

Computer Studies Curriculum Availability: A Factor Affecting the Implementation of the Laptops Project in Public Primary Schools in Kericho County, Kenya

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Abstract: *The laptop project is one of the flagship projects promised by the Jubilee government. The project is not only concerned with the hardware but is also meant to introduce changes in the primary school curriculum. There is currently a debate about how the implementation should take place or postponed because of a number of challenges. The current study sought to investigate the availability of Computer Studies Curriculum and the implementation of the laptops project in Public Primary Schools in Kericho County. The specific objective of the study was to establish schools' preparedness in Computer Studies curriculum content and implementation of laptops project in public primary schools in Kericho County. The study adopted the descriptive survey research design to study the preparedness of public primary schools in the implementation of laptops project. The target population was 45 public primary schools in Kericho County with 739 teachers and 3 TAC tutors. Therefore the sample for this study was 149 respondents from 9 schools. Purposeful selection was used to obtain the head teachers and TAC tutors while simple random selection was employed to obtain 149 teachers from nine schools. The research instruments used in this study for data collection were questionnaire and interview schedule. The questionnaires were given to teachers and head teachers while interview schedules were administered to the TAC tutors. Data was summarized using SPSS V 22 software then frequency tables and percentages were used to analyse the quantitative and qualitative information. From findings, major challenges faced by the schools which have contributed to the unpreparedness for the Computer Studies Curriculum implementation included lack of adequate training in ICT for teachers and administrators. The study findings suggest that for successful implementation of the laptops project in Kenya; innovative strategies that include training and equipping all the teachers in schools and ensuring that the school management committees are adequately informed of ICT use.*

Keywords: *Schools' preparedness, Computer Studies Curriculum, Implementation*

I. Introduction

Background Information: Even though the idea of laptop project arose out of political campaigns of the 2013 general elections by the Jubilee Coalition, it provided an avenue or a strategy towards the accelerated adoption of ICT in educational endeavours is the implementation of the laptops project. Therefore for the purpose of this study ICT uptake is closely linked to the laptop project.

Social, economic, and technological changes of the past decades are making education and training for all more crucial than ever. Yet, educational systems, to different degrees worldwide, are struggling to afford educational opportunities for all, to provide their graduates with the necessary knowledge and skills for evolving marketplaces and sophisticated living environments, and to prepare citizens for lifelong learning. To meet these challenges, countries have to focus concurrently on expanding access, improving internal efficiency, promoting the quality of teaching and learning, and improving system management (Aguyo, 2004).

Expanding access to education is a matter of both economic development and social justice. It is true that worldwide illiteracy rates have declined in the past 30 years, but it is also true that the demands on knowledge are much higher now than 30 years ago. In the past, an agrarian society could thrive economically even when more than half of its population was barely literate, but this is no longer possible in modern societies in the Information Age. To remain economically competitive and prosper in this global, knowledge-driven economy, countries cannot afford to have large sectors of their population excluded from education, or at the lower level of the educational process (Annan, 2001). The effectiveness of ICTs—the realization of their potential depends to a large extent on the context and quality of application. Moreover, since ICTs are only tools for education, it is difficult to isolate the factors that may be contributing to a positive result—such as educational philosophy, quality of teaching, parent support, and students' characteristics. With these caveats in mind, evidence from large studies and meta-analyses suggests that use of ICTs, particularly computer technologies, is correlated to positive academic outcomes, including higher test scores, better attitudes toward schools, and

better understanding of abstract concepts. A longitudinal study of a state-wide experiment with computers in the classroom found that those most in need of help low-income, low-achieving students, and students with learning difficulties (Aguyo, 2004). At the Ministry of Education, specific objectives in its Strategic Plan that concern the exploration and implementation of technology are being realised: a ministry website has been developed, a network system linking all sections of administration is being planned, and links to the schools are being negotiated with stakeholders.

