

# Research on the Implementation of ICT Subject in Public Primary Schools in Zambia: The Case Study on Chawama Township

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## ABSTRACT

### Article Info

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This paper highlights the effects brought about by the implementation of the Information Communication Technology (ICT) subject in the Zambian primary education curriculum, in Chawama's, Twatasha and Chimwemwe public primary schools in Lusaka district. This paper used qualitative research design. The three public primary schools of Chawama township in Lusaka district were targeted and were mainly the focus of this study. Both convenience and non-probability sampling techniques were employed. Three research instruments were used in collecting data, namely: semi- structured interviews, focus group interviews, observations and document digging. Data was transcribed, summarized, categorized and interpreted accordingly. Our paper will contribute to the literature within this subject area and will help future researchers to gain insight of the on goings of these issues.

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## I. INTRODUCTION

The Zambian governments have for many years held high importance of Information, communication and technology in all aspects of development, the education sector has been given great mandate to produce computer literate students, with innovative and long-life learning skills at all levels of education. This study springs from the governments re introduction of compulsory provision of ICT subject in government primary schools through the 2013

revised curriculum. ICT education is a subject that the government of Zambia has introduced in the school curriculum system so as to provide students with the knowledge and skills to understand the underpinnings of current computer technology and prepare them for emerging technologies. A foundation in this discipline will introduce learners to the excitement and opportunities afforded by this dynamic field and will begin to prepare them for a range of rewarding careers (MESVTEE 2013).

It has been noted that learners should no longer be kept away from technology, the earlier they are exposed to it the better it helps in building innovative skills in them which further helps them in their learning process (Smaldino, Lowther and Russell;2007) states that even at early age, children learn to use technology to expand their learning opportunities. Studies have shown the benefits of early computer skills in learners, 'children and adults will increasingly need to develop digital literacy, not only for life skills but also to support their education throughout the secondary, post-secondary and tertiary levels. The early provision of ICT into primary and secondary curricula through formal recommendations is therefore vital and moreover acts as a vital lever for ensuring the introduction and implementation of ICT into educational institutions and classrooms. Especially where ICTs are absent in households, learning basic computer skills or computing is important for lifelong learning.

According to UNESCO (2014) ICT is essential to enable young people to develop the needed skills that correspond to the opportunities in the work environment to reflect and respond to the current pace of change. Furthermore, it has mentioned that ICT helps teachers to link with students as well as deliver the required teaching method that is deemed appropriate for the individual. (O'Dowd ,2013). Under its project ICT4D – ICTs for development states that children are intuitive users and are perceived as naturally innovative and capable with technology, more so than adults. This logic suggests that children only need to be given access to ICTs for them to start deriving benefits from them. This is part of the vision of the introduction of compulsory ICT education in Zambia and the policy advocated for all children to receive ICT skills (UNICEF,2013). Wajszczk (2014) settles that use of modern IT in education is an opportunity to emerge a cognitive resource-based mechanism in learners and develop the skills and the importance of lifelong learning and continuous education, thus facilitating a more

individual approach and individualized communication between teachers and students, the author further contends that schools are meant to prepare for a life in the modern world, which is difficult to imagine without computers and other technologies and the skills to use them.

Learning, according to Osakwe (2006) is a natural process of pursuing meaningful goals, discovering and constructing meaning from information and experience filtered through the learners' unique perceptions, thoughts and feelings. Instruction is part of learning (Reigeluth & Carr-Chellman, 2009). Smaldino, Lowther, Russell, and Mims (2015) define instruction as "any intentional effort to stimulate learning by the deliberate arrangement of experiences to help learners achieve a desirable change in capability. Hence, when a child is born into the world learning commences immediately to enable him/her get adapted to the new system. The early introduction of technology skills in children has been said to be more beneficial if children are to acquire 21<sup>st</sup> century skills which will not only benefit them in their education life but even in their work life. Developed countries have greatly advanced in ICTs and have for a long time been not only integrating them in teaching and learning but students are taught how to operate these technologies taking them as subjects with different names such as Computer Skills studies, Information technology studies, ICT education, regardless of the various name calling all these fall under one theme which is to serve the purpose of equipping learners with digital skills, innovation and computer literacy in education. Zambia has introduced compulsory ICT education in her education system in order to develop a technological literate society that will improve her citizens from an individual to a national level.

