research study is about ICT integration in universities in relation to ICT challenges and work motivation of lecturers in Zimbabwe. There is ever increasing pressure in the educational system in using ICT to teach or develop study materials coupled with low uptake of technology to transform the curriculum and the teaching and learning landscape. A great number of challenges confront universities in overall integration of ICT and the motivation levels of lecturers seem to be at the lowest ebb thereby affecting total integration. The mixed methodology (quantitative and qualitative) guided by the descriptive survey design using questionnaires, group discussion, key informants and document analysis helped in data collection from 400 lecturers, tutors and deans in six universities who were selected using the simple random sampling procedure. Instruments were checked for validity, reliability, triangulation and ethical considerations were contextualized. Because of the nature of quantitative data, it was presented and analyzed using statistical tools (Measures of central tendency, variability, Regression analysis, Correlation coefficient, T-tests, Significance testing, One, Way Anova) and the results from the study revealed that though technology had been integrated in the universities, it was at varying levels and its use depended positively on the relationship between dimensions of ICT challenges dimensions as compared to those of Work Motivation of lecturers. The paper recommended that capacity building of lecturers to improve competencies, access to technology, improved infrastructure, delivery processes and harmonized ICT policies in Higher Education should be prioritized to ensure overall utilization and associated benefits derived from technology.*

**Keywords:** Information and Communication Technology, ICT Integration 2, ICT Challenges 3, Work Motivation, Open and Distance education, Variables

## 1. Introduction

The present study titled "ICT integration in universities in relation to ICT challenges and work motivation of lecturers in Zimbabwe." is a descriptive survey study. The researcher outlines ICT integration in universities, Open and Distance Learning (ODL) and dual modes of delivery then looks at ICT challenges as well as attributes of work motivation with a view of finding the relationships which lead to overall utilization of ICTs in universities. The research presents the discussion on the above issues then deals with the background to contextualize the research concepts and underlying philosophies followed by ICT integration in universities, ICT challenges and lecturer work motivation relationships. The chapter also focuses on the role and issues of ICT integration in universities, history and use of ODL mode of delivery in Zimbabwe, ICT challenges and work motivation of lecturers, statement of the problem, objectives which guide the research, scope, limitations and overall research organization leading to the chapter summary

### 1.2 Background to the study

The rapid development of information and communication technologies (ICTs) and the move towards more knowledge-intensive, interdependent and internationalized societies create new challenges and opportunities for the design and delivery of education. ICTs open up new horizons for progress and the exchange of creativity and intercultural dialogue. Nevertheless the growing digital divide is actually leading to greater inequalities in development. This is giving rise to paradoxical situations where those who have the greatest need of them, disadvantaged groups, rural

communities, illiterate populations or even entire countries, do not have access to the tools which would enable them to become full-fledged members of the knowledge society. Issue of educational challenges of integrating Information and Communication Technologies (ICTs) are quite wide. Many institutions have introduced ICTs but there still remain issues to be grappled with to ensure smooth uptake of ICTs as a component of overall management, leadership, curriculum development and delivery, access and quality, infrastructure and the use of ICTs as well as the cost and capacity building of personnel involved in the integration of ICTs in universities. Some universities in Harare, Zimbabwe, like University of Zimbabwe (UZ) are just over 50 years old while others such as Zimbabwe Open University (ZOU), Catholic University in Zimbabwe (CUZ), Women's University in Africa (WUA), Harare Institute of Technology (HIT) Christ Centre College (CCC) (Associate College of Great Zimbabwe University, (GZU) and Central Africa Correspondence College (CACC) an associate College of Midlands State University (MSU) were founded around the 90s. It is worth noting that some universities started as colleges but were elevated to university status like CACC and HIT. While new buildings are constructed or modified, the reality for most universities is that the existing spaces must, in the short term at any rate be adapted to accommodate new learning technologies. Furthermore most Zimbabwean universities have not made room for the new technology to be integrated. The cost of hardware and software has been very prohibitive such that the differences in sources of funding have created big gaps in utilization and appreciation of technology by lecturers. The computer to lecturer or computer to student ratio has remained very huge

thereby compromising the great appetite for integration of technology in universities.