Statement of the Problem: As the implementation of the laptop project looms, Most Counties in Kenya, just like in similar cases sighted in other development Countries, are likely not to realise smooth rollout of the project. Kericho County is facing infrastructural challenges in terms of sources of power electricity, well equipped schools and space. Teacher preparedness and training is yet to take place. The whereabouts on the development and delivery of curriculum content is still unknown while the logic on the choice of standard one pupil has still not sunk and many are still sceptical about it. The interplay of all these factors poses a serious hurdle on the roll out of the OLPC project which this study seeks to address.

Objective of the Study: To establish schools preparedness in computer studies curriculum content availability in implementation of laptops project in public primary schools in Kericho County.

II. Literature Review

2.1 Theoretical Framework

In this study, the researcher employed the domestication framework as the lens to understand the factors inhibiting the implementation of the laptops projects in the schools. The domestication framework has been used to study the adoption processes of a variety of technologies including personal computers, televisions and mobile phones (Cuban, Larry. 1986). Again it should be noted that although the framework is mainly used to study person or household adoption of technology, others recommend that it can also be used to study organisational domestication of technology. For instance, Habib (2005), used domestication to study the adoption of learning management system at a university. Bungoma County

2.2 Curriculum content availability and implementation of laptops project: The local development of indigenous digital or electronic education content in Africa is very limited. Within a formal school education context, this often refers to the development of digital curriculum content aligned with or directed by national curriculum frameworks. In addition to print-based media, there are also examples of the use of video, audio, and computer-based multimedia formats.

In Kenya, the development of audio-based curriculum content is widespread under the leadership of the Kenya Institute of Education. This role is also played by the Open Learning Systems Education Trust in South Africa, which produces audio content for use by teachers in a number of African countries. In South Africa, Mindset Network and the Learning Channel specialize in the development of curriculum-aligned video content in a range of subject areas offered in South African schools. In Botswana, the Mochudi Media Centre also trains teachers in the development and use of video content.

There is a growing trend towards the development of curriculum content in multimedia format. In Uganda, the work of Curriculum Net, a project of the National Curriculum Development Centre in partnership with the International Development Research Centre, invested in the development of local, digitized curriculum content in school-based subjects like mathematics in multimedia format. Organizations such as Learn things Africa specialize in the development of multimedia content in a range of subjects that have been used extensively in the NEPAD e-Schools Demo Project in a number of countries. Similarly, Mindset Network in South Africa has developed multimedia content directed by South Africa's National Curriculum Statement in new subjects like information technology for both primary and high school. The need to develop local digital content is recognized in most of the ICT education sector policies. Several policies specify the agency to assume responsibility for this role. Typically an existing agency that previously had the responsibility for developing print-based curriculum materials assumes this function.

Successful ICT Adoption is conditional on human capital development. This includes more than a comprehensive education curriculum effort. It should involve prioritizing extension and end user involvement in policy formulation, meticulous planning of resource allocation and ultimately assessment of the results based on feedback and evaluation of results.

Involve research in prioritizing practical solutions for ICT uptake. Some research pointers for example include; how to construct sector-specific ICT architectures and cross-industry standards, how to use best practice models for specific processes integrations, how to develop sustainable program commitment to rural viability; involve research in specific programs with ICT Adoption as a major core issue.

This study therefore will also be concerned with the scope and availability of the subject content matter. As expressed by other scholars in this literature, content development is such a massive task that could easily hinder the roll out of the project. Therefore it is important to find out to what extent does the availability of the content can be a serious problem in the implementation of the project.

2.3 Conceptual Framework

Independent Variable



Fig 1: Hypothesised Conceptual Framework

III. Methodology

3.1 Research Design: The study used survey research design. As Orodho and Kombo (2006), define, 'in essential of education and social science research', research design is the plan, structure and strategy of investigation conceived so as to obtain answers to a research questions and to control variables. A survey research describes the existing research concern by asking individuals about their perceptions, attitudes and values or through observation. Surveys are also used to assess the existing status of two or more variables at a given point in time. This study aimed to establish schools preparedness in subject content availability in implementation of laptops project in public primary schools in Kericho County. Since the research problem under investigation was descriptive in nature, a survey research design was considered appropriate for collecting, analyzing and presenting the data. A survey therefore allowed the researcher to interview and administers questionnaires to a sample of individuals.