ICT in Zambian education system has not been as new as we see it today the (MOE ,1996) in the national policy educating our future mentioned the goals of the education system is producing learners

that are capable of developing an analytical, innovative, creative and constructive mind; thereby appreciating the relationship between scientific thought, action and technology on the other hand. In addition, the role of the Ministry of Education (MOE) is to encourage and facilitate the establishment of ICT education in the primary sector of education and beyond, with the help of the curriculum development Centre, it is able to create citizens that have the skill to survive at any level of education unlike waiting for learners to go into secondary schools for them to be exposed to 21<sup>st</sup> century skills. Zambia has realized that the foundation of learner in Information technology is more beneficial. Nevertheless, there has to be account of the learning taking place from the teacher point of view to the learner point of view to ensure that learners are actually benefiting from ICT education. In 2011 through the new patriotic front government it was realized that ICT education be made compulsory in the Zambian school system; the curriculum was revised and in 2013 implemented in all government schools.

## II. LITERATURE REVIEW

### 2.1 Global Perspective of ICT

ICT is a generic term referring to technologies which are being used for collecting, storing, editing and passing on information in various forms SER, (2007). A personal computer is the best-known example of the use of ICT in education, but the term multimedia is also frequently used. Multimedia can be interpreted as a combination of data carriers, for example video, CD-ROM, floppy disc and Internet and software in which the possibility for an interactive approach is offered Smeets (2006). In 2008, OCTO (a Dutch educational research institute) studied the extent in which ICT is actually being used for realizing the above-mentioned functions. The research was carried out on all educational levels in The Netherlands. The present work concentrates on vocational education. However, given the lack of a sufficient response, a reliable image for the entire sector cannot be given,

but an impression of the status quo of the use of ICT in vocational education is possible. Janssen Reinen (2009). "ICT is never being used as a (learning) objective by 33 of 55 teachers; 27 teachers do not use ICT as teaching material and 21 teachers do not use ICT as an aid". If the computer is being used, then this is mainly for the purpose of word processing and exercising the lessons. Thus, it seems that the computer is being used especially for supporting more traditional educational settings Janssen Reinen, (2009).

According to Bingimlas, K. (2009), Technology Integration Initiative was designed in Ireland to support schools in developing their ICT infrastructure. Schools received grants for the purchase of computer hardware, and those schools that did not already have an internet connection were assisted in getting on line. The aim of the Technology Integration Initiative was to have at least 60,000 computers in schools by the end of 2009. In the following year the National Centre for Technology in Education (NCTE) census reported that there were some 84,000 computers in Irish schools. The Teaching Skills Initiative recognized that there was little point in putting computers in schools unless teachers were trained in their use. This initiative provided for teacher training in three distinct areas, namely ICT skills and awareness, professional skills development in ICT, and pedagogical skills development. The Schools Integration Project dealt with whole-school development and investigated a range of teaching and learning topics with regard to ICT integration. Approximately ninety pilot projects were established in a number of "lead" schools, which worked in partnership with education centers, businesses, industry, third-level institutions, and the community. Most of the individual projects implemented as part of the SIP concluded in 2001 and 2002, and the remainder were completed in 2004 Broadley (2012).

### 2.2 African Perspective

However, many African countries still do not have satisfactory Internet connectivity due to a lack of

infrastructure Afshari et al (2009). This insufficiency in ICT infrastructure and connectivity replicates the pessimists' idea Bingimlas (2009) that ICT will broaden the divisions that exist in the so-called 'digital divide' (Warschauer, Knobel and Stone, 2004) between the rich and the poor nations. ICT policies are yet to be developed by governments in Africa to ensure successful integration of ICT in education and scopes of society, especially in (Kadzo, 2011; Ayere, Odera & Agak, 2010). This correspondingly explains why it was very problematic to find ICT policies of African countries on the Internet in order to follow and analyze the policies, for better understanding on how far they are thriving to make them work.

As in many other countries in the world, the South African government maintains an optimistic view regarding ICT projects implementation in schools (UNESCO, 2009). ICT is perceived as a panacea to many educational, social and economic problems. Technology is a critically important tool in that struggle (Imbizo for African Youth, 2001), as cited in the White Paper on e-Education (DoE, 2010) At this time, the state of ICT in South African schools was worth considering, since only 26.5% of schools in South Africa were found to be having access to computers for teaching and learning in 2002, according to the White Paper on e-Education DoE (2010).