The SADC Workshop on ICTs in Higher Education, Victoria Falls March 2011 indicated that there were inconsistencies in ICT policy directives as evidenced by the need to craft a national ICT policy. The government of Zimbabwe is in full support of increasing access to and integration of ICTs in all aspects of governance as shown by the commitment by the President Cde Robert G. Mugabe who has been sourcing computers for schools and universities. According to [www.infodev.org](http://www.infodev.org) Zimbabwe has a national ICT policy which includes reference to ICTs in education but does not have a dedicated specific national policy. The flight of lecturers from universities to other employers and outside the country grossly affects integration of technology. The apparent inadequate ICT skills within lecturers coupled with limited methods used to transfer knowledge affects attitudes towards ICTs and militate on curriculum development, assessment as well as instructional materials development and delivery processes. The whole process affects the potential of ICT alternative information sources in addressing curriculum related challenges such as shortage of literature. Accessibility of ICT facilities still forms a major challenge to most of the universities under study. The researcher therefore feels that there is a major gap in universities which warrants a study and proffers some practical solutions to challenges affecting integration of ICTs in universities which in turn can negatively influence lecture motivation. Competence levels in ICT are quite low especially for long serving academic staff and their attitude to integration and use ICT innovative approaches in pedagogies is challenging. In fact, having computer skills is one thing, being able to utilize ICT in pedagogy is another. There is need to equip the teacher educators and trainees with adequate ICT skills for the utilization of innovative pedagogical approaches in their teaching in schools. Information and Communication Technology (ICT) is increasingly becoming a crucial tool for facilitating global education. African universities and Africa's unique underdeveloped position makes her particularly suitable to take advantage of the many opportunities offered by ICTs. The researcher's keen interest in Higher Education especially Open and Distance Learning (ODL), instructional materials development as well as administrative and delivery processes of single, dual modes and ODL makes it imperative to assess the actual underlying challenges in relation to ICT integration in universities. This thesis will analyze *ICT integration in universities in Zimbabwe in relationship to ICT challenges and work motivation of lecturers*.

## 2. Literature Review

This chapter serves to bridge the gap between what has been researched by various authorities and the status quo. According to Leedy (1993) preliminary literature provides a substantial better insight into the dimensions and complexity of the problem and it equips the investigator with a complete and thorough justification for the subsequent steps as well as with a realization of the importance of undertaking the research. It examined the variables that determine the integration of technology in universities that is the dependent variable was ICT integration in universities in

relation to independent variables ICT challenges and work motivation of lecturers.

Areas of focus: A thorough literature study demonstrates that the researcher is duly knowledgeable about related research and the intellectual traditions that surround and support the study. Scriven (1972), Stake (1976) and Rowtree (1992) share some views on the inclusion of some of the areas as a process of conducting and validating a scholarly literature review. Trend report, Studies related to ICT integration in universities ICT challenges : Specific Variables (Challenges to be assessed) Infrastructure development, Access to ICTs, Curriculum development, delivery and pedagogical strategies, Capacity building of personnel, Budgetary issues, Policies and planning for ICT integration, Issues in the use of ICTs , Motivation models, recommendations and case studies

### 2.1 Trend report

The findings from researches in ICT integration in relation to the variables has shown that a number of authorities have written about ICT integration in universities and highlighted a lot of benefits which could accrue to institutions. There is a general common trend in the views expressed from developed to developing economies with regard to ICT integration in universities. There are common issues which cut across especially the role of the lecturer and ICT in a university. Greater relationships have been articulated between ICT integration in universities and the associated challenges which affect work motivation of lecturers. Much emphasis has been on studies related to secondary education and Colleges with little having been done in universities which use single, dual or ODL modes of delivery

