

Technical Challenges that Hinder the Integration of ICT into Secondary School Financial Accounting Systems in Kenya (CEPAK)

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Abstract

The dawn of 21st century brought with it changes and new challenges. This study singled out the challenges faced by secondary schools in Kenya in their effort to integrate information and communication technology in their financial accounting systems using five selected counties in North Rift Region as a case. The theoretical framework adopted for this study was derived from the systems theory of organizations which reflected Kast and Rozenweig (1985) view of organizations. The objective of the study was to establish the technical challenges that hinder integration of information and communication technology into accounting systems of secondary schools. This was one of the objectives of a study titled 'Integration of ICT into Secondary School Financial Accounting systems in North Rift region of Rift Valley, Challenges and Prospects'. The study targeted 1200 schools in the north rift. Out of this 60 schools were purposively selected together with principals of the same schools. Data from respondents were collected from surveys using designed questionnaires, interviews, observations and documentation analysis. Interpretive (qualitative) research methodology and generic qualitative research design were adopted. The data obtained was subjected to descriptive analysis and presented in tables and percentages and bar graphs. The study found significant technical challenges which included; lack of technical support and low internet connectivity among others. The study made recommendations including intervention by; government through MOEST to provide financial assistance to schools to embrace technology in financial management.

Keywords: *Integration, accounting systems, ICT*

Introduction

New technologies and their implications for education have excited the minds of educators, politicians and innovators alike all over the world as early as beginning of the 19th century. It began with printed texts continued to book and film not to mention radio broadcasting and has progressed to computers and associated software, DVDs, data projectors and other kinds of technology that are being developed.

The pace of technological innovation has not been the same all over the world. For reasons of access to capital, human and natural resources among others, there exists and continues to be a technological disparity between economically developed and less economically developed nations. Issues which policy makers and innovators in economically developed nations faced up to decades ago now

absorb the minds of their counterparts in less economically developed nations. Rapid developments in ICT have led to drastic changes in Education. This has led to the need for preparing managers of schools for these changes in information society. In all levels of education, technology is key to functioning effectively in the environment generated by the information age. With the continuing advances in Educational technology, it is incumbent upon schools to look critically at how technology is integrated into their management practices (Makau, 1990:3). The world wide spread and evolution of information and communication technology (ICT) during the last 40 years has been rapid and challenging to many organizations and / or institutions. Many of them are grappling with ICT related problems. During this period of ICT - ization in the world, new structures of management have been created and new problems have cropped up. New management systems have been and are being developed which profoundly affect the ways in which organizations operate leading to the need for innovative organizational or institutional management.

Literature Review

Against the current changes towards ICT anchored management systems, education thinkers particularly in the United States have tended to draw down a bright line distinction between the established education management systems and the teeming world of multiplicity and hybridity that now flourishes in every-day lives of managers brought about by information technology, (Garson, 1997). Other studies conducted in USA, United Kingdom, France and Canada such as by Wegerif and Scrimshaw (1997) have indicated that technology anchored management systems have the potential for improving the efficiency and effectiveness of managers.

Equally, in developing countries and particularly in Africa, similar conclusions have been reached. Amutabi and Aketch (2002) stated that the interest in the adoption of ICT has emerged in sub-Saharan Africa, including Kenya. They noted that many countries in Africa have embraced ICT through global imperatives. In Kenya the use of ICT has intensified since the 1990's especially in the business but is not well spread and utilized in Kenya's institutions of learning. Yet education is one of the most important elements for achieving development success. ICT can contribute towards enhancing education.

The Government of Kenya sees education has the natural platform for equipping their nation with ICT skills in order to create dynamic and sustainable economic growth (Kenya Government, 2004 a: 67). Apart from the traditional use of ICT's in Education as a vehicle for improving existing school curricula and Management Processes (Makau, 1990:3) the Kenya Government holds the use of ICT's in education and training institutions as a major player in resource management and generates positive impact in the economy (Kenya Government, 2004 a: 67-68).