The South African government's response to address the digital divide was to establish the Presidential International Advisory Council on Information Society and Development in 2001 (Park, et al., 2009). One of the council's key areas of focus was ICT in education, especially by addressing the digital divide DoE (2004). In addition, various other policy frameworks have been put in place to enable the integration of ICT into teaching and learning Williams (2010). These policies are dealt with in a number of documents published by the South African government, including the "Draft White Paper on e-Education DoE (2003), the Revised National

Curriculum Statement documents for Grades R-9 for the General Education and Training band (DoE, 2001), the Draft National Curriculum Statement for Grades Schools. The introduction of ICTs has been of great importance to improve digital literacy in students.

### 1) 2.3 Zambia Perspective

Like many other countries in the world, Zambia has developed National ICT Policy (2006). It sets out the nation's aims, principles and strategies for the delivery of Information and Communications Technology to improve the livelihoods of Zambians (MoE, 2011b). Ministry of Education (MoE) introduced the National ICT Strategy for Education and Training (Farrell 2007). The ICT policy gives an opening for establishment grass root based infrastructure for knowledge sharing (Mureithi and Munyua 2009; MoE, 2011a) The ICTs in Education Options Paper (MOEST 2005), discusses the ways in which information and communications technologies (ICTs) can be leveraged to support and improve the delivery of quality education for all Zambians. It provides a comprehensive range of potential technologies to improve teaching, learning, and management. It is intended to enable the government of Zambia to plan appropriate ICTs in education interventions as they move forward with the comprehensive Zambia Education Sector Support Program 2005–KESPP (UNESCO, 2005). This includes interactive radio instructions (IRI), use of computers in schools, development of ICT skills and the access of internet (Ayere, M.A.; Odera and Agak, J., 2010).

The new curriculum at primary school level has incorporated ICT. The rationale behind this is that learners need to be equipped with skills and knowledge to be competent in accessing and working with various forms of information and communications technology. At primary school level ICT has been integrated in Creative and Technology Studies. The ICT syllabus was produced as a result of the Curriculum review process carried out by the Ministry of Education, Science, Vocational Training

and Early Education under the auspices of the Curriculum Development Centre (CDC). The curriculum reform process started way back in 1999 when the Ministry of Education commissioned five (5) curriculum studies which were conducted by the University of Zambia. These studies were followed by a review of the lower and middle basic and primary teacher education curriculum. In 2005 the upper basic education National survey was conducted and information from learners, parents, teachers, school managers, educational administrators, tertiary institutions traditional leader's civic leaders and various stakeholders in education was collected to help design a relevant curriculum. (M E S V T E E, 2013) The recommendations provided by various stakeholders during the Upper Basic Education National survey of 2005 and National symposium on curriculum held in June 2009 guided the review process.

The review was necessitated by the need to provide an education system that would not only incorporate latest social, economic, technological and political developments but also equip learners with vital knowledge, skills and values that are necessary to contribute to the attainment of Vision 2030. The syllabus has been reviewed in line with the Outcome Based Education principles which seek to link education to real life experiences that give learners skills to access, criticize analyze and practically apply knowledge that help them gain life skills. Its competences and general outcomes are the expected outcomes to be attained by the learners through the acquisition of knowledge, skills, techniques and values which are very important for the total development of the individual and the nation as a whole. Effective implementation of Outcome Based Education requires that the following principles be observed: clarity of focus, Reflective designing, setting high expectations for all learners and appropriate opportunities. It is hoped that this Outcome Based syllabus will greatly improve the quality of education provided as defined and

recommended in various policy documents including Educating Our Future 1996 and the (Zambia Education Curriculum Framework 2013(MoGE, 2015).

Compulsory ICT education was introduced into schools and in the primary level education which runs from grade one to grade nine, it is an examinable subject at grade seven (7) and at grade nine (9) national wide. "The major focus of Computer Studies is the development of productivity tools skills, which are important for success in future post-secondary studies, it is relevant for all students because it incorporates a broad range of transferable skills and techniques. Computer Studies will provide students with the knowledge and skills to understand the underpinnings of current computer technology and prepare them for emerging technologies. A foundation in this discipline will introduce learners to the excitement and opportunities afforded by this dynamic field and will begin to prepare them for a range of rewarding careers.

