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School ICT Policy, a Factor Influencing Implementation of Computer Studies Curriculum in Secondary Schools.

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Abstract
The introduction of ICT curriculum in education among schools in many countries was as a result of National ICT policy initiatives by the government. The National ICT curriculum differs from regions depending on the education system practiced in a country. In this particular study, ICT policy initiatives towards effective implementation of Computer Studies Curriculum which is offered under the 8.4.4 system of education in Kenyan secondary schools was studied. The study focused on School ICT policy towards implementation of Computer Studies Curriculum in secondary schools. Report on investigation and discussion of availability of a School ICT policy and the implementation of Computer Studies curriculum was therefore made in this paper. Questionnaire for Computer studies teachers and students as well as interview schedule for school principal were used as method of data collection including document analysis guide. Quantitative and qualitative data was analyzed by use of descriptive statistics. The findings revealed that availability of a School ICT policy encouraged implementation of Computer Studies Curriculum. The results of this study suggest that schools which had an ICT policy were able to fully implement Computer Studies curriculum**.**
Key words: ICT Policy, Computer Studies Curriculum,8.4.4 system of education.

Introduction

Decentralization of education policies in Kenya is limited to administration and management of education among schools. This cannot be ascertained in regard to the implementation of the curriculum given lack of research in this area. This is because policy regarding implementation of 8.4.4. curriculum in secondary schools adheres to a centralized policy approach. Previous research however has established that centralized approach of curriculum implementation is common among schools in Kenya. Nyangara *et al*, (2011) and Odera, (2011) both confirm that schools rely on centralized approach in the implementation of 8.4.4. curriculum. Worldwide educational reforms advocates for decentralization of educational policies (UNESCO, 1999). This allows schools to determine their priorities and introduce relevant school reforms (Equip, 2005). In Kenya the ICT policy advocates for innovative practices in the implementation of 8.4.4. curriculum (Sessional Paper No 1 of 2005). It is against this background that decentralized approach should be adopted in schools offering Computer Studies Curriculum. Previous studies according to Karagiorgi. K & Charalambous. K, (2004) asserts that decentralized ICT policies offer solutions where Centralized ICT policies are inadequate. This gives valid credence as regards adoption of School ICT policy among secondary schools in Imenti North in Meru County, Kenya. The same notion had been proposed in earlier studies done by Mcginn & Welsh, 1999) and Nyagara *et al*, (2010).

Computer Studies curriculum is dynamic and requires frequent reviews for successful implementation. The implementation depends on adherence of the stipulated Ministry of Education (MOE) guidelines. Modalities supplementing the MOE guidelines should be a prioritized at the school level which is a decentralized policy approach. Jo Tonduer, Van Keer, Van Brank &valcke, (2007) justifies the essence decentralizing school ICT policy due to positive impact towards ICT implementation. Nyangara *et al*, (2010) conclusion is that any policy has an impact on the implementation of any curriculum. School ICT policy should therefore lead to ingenuity and improved pedagogical practice among schools offering Computer Studies Curriculum. The emerging trend in education technology is an indicator that schools have to conform by establishing relevant school ICT policy (MOE, 2012). Digitalization of 8.4.4. curriculum and online learning platforms are some of the widespread form of educational technologies being used in Kenya. Session paper no 1 of 2005 objective on ICT integration in teaching and learning would be achieved in school with an own developed school ICT policy.

Implementation of Computer Studies Curriculum involves putting into practice the prescribed Computer Studies Curriculum at the school level. Commonwealth of Learning (2000) implementation of any curriculum should cater for the interest of the learners. Success in implementing Computer Studies curriculum at school level

among other benefits is preparing a good foundation for further studies in ICT (KIE, 2006). School ICT policy should be formulated with the learners' interest in mind. Formulating such a policy should involve school administrators, teachers, students and stakeholders (MOE, 2012). UNESCO, (2011) ICT policy becomes acceptable if its formulation involves stakeholders. Essentials of an ideal school ICT policy must be acceptable for effective implementation of Computer Studies Curriculum. Overall attribute is therefore effective pedagogy (Kennewell, Parkinson, & Tanner, 2000). Considerations as regards to the core elements of Computer Studies Curriculum must be emphasized in the implementation process (Murithi *et al*, 2012).