Studies related to ICT integration in universities increasing the quality of teaching and learning has been a seemingly important concern for education since the beginning of this century. According to Januszewski & Molenda, (2008), education has faced a variety of social, cultural, economical, and technical challenges. The field of educational technology attempts to overcome challenges by developing new approaches and frameworks with information and communication technologies (ICTs) representing a new approach for enhancing the dissemination of information and helping to meet these challenges. 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, (Lever-Duffy, McDonald, & Mizell, 2003; USDE, 2000; ISTE, 1999, Taylor and Hogenbirk 2001). 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, radio wave 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, counseling 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

A number of cross cutting issues were highlighted but regional comparisons could have been made and contemporary theories about learning enhanced. Prudence therefore requires careful consideration of the interacting issues that underpin ICT use in universities which include; policy and planning, infrastructure development, human capacity, language and content, culture, equity, cost then curriculum. (Goktas, Yildirim, & Yildirim (2009). In a study "Main Barriers and Possible Enablers of ICTs Integration into Pre-service Teacher Education Programs." *Educational Technology & Society*, 12 (1), 193–204.

### ICT Financing Challenges

The greatest challenges in ICT use in education according to Duran, (2000), Moursund & Bielefeldt (1999) Bullock (2004) and Mehlinger & Powers (2002) is balancing educational goals with economic realities. There is need for large capital investment and developing countries need to be prudent in making decisions about what ICT modes are to be introduced. The options available to universities 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 donors. Financial challenges are wide from the purchase of hardware and software to installation of networks, maintenance and all other related variable costs.

### 2.2 Policy framework and ICT integration

Attempts to enhance and reform education through ICTs require clear and specific objectives, guidelines and time-bound targets, the mobilization of resources and the political commitment at all levels to see the initiative through (Anderson, Varnhagen, and Campbell (1998); Fabry and Higgs (1997); Moursund and Bielefeldt (1999); Rogers (2000); and UNESCO (2002) ICT plays a critical role in information societies' educational systems and governments in developing countries have tried to improve their national programmes to integrate ICT in education through various policy directives. Observations by Benzie (1995) indicate 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 (Albrin, 2006) According to Siyachiwena (2010) in a paper presented at a SADC Policy Framework at Kingdom Hotel, Victoria Falls, Zimbabwe observed 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 findings of the study suggested that the use of models to help formulate policy documents may be unsuitable for developing nations.

As much of the policy formulation work in developing countries is sponsored by external agencies, there is an additional pressure to be accountable and produce a document quickly. The findings of the study suggested that the use of models to help formulate policy documents may be unsuitable for developing nations. SADC initiatives to have national ICT policies have been going on for some time and a regional policy seems to be elusive. In the absence of a strong ICT policy framework. A study which analysed the policies for financing higher education in six Arab countries:

Egypt, Jordan, Lebanon, Morocco, Syria, and Tunisia assessed the adequacy of spending on higher education, the efficiency with which resources were utilized, and the equity implications of resource allocations. Financial constraints dominated the findings.

Accessibility of ICTs in university Normann (1984) in Rumble (1992:78) maintains that ICTs in general and e-learning in particular have reduced the barriers to entry to the higher education business. To encourage innovation and maximize the use of ICT for higher education, UNESCO has implemented a project, ICT for Accessible, Effective and Efficient Higher Education, funded by the Japanese Funds-in-Trust, to harness the potential of ICT in delivering higher education educational goals. The major findings of the study included an increase in understanding of how ICT can be used to enhance curricular contents, examine the design, development and delivery of IT/ICT programmes to enhance the employability of IT graduates.