### III. DATA AND METHOD

#### 3.1 Preliminary Analysis and Sample Size Selection

Chawama township is one most populous township in Lusaka district where the schools are located, they are about 10 kilometers apart from each other all, they are located in the urban city of Lusaka. It is busy with daily business activities and due to the fact that it has a number of private not everyone can afford thus making the public schools overenrolled. These schools are Twatasha, Chawama and chimwemwe primary schools. Chawama school was founded in 1958, Twatasha primary school first started as a community school and due to increase in population in chawama township, it was built by world bank and in 1979 it was opened as a government school. chimwemwe school was also built by world bank and was open in 1979. The tenure of head teachers in these schools is not limited and it is not determined by the ministry of education so head teachers can serve for

more or less years and can only be move when need arises or when they retire.

Table 1. Twatasha school last five pupil's enrollment and score rates

<i>Academic year</i>	<i>Grade 7/8 enrollment</i>	<i>Grade 9 enrollment</i>	<i>School -score rate</i>
2014- 2015	300	500	40%
2015-2016	300	350	43%
2016-2017	330	350	47%
2017-2018	330	400	50%
2018-2019	346	400	66%

FIELD DATA 2019

Table 2 Chimwemwe school last five pupil's enrollment and score rates

<i>Academic year</i>	<i>Grade 7 enrollment</i>	<i>Grade 9 enrollment</i>	<i>School -score rate</i>
2014- 2015	400	400	45%
2015-2016	380	350	47%
2016-2017	405	300	55%
2017-2018	430	427	60%
2018-2019	390	395	64%

FIELD DATA 2019

Table 3 chawama school last five pupil's enrollment and score rates

<i>Academic year</i>	<i>Grade 8enrollment</i>	<i>Grade 9 enrollment</i>	<i>School -score rate</i>
2014- 2015	320	400	20%
2015-2016	368	323	38%
2016-2017	387	350	45%
2017-2018	368	400	55%
2018-2019	350	300	62%

FIELD DATA (2019)

The sample size of this study were three public primary schools in chawama township that have full running of ICT as a subject. This study had a total of 34 participants, 24 students,4 administrators and 6 ICT teachers, in addition the researcher was gender sensitive in selecting participants both male and female were given equal opportunity to part take in the study furthermore these numbers of participants chosen in this study represented all of the study, the breakdown of the participants is as follows.

Table 4 Sample size of participants in the study

Grouping of respondents.	Name of Institutions	Number of Participants
School administrators	Twatasha Primary School	1
ICT subject teachers		2
ICT students		8
School administrators	Chawama Primary School	1
ICT subject teachers		2
ICT Students		8
School administrators	Chimwemwe Primary School	2
ICT subject teachers		2
ICT Students		8
<b>TOTAL:</b>	<b>3</b>	<b>34</b>

#### IV. Empirical Analysis and Discussion

Table 5 presents the outcomes of the paper from the participates in the study, that is ICTs teachers, school administrators and students, in the schools of chawama township under scrutiny: What technologies and resources do teachers use in instructing ICT subject in schools, How is ICT subject instructed by teachers in Public Primary schools, What are the factors that would lead to successful implementation of ICT in public primary schools in chawama township, Lusaka, Zambia, What are the challenges faced in instruction of ICT subject, and what are possible solutions by which ICT instruction can be improved.

Table 5 student respondent

Respondents	Sample	Returned interviews	Percentages %
<b>School administrators</b>	4	4	100
<b>ICT Teachers</b>	6	6	100
<b>Students</b>	12	12	100
<b>Total</b>	14	22	100

#### 4.1 Respondents' background characteristics

Concerning their qualifications four had undergraduate degrees and two had secondary diploma in education, nevertheless out of the six ICT teachers only four trained in ICT at tertiary level as a teaching subject while two trained in computer science and only obtained a teaching methodology to enable them qualify as teachers of ICT. On age, it was found that the range among the school head teachers was from 40-55 years while the age range of ICT teachers was from 24-38years old.