3.2 Target Population: The study involved a survey targeting public primary school teachers, head teachers and the TAC tutors. In Kericho County, there are 45 public primary schools. Therefore, there are 45 head teachers, a total of 739 teachers and three TAC tutors. Therefore the total target population for this study was 45 public primary schools with a population of 742 (694 teachers, 45 head teachers and 3 TAC tutors).

3.3 Sampling Size and Techniques: Since it was not possible to administer questionnaires and conduct interviews for all the study population in the entire County, a sample was therefore considered necessary. According to Gay (1992) at least 10% of the population is a good representation where the population is large and 20% where the population is small. The 20% of the target population of 742 respondents made a sample size of 149 respondents.. This is considered easy to work with in terms of time and resources and is also representative enough of the entire population. This sample was therefore considered appropriate considering the time and money constraints. Simple random sampling technique was used to select twenty five schools from the 67 secondary schools in the County. Walliman, (2005) says that simple random sampling ensures that each member of the target population has an equal and independent chance of being included in the study sample.

Table1: Sample size Distribution

Category	Target Population	Sample Population
Schools	45	9
Teachers	694	140
Head teachers	45	9
TAC tutors	3	3

3.4 Data Collection Methods: The researcher sought permission from the DEO's office to visit schools. Selected schools were thereafter visited by the researcher after an appointment had been made with the school administration. Questionnaires and the interview schedules were administered personally by the researcher to the teachers and interviews conducted with heads of department and head teachers. Adequate instruction and assurance of confidentiality was provided to all participants. Thereafter, the questionnaires were collected by the researcher after being filled.

3.5 Validity and Reliability of the Instruments:

Kothari, (2006) defines content validity as the extent to which a measuring instrument provides adequate coverage of the topic under study. According to Mugenda and Mugenda, (2003:99), "content validity of the

measuring instrument refers to the accuracy and meaningfulness of inferences which are based on the research results". It is the degree to which results obtained from the analysis of the data actually represent the phenomenon under study. In order to determine the content validity of the instruments, the researcher discussed the items with colleagues and experts in the department of curriculum and instructional media who helped to determine the relevance and content validity of the questionnaires developed. Besides, the tools were piloted and the weaknesses therein found to exist were rectified.

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials, (Mugenda and Mugenda 2003). Reliability is concerned with precision and accuracy. For research to be reliable, it must demonstrate that if it is carried out on a similar group of respondents in a similar contact, then similar results would be found (Cohen et al, 2000). There has been debate whether the canons of reliability of quantitative research apply to qualitative research. Cohen et al, (2000) says that in qualitative research replicability can be achieved by the researchers' choice of informants, social situations and conditions under investigation and the methods of data collection. One way to ensure reliability in qualitative data is by use of measures that have proven themselves in previous research, (Babbie, 1992). Test-retest technique was used during piloting to establish the reliability of the questionnaires and interview schedules. The responses from the pilot study were compared and found to be reliable.

3.6 Data Analysis: Data analysis entails the separation of data, to distinguish its component parts, or elements separately or in relation to the whole (Oso and Onen, 2008). In this study data was analyzed using quantitative techniques. Quantitative data collected was tabulated and pie charts, bar graphs and frequency tables developed. The frequencies were converted to percentages to illustrate relative levels of opinions. Qualitative data from the head teachers' interview schedules were coded and analyzed to establish thematic patterns from which useful conclusions were drawn. The statistical Package for Social Sciences (SPSS) assisted to analyze the data collected.

IV. Results And Discussion

4.1 Curriculum content availability and implementation of laptops project

The researcher sought to find out the extent to which the subject content was available in readiness to the implementation of the laptop project. Findings are as in Table 2.