### Infrastructure planning and related challenges in ICT-enhanced learning

A study by Soner Yildirim and Zahide Yildirim highlighted contribution to ICT on infrastructure planning by a number of authors, (Anderson, Varnhagen, & Campbell, 1998; Cuban, 2001; Cuban, Kirkpatrick, & Peck, 2001; Ertmer, 1999; Schoep, 2004; Vaughan, 2002) The findings of that study suggested that providing access to ICTs was not enough, the supporting infrastructure was even more relevant. Apart from buildings another basic requirement 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. 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.

Egboka Patience Ndidi and Olibe , Eyiuche Ifeoma (2010) carried out a study on "Extent of provision and integration of ICT for implementing of University Policies in Nigeria" *International Journal of Educational Research and Technology* Vol 1 (1) June 2010, 60-65. The study investigated the extent of ICT infrastructure provision and integration for the implementation of national policies in Nigeria. Results showed a low level of infrastructure of ICT across universities. Results of this study have provided evidence that adequate infrastructure and integration have not been provided to enhance the implementation of policies in Nigeria. 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

In a study by Yildirim (2000) and. *Journal of Research on Computing in Education*, 32(4), 479–495ate programmes. <http://www.wascweb.org/> shared the same view with the following authors on importance of infrastructure (Anderson, Varnhagen, & Campbell, 1998; Cuban, 2001; Cuban, Kirkpatrick, & Peck, 2001; Ertmer, 1999; Schoep, 2004; Vaughan, 2002) T Soner Yildirim and Zahide Yildirim. In a study carried out by the above, the purpose of this study was to investigate the main barriers and possible enablers for integrating information and communication

technologies (ICTs) in Turkey's pre-service teacher education programs. The findings 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 university

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. Furthermore the staffs are unable to access journals online in order to update the knowledge on recent developments in their field of research. According to Dwyer, Ringstaff and Sandholtz, 1991; OTA, 1988, 1995; Sheingold, and Hardley, (1990) computer based technology can change the way teaching occurs. Universities with Internet facilities should look for freely available journals (Open Source journals) like EBSCO, Proquest, DOAJ and others. (jarora@inflibnet.ac.in/directors)

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 universities' delivery process. Policy availability and implementation process coupled with the availability of ICT standards and measurement criteria tend to inhibit smooth integration of ICTs in universities. 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 universities they attend.

### **2.3 Capacity building as a challenge to ICTs integration**

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, (Loveless and Ellis (2001).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, most teacher professional development in ICTs are heavy on "teaching the tools" and light on "using the tools to teach and 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 critical resources. Ronnkvist, Dexter, and Anderson (2000); Rogers (2000); and Sandholtz (2004) contend that research studies indicate a strong correlation between technical support and collaboration , it could be in the form of timely training and arranged peer review of targeted activities.

### **2.4 Content developers, Language and Instructional materials Development.**

According to the Commonwealth of Learning (COL) in a document entitled Open and Distance Learning Policy Development, Content development is a critical area that is too often overlooked. The bulk of existing ICT-based educational material is likely to be in English or of little relevance to education in developing countries when you look at the primary and secondary levels. An estimated 80% of online educational materials and software is English thereby depriving those who use local languages. Need for multicultural space to accommodate indigenous people especially where ICT is used for functional literacy.

Challenges for Dual Mode and ODL for ICTs Provision of Administration services Some of the challenges associated with the provision of teaching and learning facilities in a technology driven institution include the following; material development, production and distribution, assignments and examinations submission and checking for results. Research work of students and lecturers, collaborative projects, library and media usage should be enhanced to support on campus and off campus students with up to date information. Different thoughts about teaching space, security concerns of databases plus both hardware and software is critical as data and important information can be lost hence the 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 the ODL mode 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 individualized diagnostic testing and assessment of progress, managed by technology, 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 own campus and distance learner.