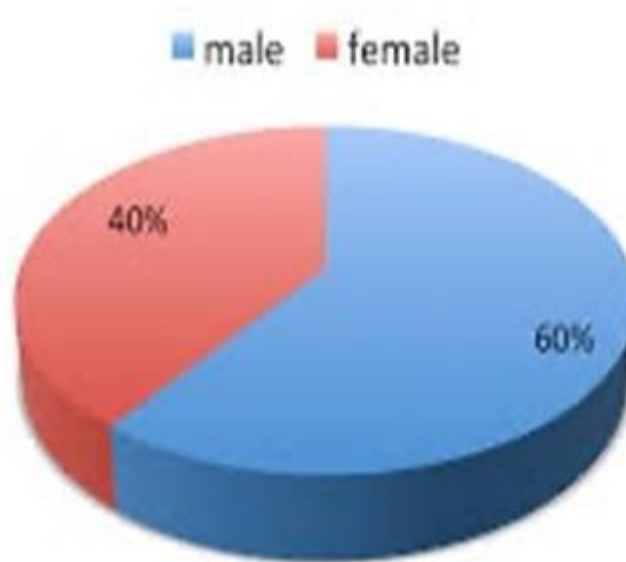


Fig. 1 Distribution of Respondents by Sex

During the data collection of this paper a total number of 12 students were interviewed, a focus group interview was used for each four (4) students in each school, the researcher deemed it right to use this technique because it gave students more confidence to express themselves however only four (4) students' findings were finally reported in this study as these all represented views of students that took part and that the researcher. Their age ranged from 13 to 15 years and their school level was from grade 7 to 9 class. The names in this table were not the real names the respondents.

Table 6

Name	K	B	M	C
School	Twatasha	Chimwemwe	Chawama	Chawama
Age	13-15 years	13-15 years	13-15 years	13-15 years
Grade	7	7	9	8

Generally, the findings signposted low numbers of computers in schools there were no any other materials apart from teacher's text books as their main material of teaching and a few computers for reference points this has contributed to poor implementation and teaching of ICT in chawama township. Some schools do not have computers and books in ICT while others have less than the acceptable number of computers to teach effectively. To sum it up during the researcher's document digging to validate what the respondents gave out it was found that According to Zambia Institute for Policy Analysis and Research ZIPAR (2018). At both secondary and primary level there are less than 30,000 computers available for use by learners. In 2016, there were 4,025,380 learners enrolled at both primary and secondary level against 26,575 computers. This gives a ratio of 1:150 implying that on average one computer is shared among 150 learners. The situation is much worse at primary level which had 3,203,220 learners against 14,590 computers resulting is a ratio of one computer for every 219 learners. These numbers reveal the severity of the challenges being faced in teaching of (ICTs) computer studies and this has not changed to meet the target.



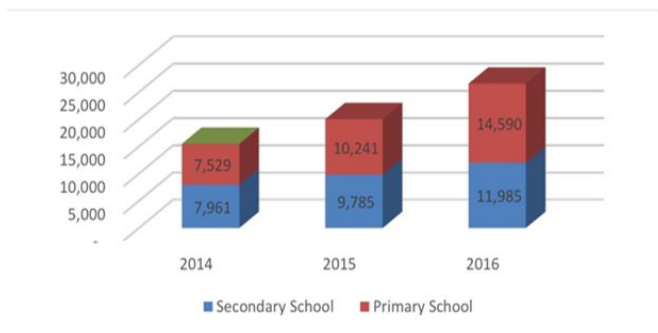


Figure 2. Total Number of Computers in Schools Educational Statistical Bulletin.

The statistics above showed that very few gags of computer in primary schools and this case has not changed for the better this clearly depicts the respondent's comments during the study of chawama, twatasha and Chimwemwe public primary schools. The finding corroborates with previous study results where limited materials was found as a major barrier to effective ICT education policy among students (Almendarez, 2011; Bingimlas, 2009; Pelgrum, 2001). The availability of computers with necessary peripherals is critical when one want to achieve a successful ICT education policy.

## V. Conclusion and Recommendation

The paper found that school administrators and teachers are aware of the implemented policy compulsory introduction of ICT subject and schools have been warmly welcomed it. However, this has come with its challenges in making this a full success, during the study it was noted form head teachers, teachers as well as pupils that these schools lack ICT materials and resources such as books to help in broadening the teaching and learning horizon teachers have scarce teaching books, infrastructure, computers and many as alluded to in this report. The lack of computers and large classes due to over enrolment is another plight that is being faces by teachers and pupils in the primary schools, the study revealed that school laboratories were not fit for conducive learning due to non-functional computers

as a result it has become a burden for the teachers and pupils as they struggle with a few computers among hundreds of pupils.