Table 2: Curriculum content availability and implementation of laptops project

Preparedness	Measurement Scale		
	In place	Under process	No plans at all
Incorporation of a more experienced or knowledgeable teacher in the existing staff	10	30	60
Incorporation of a school ICT/technology coordinator	9	25	66
Invitation of experts from outside the school	12	16	72
Establishment of an online help desk, community or website	4	45	51

The findings indicate that very little support is received or is likely to be received from the expected support sources. High percentages were scored for the in place/ under process option implying that there is no support for the teachers to use appropriate content.

Table 3: effect of ICT on learning Process

	Strongly disagree		Disagree		Agree		Strongly agree	
	F	%	F	%	F	%	F	%
Students concentrate more on their learning	14	11.3	19	15.3	49	39.5	42	33.9
Students understand more easily what they learn	13	10.5	38	30.6	44	35.5	29	23.4
Students remember more easily what they learn	15	12.1	26	21.0	47	37.9	36	29.0

The findings indicate that majority of the respondents were either in strong agreement or simply agreed with the statements. It can be inferred that educational organizations need to make well considered and discerning choices about the courses that are most relevant for their own specific needs and where laptops can really add value. This will help to manage expectations and channel efforts in the right direction. In many

projects, partners began by setting up an ambitious plan to completely digitize all the content in every teaching and training area. Yet, developing materials is a highly complex and time-consuming activity in practice. In the case of specific ICT training, it is important to examine the requirements and needs of the government or the private sector. It is only then that graduates will be able to increase their job opportunities. Matching offer and demand is crucial: this is true not only for the requirements needed today but also for the skills that will be required in the near future (Look, 2005).

Elementary schools in America face special problems in identifying an appropriate role for technology. Even though there are a variety of software packages and applications available for elementary levels, this level typically reports the least number of available resources and technology applications in place (Technology counts, 1998, October 1). The reason for this de-emphasis on technology is not difficult to discover. Both educators and parents view elementary schools as the place for children to acquire the basic skills in reading, mathematics, study, and organization that will help them be successful students and life-long learners. Technology skills usually are not seen as an essential part of this basic preparation.

Other pedagogical reasons influence technology integration at PreK-5 levels in America. In the first place, computers still rely primarily on keyboard input; and children, especially at Grades PreK-2 lack the fine motor skills to become fast typists. Some schools pair small children with older students to help speed up input, but most teachers who use computers with young children must do most of the typing themselves or use volunteers or aides to assist. Also, it is more difficult to locate software designed for elementary levels whose benefits for developing reading, writing, and mathematics skills clearly offset the time required to implement them. Some of the most powerful instructional software available, e.g., simulations and problem solving software, provide an abstract environment for learning concepts which many educators feel young children should encounter first in a real-life, hands-on way. Science and social studies simulations, for example, sometimes are viewed as less helpful to young students than to older ones (Look, 2005). Similar observations were identified by KESSP programme where the first sub-component of the investment programme supports ICT for administration with a view to using existing and future systems to strengthen management of education. The second sub-component supports ICT in education (e-learning) with a view to providing guidelines, standards and controls to support implementation of ICT in educational institutions. The components for the investment programme included; Ministerial ICT capacity development, ICT advisory services to education institutions, digital content development and delivery, ICT teacher development, research and development on ICT in education and capacity building (Look, 2005).

Self-efficacy is the belief in one's capabilities to organize and implement a course of action that will bring about expected results. Several researchers have determined that self-efficacy is essential in learning to use and in using computers (Look, 2005). It is distinct from computer literacy and the attainment of specific skills, but it is important to skill improvement. The greater people perceive their self-efficacy to be, the more active they are and the longer they persist in their efforts (Look, 2005).

V. Conclusions And Recommendation

Teachers and instructors need to be trained in basic ICT skills and ICT-based teaching methods to feel comfortable about using the materials. It is equally important to train them to integrate ICT in their teaching methods.

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