### **2.5 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 (Pinder 1998:11). Thus, motivation is a psychological process resulting from the interaction between the individual and the environment. Houkes et al. (2001) in (Latham and Pinder 2005) found that there is a positive relationship between work content (skill variety) and work motivation, and between erosion of work content and emotional exhaustion. The latter was also predicted by lack of social support. Sue-Chan & Ong (2002) investigated the effect of goal assignment on goal commitment, self-efficacy, and performance of people from 10 different countries. 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.

Roe (1999) and Frese & Fay (2001) argued the importance of personal initiative, defined as self-starting proactive behavior that overcomes barriers to the attainment of self-set goals. Employees high on personal initiative are able to change the complexity of and control over their workplaces even when they do not change jobs (Frese et al. 2000). Personal initiative, measured within the framework of a situational interview (Latham & Sue-Chan 1999), has adequate inter-rate scale reliabilities as well as construct validity (Fay & Frese 2001). 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.

### 2.6 ICT integration and challenges in Kenya

In a report on Challenges facing ICT integration in Kenyan schools the following contributions were revealed. While ICT continues to advance in Western and Asian countries, African countries still experience a lag in its implementation, and that continues to widen the digital and knowledge divides. In a recent study by Kiptalam et al. (2010), it was observed that access to ICT facilities is a major challenge facing most African countries, with a ratio of one computer to 150 students against the ratio of 1:15 students in the developed countries. Whereas results indicate that ICT has penetrated many sectors including banking, transportation, communications, and medical services, the Kenyan educational system seems to lag behind. Saturday November 12, 2011 "Challenges facing ICT integration in Kenyan Schools" Pedagogies of Flexible learning supported by Technology Many African countries have not been able to employ teachers, and provide resources to keep up with this demand. This brings about compromised quality of education and again many African governments face the predicament of educational expansion that corresponds with economic development. Despite the setbacks, access to education is a strong focus of most governments. Kenya as has put in place an ICT policy that aims to improve the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable and affordable ICT services. The above commitment has been seen in policy pronouncements in Zimbabwe The national policy addresses several sections, among them Information technology, Broadcasting, Telecommunications and Postal services.

### 2.7 Overview

Studies have shown that there are disparities in the availability of ICTs and the motivation levels are affected by quite a lot of factors ranging from psychological to the organizational influences. The literature showed that ICT diffused rapidly in developed industrialized countries, but slowly in developing countries, which led to the ICT gap, or digital divide between developed and developing countries and most Arab countries still have a long way to go before being able to fully realize the benefits of ICT tools (Gholami et al, 2004; Aladwani, 2003), that is because of insufficient ICT infrastructure, governmental policies, small size of companies, lack of ICT/Enterprise resource planning experience and low level of ICT maturity, these factors seriously affect the adoption decision (Huang & Palvia, 2001). According to Straub et al, 2000; Huang & Palvia, 2001, have highlighted the most important factors that determine ICT diffusion process in developing countries such as social and cultural beliefs and economic factors. Robertson & Barrar, 1992; Hughes & Clark, 1990 considered financial resource as an important factor that determines new ICT adoption. From above discussion some important issues have been discussed that were related to the ICT definition and diffusion in developing countries. But it is still not in deep way that is because the ICT issue is still new topic in these countries. So that, the researchers decided to conduct this issue practically.

### 3. Methodology

The research methodology adopted was influenced by the mixed methodology philosophy (quantitative and qualitative paradigm) and the descriptive/exploratory design was used in soliciting data for an assessment of challenges of ICT integration in universities in relation to ICT challenges and work motivation of lecturers in Zimbabwe. The quantitative research approach guided in data collection, presentation and analysis processes. Two questionnaires were developed by the researcher and used for the quantitative data collection from lecturers on ICT challenges and a questionnaire on work management was based on Work Management Questionnaire (WMQ) by Agarawal (1988)