Information technology in the 21st century will see management practices rapidly change. The role of education technology in education management is rapidly becoming one of the most important and widely discussed in contemporary education policy, Thierer (2000). Most experts in the field of education agree that

when properly used information and communication technology holds great promise to improve management tasks in schools. One of the Key management tasks in educational institutions in Kenya and the world over is management of resources (Finances included). There is no doubt that ICT can aid the management of resources especially finances in accounting processes such as preparation of accurate accounting reports, safe storage of accounting documents and authentic auditing. Many studies have found that there are positive effects associated with technology aided management, Amutabi & Aketch, 2002).

In a rapidly changing world of global market competition automatic and increasing democratization, basic integration of ICT is necessary for educational institutions in Kenya to have capacity and capability to access and apply information technology in their administrative tasks such as financial management. If Kenyan schools want to be major players in the regional and international stage in provision of better educational services and for betterment of today and in the future, schools must not only embrace ICT for teaching and learning or a course of study but most importantly for educational management. It is now evident than ever before that the need for technological input in educational management and more so financial management has become a fundamental necessity to enhance efficiency.

It is increasingly becoming evident that conventional practices in financial management are beginning to lose the test of times and there is need to gradually embrace new approaches, ideas, procedures motivated by revolutionary changes continuously taking place in the private sector. The private sector seems to have quickly seized the opportunity and decided to render their financial practices awash with the latest technology that have made electronic financial procedures a feasible phenomenon.

Some useful publication on the use of ICT in education in Kenya are available dating back to an evaluation of one of the earliest computer deployment projects in the country, the Computers in Education Projects in Kenya (CEPAK). The latter project was launched as long ago as April 1983 but its evaluation was done in 1990, at its pilot phase, with funding from the Aga Khan Foundation where small number of computers was introduced into one secondary school in Nairobi. In the succeeding two years, CEPAK was subjected to both in house and external evaluation. As a consequence, additional funding was obtained from Apple Inc., the International Development Research Centre (IDRC) and the Rockefeller Foundation and in mid-

1986 a three-year phase II was launched. Five more secondary schools, which included public schools distributed throughout Kenya were brought into the project and each received computer software and personnel training. During the three- year period of phase II, this innovative project was studied and evaluated by an independent research team, (Makau 1990).

Although these studies delved on use of computers on school examination records, it represented a large scale study of the use of computers in secondary school in Kenya. A second research project, Kenya school Net, 2003 was conducted in

November 2002. This was on level of an awareness of benefits of computers in schools. The research reported that in the sampled schools, access to internet was severely limited and when available it was only for administrative purposes. Equally, this study did not delve in the use of computers for educational management but pointed out to the need for information technology utilization in our secondary schools. A third research study (Ndiku, 2003) , based on the experience of managers and computers teachers in Uasin Gishu District, Western Kenya focused on implementation of Education ICT projects. More specifically it studied integrating computer usage in school curriculum.

The above studies noted the need for considerable investment of resources in ICT in secondary schools. This is a justification for a place of technology in education management and for the case of this study financial management. Although not all existing studies can be mentioned here, the studies cited on ICT in Education in Kenya have highlighted some of the issues specific to ICT deployment in schools.

This present study now attempts to contribute to research in this area with an investigation into the technical challenges of integrating ICT into secondary school accounting systems with a view to establish why the response to integrating ICT into secondary school financial systems has been slow despite studies revealing immense benefits and gains that can be achieved by administrators and managers in utilizing technology in improving the effectiveness and efficiency of accounting practices.

Theoretical Framework

Theoretical framework that was adopted for this study was derived from the systems theory of organizations which reflected Kast and Rozenweig (1985) view of organization: that the school, like other organizations, is composed of five major overlapping sub-systems. These sub-systems were identified by Barta and Telem (1995:10-11) as managerial, technical, structural, Psychosocial and competency, goals and values. Plomp and Pelgrum, (1993:1-4) subscribed to this view of organization and added that an educational system was a complex of sub-systems.

The systems theory was a preferred option to classical and neo-classical organization theories which could not be utilized. The theories that were advocated for earlier emphasized that schools were fragmented and closed social units independent of external force. The appropriate way to study organization (secondary school included) will be to regard them as systems. Therefore, secondary schools will be managed more like organizations in which management systems will be engineered and re- engineered to realize the independence of parts that make the whole, and the need to eliminate the parts that make negative impact. With the integration and utilization of ICT in secondary schools accounting systems considerable overlaps will be inevitable among the different accounting practices. The increased enrollment in secondary school as a result of free primary education and the government commitment to subsidize education at this sub-section will see schools handling huge amounts of money. As a result, therefore further overlaps will be experienced. It is therefore prudent to study schools as

wholes rather than parts. The systems theory used in this study helped to identify aspects of secondary school management whose actions (of commission or omission) posed challenges to integration and effective utilization of ICT into financial accounting systems.