The role of government was being repeatedly pointed out by participants due to the fact that most schools have limited resources that have already been stretched. The researcher is not optimistic on the fully support from the government, meaning that schools have to look in the direction of self-sustainability by making the labs accessible by the community surrounding the schools which some of the schools already do but more can still be done for sustainable cooperation. It is about time the communities, make a significant paradigm shift towards ICT and the benefits that come with the umbrella. As the world is shifting further towards the use of technologies, Zambia and other developing countries cannot afford to keep a closed eye on the issues. To embrace ICT, there is no better place than in schools. All stakeholders of the education sector must join hands to tackle the issues and witness the technological and economic transformation.

Additionally, the study revealed that there is limited practical after teaching as well as lack of internet access and electricity. These challenges were confirmed by both the teachers and the students within the various schools sampled. The non-existence of these facilities may put teachers in a position to teach in abstract without the children acquiring the practical aspects of the subject, this may probably lead to a situation where students might not gain the required knowledge needed for the job market. The study found significant association between ICT materials lacked by the school and difficulty of students understanding ICT when taught. The study found that teaching of ICT under circumstance whereby there are no resources will not help in achieving a desired outcome. Particularly, difficulty of understanding ICT was highest among

students in schools that have limited computers and no internet access. The findings imply that students might not be able to put the ICT concept into practice when there are no adequate provisions tentative practical.

Furthermore, having qualified teachers, it was found that they do not have any quality professional development to help the grow in skills at regional or national level the study revealed a lot of challenges with these teachers in terms of teaching strategies and skills and this was mainly attributed to the fact that there has been no in-service training for this teacher to guide them and equip them with needed skills to effectively teach the subject.

The study findings further made a case for lack of more effective teaching methods with only a few teachers practicing effective methods. Thus, there is the need for practical measures to be put in place to help arrest the situation to enable the policy achieved its goals. The study has a number of implications for policy making on ICT education in Zambia. The study findings indicated even though teachers are well knowledgeable about the policy there is need for teachers and schools to be more equipped, in order to release the vision of a computer literate society. The study indicates the sufficient availability of qualified teachers but lacked some ICT skills, therefore, there is the need for teachers to be taken through workshops, seminars and in-service trainings for them to acquire skills on how to handle ICT effectively. Teachers are central in making accessible ICT education a reality for the student.

Going forward, there is the need for governmental commitment towards the implementation of the policy so as to achieve the objectives. Lack of political will manifested in the insufficient and lack of computers and laboratory in schools for practical's as revealed by the study. Therefore, government should provide enough equipment needed by schools. Supplying of computers to schools should not be a one

time show but should be sustained. Moreover, government should consider building computer laboratories in schools and ensure that it is up to state-of-the-art laboratories.

### **Recommendation**

The ministry should conduct an inspection of schools and see how inadequate these schools are in terms of computers, printers and other equipment used in teaching this is across all the schools that were in this study therefore computers and other technology should be provided in these schools beforehand. Conduct professional development among the teachers for quality assurance. The government should build and renovate the classrooms in order for them to be suitable for ICTs integration. Most of the classrooms in the public schools were built without the idea that ICT would be used thus most classrooms do not have electrical installations, air conditioners, window protectors' inbuilt computers and projectors. This will help teachers and learners conduct lessons with such convenience.

There is need that schools become more creative to create conducive environments for learning ICTs such as more outdoor learning experiences outside the classrooms, this cannot be done by teachers alone but the school should have clear outline of creative learning thus having teachers initiate them school laboratories need to be conducive and be able to accommodate students.

