

Information Communication Technology Integration in School Systems and Management of Secondary Schools in Nakawa Division, Uganda

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Abstract

The purpose of the study was to examine the effect of information communication technology integration in school systems on the management of secondary schools in Nakawa Division. The study was guided by three specific objectives aimed at examining the effect of ICT integration in school systems on 1) managerial communication 2) financial management and 3) supervision and monitoring in secondary schools in Nakawa Division. These were followed by consistent research questions. The study adopted a cross-sectional survey design with a quantitative approach. The target population of the study was composed of 220 teachers spread across five (5) government aided secondary schools with a final sample of 195 teachers selected using a simple random sampling realized through a fish-bowl technique. A self-designed closed-ended questionnaire was administered to collect data. The CVI obtained for the instrument was 0.87 and a reliability index of .818 Cronbach alpha coefficient premised on 20 items. Data was analysed using frequencies, percentages and tables. Meanwhile, a simple regression analysis was adopted to establish the effect of ICT integration in school systems on management of secondary schools. Findings indicate that ICT usage in school systems had a very strong significant effect on managerial communication ($\beta = 0.380, p < 0.05$), financial management ($\beta = 0.560, p < 0.05$) and supervision and monitoring ($\beta = 0.411, p < 0.05$). In view of the findings, the study concludes that ICT offers a flexible and more simplified approach to task accomplishment in management of secondary schools. The study thus recommends that schools ought to improve on the timing of communication of urgent school matters to the community and school heads need to find ways of installing security and alert systems in schools as well as utilizing them efficiently. Further research is proposed on ICT integration and other management functions, focus on other school personnel as well as a purely qualitative study.

Keywords: Information Technology, ICT Integration, management, managerial communication, financial management, supervision and monitoring

Introduction

The management of Secondary Schools occupies a central place in the education systems of many countries today. Indeed, without management, schools may cease to exist as their operations will falter at all levels and times. Schools are expected to command effective and efficient managerial communication strategies, highly credible financial management strategies and highly efficient supervision and monitoring designs. Nevertheless, management of secondary schools has not yet reached the ideal levels expected. Indeed, managerial communication, financial management as well as supervision and monitoring have remained less effective the world over. In Africa, countries have been putting in efforts to improve on management of schools; the case in Nigeria has been how to manage the curriculum change better so that schools can produce learners who are compatible with the 'global village' as today's world has come to be known (Peretomode & Ikoya, 2010). Accordingly, school leaders are expected to be transformational to motivate and inspire those they lead. In Uganda, school management has proved to be a critical aspect. The global partnership for education Uganda (2017) identifies issues of management structures as those eating up the education system. The schools are led almost informally with less focus and attention being given to

structures. In Kampala, where Nakawa division finds its abode, the issue of school management has been central to the survival of the education system. School management has been challenging leading to concerns that the quality within secondary schools has gone down. This has been partly due to family socio-economic factors as well as school environmental factors (Ogawa & Wokadala, n.d.). The researchers meanwhile, contend that as a way of arresting the situation, key transformation points have been mapped out to transform school management including the teacher development management systems, contracts for head teachers, transfer of head teachers, requirement to have a master's degree qualification in education as well as specialized training in educational leadership (New Vision, 2016). Nevertheless, this has not yielded the best outcomes required. The educational managers have continued to utilize the same old leadership styles as well as utilizing the same old managerial tactics especially in as far as managerial communication, financial management and supervision and monitoring are concerned (Nsubuga, 2008).

Many educationists and policy makers thus focused on the integration of ICT into school systems to improve on the management of secondary schools. In the past decade, there has been an increased growth in the use of information communication technologies (ICTs) which have had tremendous effect on both society and our daily lives. ICT has become one of the basic pillars of modern-day society and many countries are looking at a better understanding of ICT and its mastery as a core of education (Adu & Olatundun, 2013). According to Edefioghho (2005), ICT increases efficiency and effectiveness of educational management and if the managerial functions at schools and other levels of education systems are to be carried out effectively and efficiently, it is necessary that information of high quality is available always for elective decision-making. Despite the rapid growth and use of ICT in other sectors of the economy especially health sector, military, industry and business, the same cannot be said about the education sector. Worldwide, the education sector has lagged behind in the usage of ICT in its management and administration (UNESCO, 2013). The U.S. Department of Education, National Center for Education Statistics (2000) revealed that education ranked the least technology intensive enterprise among the 55 US industry sector. The united nations economic commission for Africa (2009) advises that the access and use of information should no longer be treated as a luxury but as a necessity for development. However, in many developing countries especially in Sub Saharan Africa it is still lagging behind in the use of ICT applications (Aduwa-Ogiebean, & Iyamu, 2005). UNESCO (2013) reports that most teachers are not prepared to use ICT and many of the existing school buildings even in the developed countries are not equipped to integrate the new technology. Most school administrators have intermediate level of computer expertise and possess inadequate computer literacy (Seyali, 2012).