As a way of reforming the educational sector decentralization of ICT policy to school level would be ideal. The government of Kenya vision 2030 initiative as well as millennium development goals would be achievable where schools are able to prioritize their curriculum needs. The challenges influencing implementation of school ICT policy can easily be overcome through collaborative efforts of school stakeholders. This is a major factor contributing to execution of any policy medial &Tawanda (2012).

Purpose of the Study

This study was to establish whether school ICT policy was a factor influencing the implementation of Computer Studies Curriculum in secondary schools which offered Computer Studies.

Research Questions

The study was guided by the following research questions:

1. Do schools have an existing school ICT policy for implementation of Computer Studies Curriculum?
2. Is there a relationship regarding prevalence and lack of a school ICT policy in the implementation of Computer Studies Curriculum?
3. What are the challenges influencing adoption of school ICT policy in the implementation of Computer Studies Curriculum.

Methodology

The study was carried out in schools in Imenti North in Meru County, Kenya. The District lies within latitudes 03^{o} 45"North and about $02^{o}30$" South and latitude 37^{o} and 38^{o} East and 0'2'North of the Equator (Republic of Kenya, 2002). The choice and justification of Imenti North District was because of the report by Kenya Integrated Household Budget Survey (2006) which showed 100% access to school by the habitants. Kenya National bureau of Statistics (2010) Report, ranked the district among the top constituencies in the Constituency poverty Index Level in terms of resource endowment. The implication should be integration of adequate ICT facilities in all secondary schools which offered Computer Studies Curriculum.

Research Design

The study was based on descriptive survey design. The essence was description, recording, analysis, interpretation and making of inferences where appropriate (Shuttleworth, 2008).This design used both qualitative and quantitative research methods. The researchers preferred its use because of its appropriateness in yielding accurate data. Borg and Gall (2007) makes clarification regarding descriptive survey as a method for collection and analysis of data in order to answer questions or test hypotheses concerning the current status of any activity.

Population and Sample

The study involved 22 secondary school principals, 22 Computer Studies teachers and 660 form two students taking Computer Studies in both public and private secondary schools in Imenti North District. Saturated sampling technique was used whereby 22 secondary school principals and 22 Computer Studies teachers were selected. Random sampling led to selection of 330 form two students of Computer Studies who participated in the study. Simple random sampling technique was used because it reduces the chance variation between a sample and the population it represents (Grinnel, 1993; Mugenda & Mugenda,1999).

Instruments for Data Collection

Instruments that were used to collect data included questionnaires for teachers and students, an interview schedule for the school principals. The questionnaires used entailed open and closed items. Open ended questions provided detailed information and were ideal for obtaining data from a large number of respondents. (Ngumbo, 2006) while closed ended questions provided structured responses, which assisted in tabulation and analysis. The observation checklist was used to gather data from the secondary schools so as to verify

information obtained through the Principals' interview schedule and teachers' questionnaire. Secondly it assisted in availing information which could not be captured in the interview schedule and Computer Studies teachers' questionnaire.

Validity and reliability of instruments

Validity of the instrument was realized after the researchers had examined the content of the instruments which guided the researchers on the content validity. The instruments were however piloted with the intention of establishing their reliability. The piloting was carried out in two schools involving two Computer Studies teachers, two principals and 40 students taking Computer Studies. The reliability was however confirmed after it emerged that a coefficient of 0.75 was attained from Pearson moment correlation coefficient which is acceptable for descriptive studies. The schools where piloting was carried out did not participate in the study.

Data Collection procedure

Data was collected by use of interviews and questionnaires which involved school principals, Computer Studies teachers and form two students. The researchers after introduction of preliminary information regarding the questionnaire emphasized the need of giving honest perspectives; each of the respondents was left to respond to the items independently under the supervision of the researcher. Use of observation checklist allowed the researcher to ascertain whether policy documents were available. It further established the presence of infrastructure related to ICT if they were present. Teachers questionnaire was open ended which enabled them to give their views about school ICT policy.

Methods of Data Analysis

Quantitative data was analyzed by use of percentages, means and Pearson correlation. Qualitative data emanating from interview schedule was analyzed into emerging themes. Qualitative data was categorized and reported in emergent themes. Watson (1994) defines qualitative data analysis as a systematic procedure followed in order to identify essential features, themes and categories.