Methodology

Following careful consideration of a number of alternatives, interpretive or qualitative methodology was employed. Interpretive research was chosen because it would clearly bring out the understanding of the technical challenges that have inhibited schools to integrate ICT into their financial accounting systems. The interpretive social science paradigm was highly suitable for this research to help the researcher to identify the challenges and opinions held by education officials and school managers about integrating ICT into their schools financial accounting systems.

The research design that was used to carry out this research was generic qualitative research. Merriam (1998) refers to this as:

...Studies that exemplify the characteristics of qualitative research... the most common form of qualitative research in education simply seek to discover and understand phenomena, a process or perspectives and world views of people involved (pg 11).

The respondents were selected using purposive sampling. Purposive sampling is important in qualitative research and it was selected because it is appropriate for information rich cases which can be studied in depth (Patton, 1990).

This data was collected from 60 secondary schools in five purposively selected counties in North Rift Region of Rift Valley. The researcher's goal was to identify challenges of integration into secondary school accounting systems in different settings.

In this research study the questionnaire was dominant research instrument while interviews, observations and documentation analysis added depth to the research and validated data given in the questionnaire. Research findings were obtained using triangulation, encompassing survey, interviews and observation. Triangulation is the use of several research methodologies when examining an issue affording an opportunity to combine qualitative method with quantitative (Guion, 2002). Furthermore, it ensures authenticity, credibility, validity and robustness of results and could mitigate researcher bias as Denzin (1978) advocates for use of multiple sources of evidence. The data generated was subjected to descriptive statistics for analysis.

Findings

Internet Connectivity and Current School Needs

The District Education officers (DEO'S), Education Management Information System officers (EMIS) and district school auditors were asked whether Internet connectivity could inhibit ICT intergration into secondary school financial accounting systems . Their responses are summarized in figure 1.below.