### **VI. REFERENCES**

- [1]. Afshari, M., Bakar, K.A. and Luan, W.S. (2009). Factors affecting teachers' use of Information and Communication Technology, International Journal of Instruction January 2009. Vol.2, No.1.ISSN: 1694-609X.www.e-iji.net.
- [2]. Ayere, M., Odera, F. & Agak, J. (2010). E-Learning in Secondary Schools in Zambia: A Case

- of the NEPAD E-Schools. In Educational Research and Reviews.
- [3]. Broadley, T. (2012). Enhancing Professional Learning for Rural Educators by Rethinking Connectedness. In Australian and International Journal of Rural Education, 22(1)
- [4]. Bingimlas, K. (2009). Barriers to the successful integration of ICT in teaching and learning environment: A Review of Literature. Eurasia Journal of Mathematics, Science and Technology education 5(3) 235-245
- [5]. DOE (2003,2004-2010) Draft white Paper on E-Education, Pretoria: Government publishers
- Galea (2002) implementation of ICT in Education. Zambia country report Ibid, P.167
- The International Journal of Multi-Disciplinary Research ISSN: 3471-7102 62 Paper-ID: CFP/292/2017 www.ijmdr.net
- [6]. Janssen Reinen IAM. Beroepsonderwijs en volwasseneneducatie; ICT-monitor 1997/1998. Enschede: University of Twente, OCTO, Onderzoek Centrum Toegepaste Onderwijskunde, 1999.
- [7]. Kawooya (2004) ICT and education. Zambia: University of Nairobi Kadzo, L. (2011). Zambia launches National ICT Innovation and Integration Centre. <http://www.cio.co.ke/news/main-stories/ZambialaunchesNational-ICT-Innovation-and-Integration-Centre>
- [8]. MESVTEE -Ministry of Education, Science, Vocational Training and Early Education (2013) Computer Studies Syllabus Published by the Curriculum Development Centre.
- [9]. MoE. (2011a). ESP-ICT Funded Schools 2010-2011. <http://www.education.go.ke>
- [10]. MoE. (2011b). ICT Fund. <http://www.education.go.k>
- [11]. MOEST (2005) Implementation of ICT in Zambia. Lusaka: Directorate of information Ministry of Education,
- [12]. MoEVT. (2009). Curriculum for Diploma in Teacher Education Programmes in Tanzania. (Tanzania Institute of Education, Ed.) (Edition of 2013). Dar-es-Salaam, Tanzania: Tanzania Institute of Education. Retrieved September 14, 2013 from [http://www.moe.go.tz/index.php?option=com\\_docman&task=doc\\_download&gid=226&Itemid=619](http://www.moe.go.tz/index.php?option=com_docman&task=doc_download&gid=226&Itemid=619)
- [13]. PMRC - policy monitoring and research center (2020) "Implementation Status and Challenges of ICTs In Zambian Schools" Report
- [14]. UNESCO, (2005). Information and communication technology in education in Asia: A comparative analysis of ICT integration and e-readiness in schools across Asia. Information paper no.22.
- [15]. UNESCO (2005). Challenges of implementing ICT in education in Zambia: assessment report. Ministry of Education, Science & Technology: Lusaka UNESCO (2008; 2009; 2010; 2013). Integrating ICTs in education, lessons learned. Published by the UNESCO Asia and Pacific Regional Bureau for Education.
- [16]. UNESCO. (2009). UNESCO ICT Competency Framework for Teachers (Framework Document) (p. 95). de Fontenoy, PARIS, France: UNESCO. Retrieved October 16, 2014 from <http://unesdoc.unesco.org/images/0015/001562/156209E.pdf>
- [17]. UNICEF and World Bank (2009). Africa Human Development Series, Development practice in education. World Bank Publications.
- [18]. UNESCO (2014) ICT in Primary Education Analytical Survey Volume 3 Collective Case Study of Promising Practices; Published by the UNESCO Institute for Information Technologies in Education.
- [19]. UNESCO. (2014). Tanzania Education Sector Analysis (Analytical document No. SN/2012/ED/PI/1). Dar-es-Salaam, Tanzania: Ministry of Education and Vocational Training (MoEVT), The United Republic of Tanzania. Retrieved May 14, 2013 from

<http://unesdoc.unesco.org/images/0021/002152/215247e.pdf>

- [20]. Warschauver knobel, Stone. Integrating ICTs in education. London: Sage, 2004.
- [21]. Warschauver knobel and Stone (2004) Integrating ICTs in education. London: Sage
- [22]. Williams, Mark D. J. (2010). Broadband for Africa: Developing Backbone Communications Networks. Washington, DC: World Bank.
- [23]. Williams, Mark DJ. Broadband for Africa: Developing Backbone Communications Networks. Washington, DC

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