In Uganda, the education ICT policy of 2006 states its main objective as integration of ICT in main stream educational curricula and provide for equitable access by pupils and students at all levels. The ministry of education, science, technology and sports (MoEST&S, 2004) launched the Education Sector Strategic Plan. This plan was to cater for four different sub sectors and ICT was one of them. Under this plan, the Ministry of Education, Science, Technology and Sports provided 1,037 computers to government aided secondary schools. Currently, the ministry is proud to state that most of the government aided secondary schools have at least twenty computers and the bigger schools have forty. The Ministry of Education, Science, Technology and Sports went further to provide to those schools without electricity with a package of solar capacities to help them utilize the computers (Andrew, 2014). Training of teachers and school head teachers has been done as a way of promoting ICT integration in schools. The researchers opine that for an effective ICT to be realized in educational institutions, attention must be given to training of stakeholders in ICT basics, having a clear and well communicated ICT policy and embarking on utilization of ICT at all levels and all systems of the schools. This can promote institutionalization and cohesion in terms of managing the ICT equipment and processes. The three aspects of policy, training and utilization have been coined as the key elements of ICT integration in school systems by the study. Despite such efforts, ICT usage among secondary school administrators is still low (Andrew, 2014) with many administrators still using manual systems in record keeping of both students and staff information. For instance, the report cards for students are produced manually. The head teachers are still using the arrival book as a monitoring tool of teacher's attendance. This manual system has in some cases led to loss of documents, students altering marks on their

report cards, constant printing of the books for the schemes of work as well as recording of wrong arrival and departure time in the arrival book by the teachers.

Given the situation in question, it was imperative to explore the effect of information communication technology integration in school systems on the management of secondary schools especially in Nakawa Division which is an urban setting with hallmarks of technological innovation possibility yet still being challenged. This is premised on the fact that ICT integration in schools was highly lauded as a mechanism for transforming the management of secondary schools. The researchers argue that for ICT to have a desirable effect on educational management, attention must be given to utilization of ICT in managerial communication, financial management and supervision of monitoring within schools. This can improve on the process of service delivery in the schools as well as ensuring total quality management. The three aspects of policy, training and utilization were coined as the key elements of ICT integration in school systems by the study.

Problem Statement

Ideally, schools are expected to command effective and efficient managerial communication strategies, highly credible financial management strategies and highly efficient supervision and monitoring designs. However, what is happening in schools today is that traditional management ways and approaches are still being adopted by management structures in secondary schools. This leaves a lot to be desired especially when it comes to compliance and compatibility with modern technology regimes. The situation in Kampala is even more appalling as being an urban centre means that schools within are expected to move with the times. Unfortunately, communication, financial management as well as supervision and monitoring have remained old fashioned in Kampala especially, Nakawa Division. Many factors have been considered viable for transformation of the management of secondary schools most importantly being information communication technology integration in the school systems. Indeed, the government of Uganda has made heavy investments in ICT in schools especially secondary schools. Many school-based stakeholders especially teachers have been trained in ICT skills. All government aided secondary schools have been provided with computers under School-Net and Cyber schools programmes. Internet connectivity has also been provided to most schools. Unfortunately, ICT usage in education management of secondary schools has remained low, with most school managers still using traditional and manual systems of communication, monitoring staff, evaluating students, record keeping, and financial management. Such manual systems could lead to challenges of financial management, planning, coordination, supervision, discipline and management of teaching and learning. In addition, often times, papers containing staff and students' records get lost or even misplaced from some schools (Bisaso, Kereteletswe, & Visscher, 2008). Such records may include payments, requisitions, attendance, performance, reports, accountabilities, teaching records, grades etc. In addition, a great deal of management work in these schools is still done manually with some school heads showing little interest in embracing ICT. Yet such management work like finance, budgeting, planning, supervision, support services could easily be done using ICT. The resultant effect of such undertakings is that the quality of school management and that of the education system in general would go considerably down which affects school development in general. Despite the obsession therefore, the exact effect of such an ICT program on the way schools are managed is still unknown. This study, therefore, sought to examine the effect of ICT integration in school systems on secondary schools in Nakawa Division. Consequently, the study was guided by three specific objectives which opened up to three consistent research questions as follows:

1. What is the effect of ICT integration in school systems on managerial communication in secondary schools in Nakawa Division?
2. What is the effect of ICT integration in school systems on financial management of secondary schools in Nakawa Division?
3. What is the effect of ICT integration in school systems on supervision and monitoring in secondary schools in Nakawa Division?