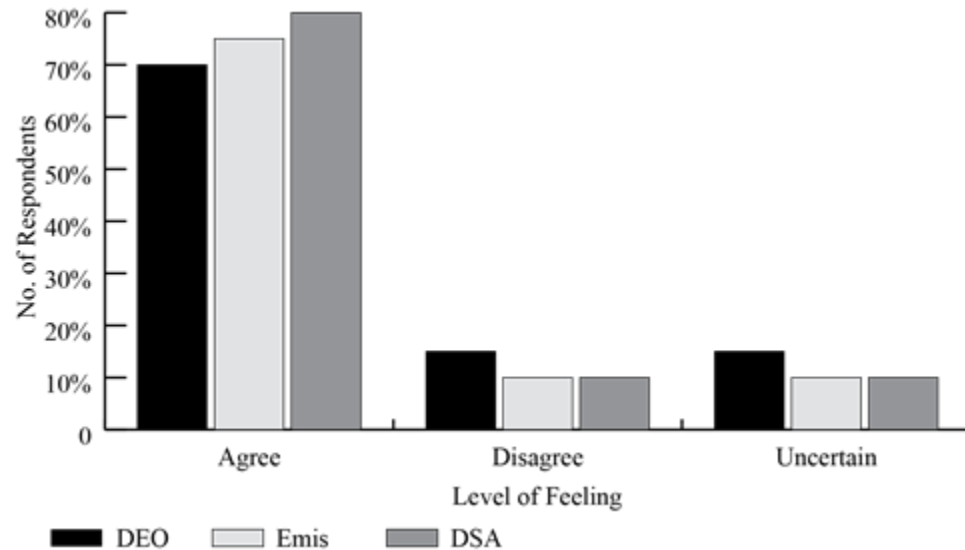


Figure 1: Internet Connectivity as A Challenge

From the results 14, (70%) DEO, 15 (75%) of Emis officers and 16 (80%) DSA

agreed that internet connectivity and adequacy inhibits ICT integration. Three (15%), 2 (10%) and 2 (10%) of DEO's, Emis officers and DSA's respectively disagreed. Those who reserved their comments were 3 (15%) DEO's, 2 (10%) Emis officers and 2 (or 10%) District school auditors. From the above tabulation significant number of the respondents agreed that the network connectivity is poor, low and not reliable as it could be disconnected any time without prior notices. According to interview responses by the school principals, the reasons for the networks being disconnected could be web server maintenance, virus or hacker attack or cabling problems. Interview responses also revealed that the ICT tools that are used frequently by school managers are E-mails, search engines, surfing the internet and published materials on the web. These activities require consistent network connectivity for the success of future integration of ICT into school financial accounting systems.

Hardware Quality, Installation, Operation and Maintenance of Technical Equipment

The DEO, Emis officers and district auditors were asked whether they agreed that the hardware quality, installation operation and maintenance of technical equipment inhibited ICT intergration into school accounting systems. Their

responses are as illustrated in figure 2.

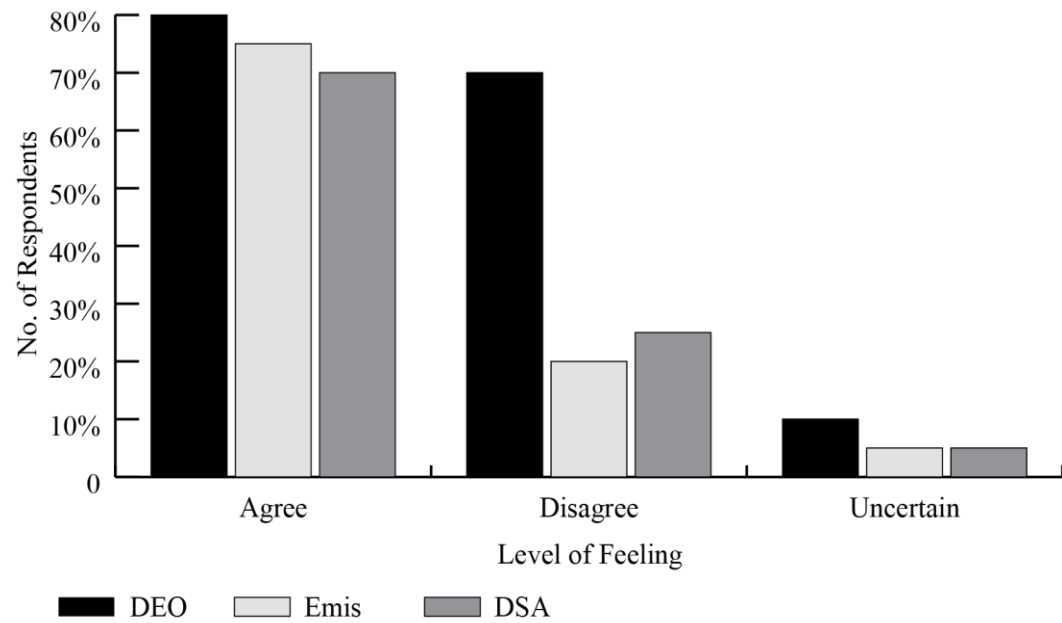


Figure 2: Hardware Quality, Installation, Operation and Maintenance of Technical Equipment

According to the findings presented in table 4.13 above, 16 (80%) Deo, 15 (75%) of the Emis officers and 14 (70%) DSA agree that hardware quality, installation, operation and maintenance of technical equipment inhibited intergration of ICT into secondary school financial accounting system compared with 2 (70%) Deo, 4 (20%) Emis officers and 5 (25%) DSA who disagreed. 2 (10%), Deo's 1 (5%) Emis officers and 1(5%) DSA reserved their comments.

Hardware and software quality influences the success of ICT operation in secondary school financial accounting systems. From the responses of the above government officials it can be concluded that the quality of hardware and software proved to be a serious obstacle in the ICT intergration. In a follow up interview, the subjects indicated further that scarcity of software in schools which is linked to shortfall in the budget and incompatibility between hardware and software was frustrating to schools. Some school principals complained that outdated and slowness of the systems in their schools related to ICT may be a result of hardware not supporting the current system or lack of compatible hardware for the available software. This state of affairs is of concern and may complicate the ICT intergration significantly.