The research designs, methods, instruments and sampling methods chosen have attributes of the mixed methodology. Studies by Strauss (1990) indicated that quantitative methods are based on content analysis, comparative analysis, grounded theory and interpretation. On the other hand the exploratory technique was used because it went beyond description to model empirically the social phenomena (phenomenological and ethnographical). The population and sample of lecturers, deans and tutors that was used in carrying out the study was described together with a clearly outlined probability sampling procedure. An effort was made to highlight the measures taken in order to ensure validity, reliability, triangulation and ethical considerations of research instruments. Two questionnaires were developed specifically for this study on lecturers. The instruments followed a review of similar instruments in the literature (Baron & Goldman, 1994; Queitzsch, 1997; Roblyer, 1994; SEIRTEC, 1998; Smith, 2002; Topp, Mortensen, & Grandgenett, 1995; Vagle & College, 1995; Tuckman 1978; Leedy 1980; Borg and Gall 1989). Generally, items in all of

them were grouped around topics highlighted in the literature review

The researcher carried out the research in six (6) universities, thus two (2) state and four (4) private in Harare the capital of Zimbabwe and they offered single, dual or ODL modes of delivery. Two questionnaires were used and administered to a sample of 200 lecturers in proportional levels because staff complements of these universities varied. The first one focused on respondents' demography as well as ICT integration and challenges in universities. The instrument went through a rigorous validation and reliability check through the whole process of development by the researcher and were piloted, validated and checked for their reliability. The other one, a Work Motivation Questionnaire by Agarawal WMQ (1988) blended with Minnesota Satisfaction Questionnaire (MSQ) was administered to the same 200 lecturers in their universities. The researcher came up with university statistics and then developed instruments according to the target sample which depended on the faculties or departments in each of the six universities. The researcher delivered the instruments but also engaged competent research assistants for follow-ups and morale building of the respondent

Pilot study of universities under study, was organized through Internet search, observation and discussion in the six universities so as to test the instruments. The major reasons for the pre-test were inter-alia: to provide extensive background information on delivery and administrative functions in these institutions. The statistical methods used depended on a number of factors. The researcher collected and coded data and then used an analysis of statistical values that were required. Excel and SPSS programmes were used and interpretations were made from the statistics of non-parametric statistics. Person Product Moment Correlation coefficient was used to see the degree of relationship, item analysis was done to calculate the mean and standard deviation, t-testing, significance testing, regression analysis, One way ANOVA and all the related reliability (Cronbach Alpha) and validity testing.

#### 4. Research Findings

General trend of university types showed that 66.6% were private and 33.3% were state and both the WMQ and ICT challenges normal distribution had a higher kurtosis for private universities. Most lecturers had a mean of 5 years experience with 95% having Post Graduate and Doctorate degrees. There was generally not adequate infrastructure for ICT integration in all universities with Christ College having the least and ZOU and WUA the most. In terms of support for ICT integration most universities had PCs and Laptops in varying proportions but scanners, data projectors and other hardware used to transmit data was not available hence could affect knowledge and skills acquisition of lecturers and general interests and competencies would be low. At least 95% had Internet facilities with Christ College having the least

On lecturer competencies and capacity building, most universities were not doing enough for their staff except for WUA and ZOU hence the relationship of  $r=0.2939$ . There is a weak positive relationship between ICT integration and

Work Motivation and its dimension scores. There is a positive correlation between delivery and communication processes, access to ICT facilities, and work motivation of lecturers and its dimension scores. There is no significant relationship between support for ICT integration, lecturer competencies and work motivation of lecturers and its dimension scores. There is a significant relationship ( $r=0.3321$ ,  $P<0.05$ ) between ICT integration in state universities and ICT challenges scores of delivery and communication processes ( $r=0.3123$ ,  $P<0.05$ ), support for ICT integration ( $r=0.1818$ ). There is no relationship between ICT integration in private universities and work motivation of lecturers and its dimension