Results and Discussions

Research was done in schools which offered Computer Studies and the respondents were the school Principals. The interview schedule sought to establish prevalence of School ICT policies regarding: school vision on ICT, training and capacity building, policy in relation to the Computer Studies Curriculum, resource materials, leadership and monitoring and evaluation of computer use in the teaching and learning of computer studies, motivation of students taking computer studies and existence of standard policy for all schools offering the subject in Imenti North District.

The prevalence of school ICT policy was measured based on presence or absence of the following ICT policy components; in-service training, monitoring & evaluation, leadership, motivation & incentives, standard policy and school vision. The findings were as indicated in the Table 1 below.

Table 1. Prevalence of School ICT Policy.

School ICT Policy	Frequency (f)	Percentage (%)
In-service training	2	10
Monitoring and Evaluation	2	10
Leadership	4	20
Motivation and Incentives	20	100
Standard policy	4	20
School ICT vision	2	10

Research Question One: Do Schools Have an Existing School ICT Policy for the Implementation of Computer Studies Curriculum?

Table 1 above shows that 90% of the schools offering Computer studies did not have a school ICT policy regarding in-service training of teachers. Lack of school ICT policy on retraining of teachers teaching Computer Studies indicates that competency is compromised in regard to the dynamic nature of the subject. The study established that 90% of the schools had not put in place a policy on monitoring and evaluation. The findings revealed that schools were unable to adhere to ministry of education monitoring and evaluation of ICT

infrastructure. The findings also revealed that 100% of School principals were willing to develop a policy on incentives and motivations to the learners to encourage them take computer studies. The study findings established that school administrators had no vision and mission statement regarding use of ICT in schools offering Computer studies. This implied that integration of ICT in school curriculum could not be attained without personal initiative of school administration. The research findings revealed that 20% of the schools principals were willing to have in place a standard school policy for all schools doing the subject in Imenti North District. The implication was that schools will have a common ICT standard which will enable schools to improve standards.

Research Question Two: Is There a Relationship Regarding Prevalence of a School ICT Policy and Implementation of Computer Studies Curriculum?

Two indicators were used to measure implementation of computer studies curriculum; existing ICT infrastructure and offering the subject up to form four. Research established that implementation of computer studies curriculum was not implemented successfully. This was due to existing ICT infrastructure which was not adequate. The fact that not all schools were offering the subject up to form four implied that Computer Studies curriculum was not successfully implemented. Observation of availability of ICT infrastructure is shown by the diagram below.