Reliability of Electricity and Availability of Telephony

The district school auditors, district education officers and education management information systems officers were asked whether in their opinion electricity and telephony in secondary schools posed challenges to ICT intergration into

Secondary school financial systems. Their responses are summarized in figure 3. Below.

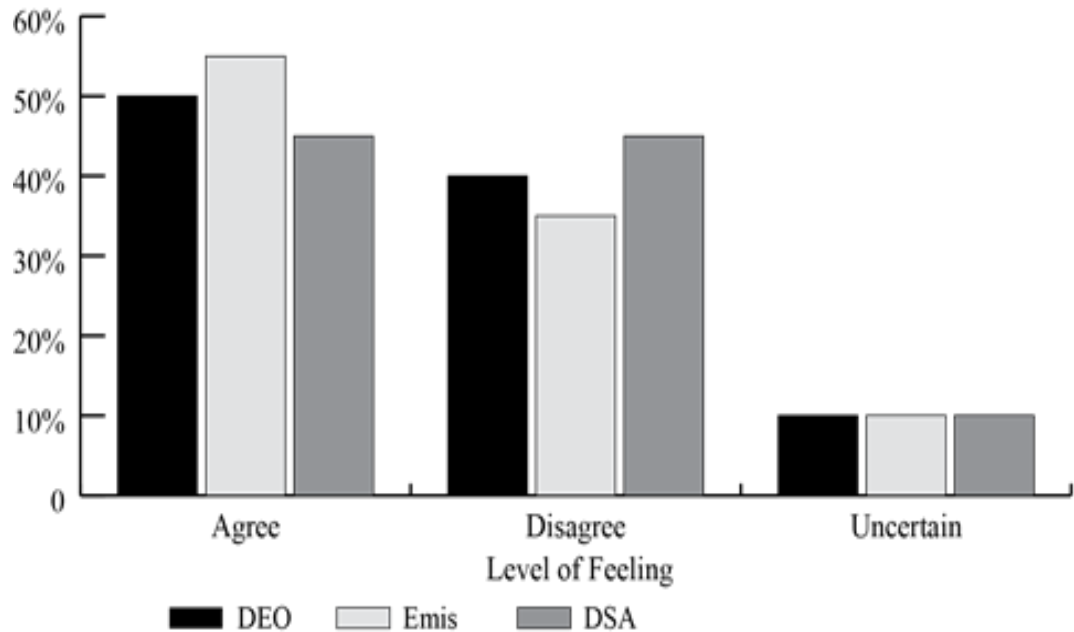


Figure 3: Reliability of Electricity and Availability of Telephony as a Technical Challenge

Drawing from table 4.14 and figure 4.13, it is evident that 10 (50%) DEO's, 11 (55%) Emis officers and 9 (45%) agreed that lack of reliable electricity supply and telephony was one of the challenges in intergrating ICT into financial accounting systems in their schools. Eight (40%) 7 (35%) Emis officers and 9 (45%) DSA's disagreed.

An equal number of each of the three groups of respondents, 2 (10%) were uncertain on the impact of electricity and telephony. This findings show almost a similar position of those who agreed and those who disagreed. The researcher attributes this to the sampling of schools. Almost an equal number of schools were sampled from urban and rural areas of the North Rift region.

Nevetheless, majority of the respondents in the follow up interviews noted that supply of electricity was not reliable and the nearest telephones were miles away. Schools in urban areas showed fewer problems as opposed to those in rural areas.

Technical Support Specialists

The principals of selected schools were asked to give their views on whether lack of timely technical support in case of computer breakdown inhibited ICT intergration. They responded as illustrated in figure 4.