There is a significant correlation between ICT integration 5 out of 6 dependent variables ranging from very weak to weak positive relationships. There is no relationship ( $H_0$ ) between ICT challenges, support for ICT integration, access to ICT facilities and work motivation of lecturers except for intrinsic motivation ( $r=0.3215$ ,  $P<0.05$ ), lecturer competencies and motivation of lecturers, ICT challenges scores of lecturers, delivery and communication processes, access to ICT facilities. There is a significant relationship between work motivation ( $r=0.00001$ ,  $P<0.05$ ) and ICT challenges ( $r=0.00006$ ,  $P<0.05$ ) and 18% of the predictors influence ICT integration. Almost 80% were not satisfied with the work benefits but they enjoyed team work whilst infrastructure was not adequate so was the full utilization of ICTs in curriculum delivery in all the six universities. Use of the computer and Internet by the lecturers dominated on sending and receiving emails at the expense of e-resource bases for delivery and administrative roles of ICTs. General use of software in universities showed that 90% make use of Word processors and Communication at the expense of more powerful software like Excel, Databases and Ms Publisher for Power Point presentations.

Most lecturers 80% bemoaned of poor connectivity coupled with power cuts and absence of substitute power sources. This affected smooth flow of data processing hence denied lecturers the satisfaction they could derive from end results. There was evidence of absence of national and institutional ICT policy as shown by 90% of the universities and non of the universities provided their curriculum on line hence this defeated the ODL delivery role especially at ZOU, WUA and CACC. All the universities (100%) do not have facilities for video, live broadcasts, Skype and any teleconferencing facilities thereby compromising the much required academic networking. The slow uptake and penetration of ICTs in universities was largely on costs of infrastructure to include hardware and software, difficulties in linking ICTs to curriculum and limited time and timetabling restrictions especially lecturer workloads in private and state universities.

#### 4.1 Implications of the Study

The results of this study have a number of important practical implications for the Higher Educational sector in Zimbabwe. The research findings can bring some awareness senior educational management and policy makers to revisit relationships between ICTs and the teaching and learning processes in universities. The researcher was happy to

indicate that the study made some significant contributions to the literature in a number of ways:

Management in universities seems to be reluctant to fully integrate technology in all departments and faculties for the benefit of lecturers and students in the teaching and learning process. Policy issues and guidelines related to ICT integration in state and private universities are still fragmented and university based instead of encompassing the whole Higher Education Ministry. Capacity building of lecturer's administrators and support staff should be prioritized so as to enhance appreciation of ICT and its associated benefits of increasing worker motivation, team work, organizational orientation and commitment to work at an institutional level. Lecturers indicated that there was some type of relationships between ICT integration and ICT Challenges variables of delivery and communication processes, Access to ICT facilities, Support for ICT integration, Lecturer competencies as these encouraged participation in decision making concerning their professional career. Some university lecturers bemoaned lack of opportunities for critical examination of existing knowledge depth and gaps in current ICT trends in universities created by the digital divide where some universities have not fully graduated to embrace the information technology superhighway..

Limited resources to leapfrog technology uptake and global depression coupled with unstable African economies have impacted negatively on ensuring lecturers are motivated and the teaching and learning environment is conducive for professional growth through well structured and satisfying career paths. ICT challenges seem to influence innovation in providing more access to learning resources especially for universities who have on-campus and off-campus programmes. Most dimensions of Work Motivation did not have significant influence on ICT integration in universities thereby rendering ICT challenges as the major predictors of ICT integration in universities.

#### **4.2 Limitations of the study**

The thesis set to find out the integration of ICTs in Harare's universities in relation to ICT challenges and work motivation of lecturers and six of them were picked two state and four private with the one denying access to the researcher on the grounds that they were preoccupied with other activities and a research would disturb the smooth flow of their activities. As a researcher, all attempts were made to minimize the research's limitations but like all studies chances of nil limitations are rare. Certain limitations on findings and interpretations of the findings may need to be highlighted as indicated below.