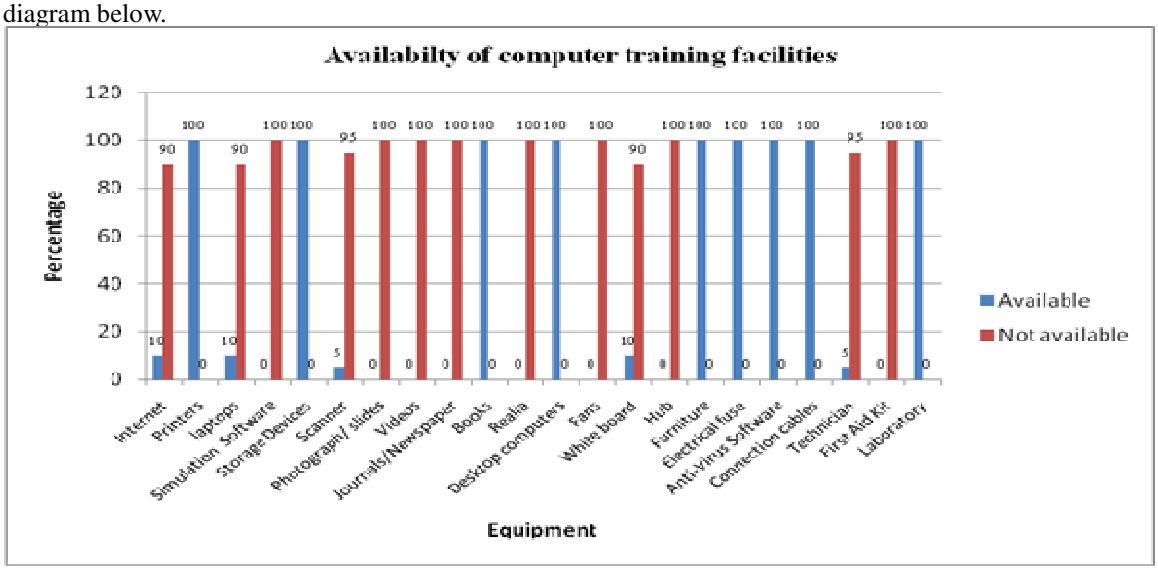

Figure 1. Availability of Resource Materials**.**

From figure 1 above it was observed that most of the schools lacked very vital facilities to undertake training of computer studies in secondary schools. For instance (90%) of the schools did not have internet connections, all schools did not have simulation software 90% of the schools did not have Computer Laboratories,100% did not first aid kits, 100% lacked a computer technician,90% lacked white boards,90% lacked laptops,90% lacked scanners,100% lacked fans,90% lacked hubs,100% lacked realia. This scenario influenced effective implementation of the subject. It is quite evident that inadequate ICT infrastructure was manifested by lack of school ICT policy on ICT infrastructure development. Effective implementation of ICT among schools offering Computer Studies requires a well formulated plan

The researchers established that schools which had and were in the process of developing a school ICT policy had enrolled students' for KNEC examinations. This information is shown in table 2 below.

Schools with KCSE candidates	Percentage (%)	School lacking KCSE candidates	Percentage (%)
2	10	18	90

The findings reveal that only 10% of the schools where research was done had enrolled students for KCSE examinations. Prevalence of school ICT policy was studied to establish whether schools at this stage had formulated a school ICT policy.

Table 2. Prevalence of School ICT Policy for Schools with KCSE Candidates.

School ICT policy	Frequency (f)	Schools with KCSE candidates
In-service training	1	2
Monitoring and Evaluation	2	2
Leadership	4	2
Students Motivation	20	2
Standard policy	4	2
School ICT vision	2	2

The researchers established that between the two schools whose students were taking KCSE examinations, only one had a school ICT policy on in-service training and school vision regarding ICT was reviewed twice since the implementation of Computer Studies Curriculum. It was also established that the two schools did minimal school ICT policy on monitoring and evaluation, leadership, and standard policy. however the study revealed that student motivation on studying computer studies was emphasized. This implied that most schools lacked evidence on the frequency of how ICTs tools were used in monitoring and evaluation, Leadership, student motivation and standard school ICT policy.

Research Question Three: Challenges Influencing Adoption of School ICT Policy in the Implementation of Computer Studies Curriculum

The researchers established that the level or category of subject in the national curriculum hindered the formulation of school ICT policy. The respondent assertion was that schools follow MOE guidelines in teaching and learning of Computer Studies. This was earlier reported by Odera (2011) whose findings revealed that MOE guidelines are adopted as the only ICT policy for schools offering ICT education. The MOE guideline however doesn't hinder any innovation as regards use of ICTs in teaching and learning. Schools are at liberty to formulate ICT policies which supplemented MOE guidelines.8.4.4 system of education being centralized its implication was that schools lack initiatives in formulation of school ICT policy and other policies in regard to other subjects. Guoyuan *et al* (2010) centralized education policies influence to a great extent the level of ICT policy implementation in teaching and learning.

Conclusions and Implications

Based on the findings of this study, the following conclusions were drawn:

1. Implementation of Computer Studies Curriculum is not successful mainly because of school issues. The subject being an optional subject in the 8.4.4 curriculum has more to offer than academic knowledge only. It is expected that school administrators should be the ones to spear head the revolution of ICT learning in schools so as to promote ICT literacy. Learners require knowledge however skills are paramount given the system of education being taught in Kenya.

2. The existing MOE policy on ICT integration doesn't offer all the solutions as regards implementation of Computer Studies curriculum. The fact that constant review is a reality KIE (2002) implies that decentralized policy approach would be a solution to emerging ICT trends. Lack of school ICT policy manifest the poor state of implementation of Computer Studies Curriculum.

Implications

The study findings imply that:

1. School ICT policy could be effective means of supplementing Ministry of Education ICT policy in regard to teaching and learning of Computer Studies Curriculum.

2. School inability to develop a school ICT policy will maintain the status quo of the subject as an optional subject whose implementation would be dependent on MOE guidelines.

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