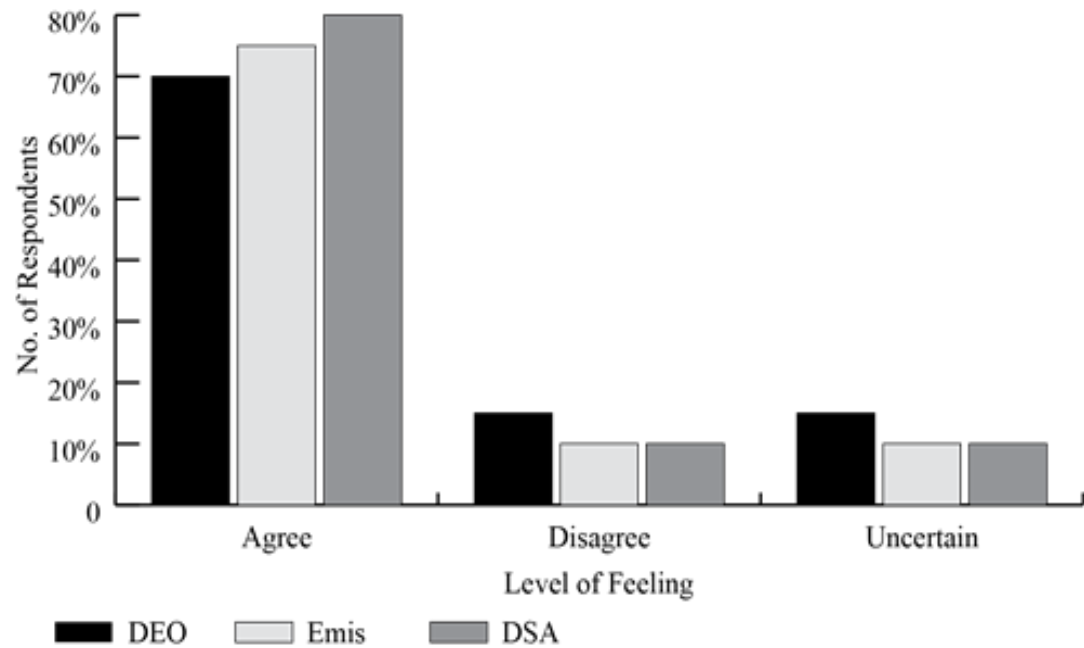


Figure 4: Technical Support Specialists as a Technical Challenge

From the findings 42 (70%) principals and 46 (60%) B.O.G chairpersons agreed that lack of timely technical specialist in case of computer breakdown was a serious inhibitor to ICT integration into school accounting system.

A majority 12 (20%) principals and 18 (30%) B.O.G chairpersons disagreed and equal number 6 (10%) of both principals and B.O.G chairpersons were uncertain.

The findings reveals that majority of principals and B.O.G chairpersons saw lack of ICT technical support as a challenge to ICT integration into school financial accounting systems. The respondents, in the subsequent interviews revealed that the reasons for such occurrence was the fact that the integration of ICT within the education system in general was a recent phenomenon. They noted they relied on computer teachers. However since this group lacked a deep technical knowledge except for using a routine software programmes they could not deal with serious technical problem which might arise.

Conclusions

The final part of this study outlines the key conclusions reached from the research and offers some recommendations to address the issues raised. The main conclusions were as follows;

Hardware and software resources should be cost shared between schools and government. As was discovered in this study, high capital and operational cost of hardware was a challenge that can impede ICT integration into secondary school accounting systems.

Allied to the above factor was the need for ongoing support. Such support to secondary schools, whether technical or merely encouragement should constantly

be available, consistent and reliable from the government the community and the private sector.

In order to further ICT in financial management there was need to make some changes in national school financial management framework. Although this may be complex a need assessment could be conducted and policy developed that reflected modern day financial practices in schools. Existing ICT policies strategies plans and standards in education put emphasis on integration into teaching and learning and there was need to extend this to management tasks.

Recommendations

Based on the findings and discussions, the following recommendations are offered to educational practitioners in Kenya. The government of Kenya through MOEST should provide funds to train school managers and accounting personnel on the use of ICT in financial management. Such training should be compulsory or have incentives and should consist of short, relevant frequent sessions. The government of Kenya through the ministry of education needs to increase Tuition waiver to secondary schools through the affordable secondary school programme to cover hardware and software purchase.

Secondary schools need consistent and reliable support, technical or otherwise. Such support must be unequivocally complemented by the government through MOEST. The government in particular must drive the integration process leading from the front. A clear collaboratively created ICT plan for financial management in schools provides a blue print for this and this should be a mandatory requirement for all schools. The government should give priority to providing electricity infrastructure to secondary schools in Kenya.

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