##### **4.2.1 The study generalized the findings**

This study examined only universities nearer Harare, the capital city of Zimbabwe. Generalisability or external validity refers to the extent to which results from data can be generalized to other educational levels. The issue of results obtained from a sample is applicable to the wider population (Zimbabwe Universities) from which the sample is drawn needs to be assessed. In this study some of the target non-respondents results used in the pilot study were answered item questions of the variables ICT integration in relation to

ICT challenges and work motivation of lecturers in Zimbabwe. The difference between the means of the measures of the main sample and that of the 60 respondents were statistically compared and it was found that the differences were not statistically significant. The means of the responses of early and late respondents were also statistically compared and it was found that no significant difference existed between the means of the responses of these two groups. The significance of these findings showed that the results suggested the findings obtained from the sample are applicable to the wider population of university lecturers from which the sample was drawn.

##### **4.2.2 Research Respondents**

The researcher had challenges in ensuring 100% response rate from questionnaires as respondents mostly lecturers, tutors and deans of universities seemed to be indifferent by showing that they had tight work schedules like assignment marking and examination setting. There were also scenarios where other researchers were using the same institutions to solicit data for their research in institutions of Higher Learning and respondents had to make choices based on the interest generated in the questionnaires. This researcher however overcame some of these challenges by making the questionnaire as attractive and exciting as possible as well attaching his photograph and spending most of his time making himself visible at the universities for almost two weeks.

##### **4.2.3 Sample size**

The research's sample size which had almost 80% males and about 20% females denied the researcher a balanced view based on demographic relationships with the variables in ICT integration in relation to ICT challenges and Work Motivation of Lecturers in Zimbabwe. The researcher had limited resources because sponsors are hard to come by in Zimbabwe and this researcher had to do with a limited budget in a strained economy suffering from liquidity crunch only covering 6 universities out of a possible 18 state and private inclusive.

##### **4.2.4 Organizational Culture**

Basing on the policies enshrined in the various Education Acts in Zimbabwe, there is little room for state institutions to be very innovative without violating existing policies of procurement and doing business especially implementation of programmes which take long and bureaucratic processes. Because of this rigidity, the culture of change is viewed as a source of conflict with existing operational strategies and this on its own affects the speed of overall uptake and integration of technology infrastructure (Hardware and software) Even though the research had the highlighted limitations, these were not only peculiar to this study on ICT integration in universities in relation to ICT challenges and work motivation of lecturers in Zimbabwe but also to all other forms of research carried out elsewhere. However the limitations did not preclude the usefulness of the findings of this study. The diffusion theory which guided this research created a solid scientific base for analysis by other researchers in terms of how technology can be integrated not only in universities but in all systems of the economy 5.

## 5. Conclusion and Recommendations

The population of lecturers was not very willing to complete questionnaires and the researcher had to include his photo on the cover letter hence researchers are encouraged making the questionnaire instrument attractive to the respondent. The researcher recommends that there be capacity building of lecturers ICT skills and their motivation levels, we also recommend for awareness and professional growth through exposure and exchange programmes as well as organized training and staff development programmes.

The researcher recommends that there be state assistance through policy directives of reducing duty on ICT infrastructure so as to harness the most state of the art technology for curriculum delivery especially E-learning and M-learning platforms. The researcher recommends creation of synergies at university levels to mobilize resources for ICTs and enlisting the services of international organizations in providing ICTs for various functions so as to fully utilize e-resources for the benefit of learners.

The researcher recommends that universities should continuously improve the performance of lecturers by offering non- monetary incentives so as to maintain high morale and eagerness to work for the best of the universities

## 6. Recommendations for Further Research

The researcher recommends a research which seeks to assess the relationship between technology based learning and its effect on student performance at tertiary level the results obtained giving rise to commitment to work. In relation to ICT integration, there is a relationship which exists because if lecturers lack ICT skills they are bound not to promote the use of ICT in curriculum delivery and searching for newer knowledge.

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