The study made an assumption that the independent variable, ICT integration in school systems which focuses on training, policy and utilization had an effect on the dependent variable, school management which reflects managerial communication, financial management and supervision and monitoring. ICT integration without interference leads to effective managerial communication, proper financial management and supervision and monitoring which lead to effective management of schools. The study was limited to the effect of ICT integration in school systems on the management of secondary schools. because school management occupies a central role in education systems whilst the integration of technology is lauded as the best approach to transformation of school management systems. The research was carried out in government aided secondary schools within Nakawa Division, Kampala in Uganda because the division is an urban centre and reports have shown that schools in the urban areas are better equipped in information communication technology which is being utilized in performance of managerial tasks. The study considered the period 2012-2017 since the period coincided with issues of less ideal school management despite attempts to incorporate ICT in schools. And crucially, the findings of the study will inform school managers on the best approaches to incorporation of ICT in school management related practices.

Literature Review

Consequent to the relevance of ICT in education and school management, several research works have been produced (Adeyeni & Olaleye, 2010; Lazarus, Jackson, Elizabeth & Jesse, 2013; Manduku, Kosgey & Sang, 2012; Matovu, 2009; Mue, 2014; Seyali, 2012; Tella, Toyobo, Adika, & Adeyinka, 2007; Unachukwu & Nwankwo, 2012). Indeed, Adeyeni and Olaleye (2010) investigated the use of ICT for effective management of secondary schools. The studies found that there was a significant relationship between ICT use and effective management of schools. On ICT integration in school systems and managerial communication, it is contended that as a way of improving communication and coordination with staff and the school administrators, a staff group email would be used to communicate general information to the staff and get feedback from them. This would enable different parts of the school and outside to be connected and thus coordination is improved (FAO, 2011). In addition, ICTs are used as a means of communication with staff, parents, board of governors, community members, ministry of education officials and district officials especially through e-mails and text messages via mobile phones. The guidelines developed for e-learning by FAO (2011) offer advice that the main ICT tools used by school principals in communication are the mobile phones and internet. Along the same line, Bisaso, et al. (2008) add that internet and mobile phones have permitted school principals to communicate to head office and district offices on important matters with a lot of ease without leaving the school premises. As a management function of school management, communication has been listed as one of the main areas where ICT is used in school (Uif & Elizbieta, 2009). According to Dawes (2001), ICT has the potential to support and provide opportunities for effective communication between teachers, students and parents in ways that have not been possible before. Manduku. et al. (2012) carried out a study on the adoption and use of ICT in enhancing management of public secondary schools. The study found a general agreement among the respondents that ICT use in schools improved school management especially in the areas of data management, communication and management of students' records. Adeyeni and Olaleye (2010) have the same view as of Manduku et al. They investigated the use of ICT for effective management of secondary schools. Their study found that there was a significant relationship between ICT use and effective management of schools. Matovu (2009) investigated the availability, accessibility and use of information and communication technology in management of students' academic affairs in Makerere university and established that ICT was reflected in many aspects of the university system such as processing examination results, tracking students' academic progress, grading of students according to their performance as well as communication between lecturers and heads of department, communication to students via emails. The glaring gap here is that available literature underscores the use of ICT in communication in schools but with no attention being given to examination of the effect this has on managerial communication. The current study therefore, sought to examine the effect of ICT integration in school systems on the management of the schools with reference to Nakawa Division, Kampala.

ICT integration in school systems and financial management has been explored by researchers and authors alike; the integration of ICT in schools and its effect on education is unclear and contradictory results have been presented in literature. BECTA, 2008; Pelgrum & Law, 2003 Adeyeni *et al.*, 2010; and Manduku, 2012). Hamzah, Noordin, Jusoff, Karim and Yusof (2010) reviewed several studies on the impact of ICT in schools in Europe. They concluded that the evidence was scarce, and comparability was limited because each study used different methodologies and approaches. They thus had varying results. One of those areas of critical significance in the school and education system is financial management. A school's financial management system needs to provide effective control and accountability for all the funds that it receives. Schools must keep accurate and audit-able records and for every transaction received needs to be entered in the ledgers. Head teachers need to use computers in executing financial management tasks for accounts, to check data accuracy, process data, store data, share data and draw the school budget. Head teachers use computer in running different payrolls in the school. Esharenana and Kpangban (2010) add that ICT provides skills like stock taking, book keeping purchases, supplies budgets and plans have been computerized to form core IT skills package for school administrators. Information systems help organize budgets, manage cash flow, analyse investments, and make the right decisions. Accounting information systems record transactions, produce periodic financial statements, and create reports, such as balance sheets and profit-and-loss statements. That can help managers understand changes in a company's finances (Oz, 2009). Čebišová (2011) contends that many aspects of financial management can be supported by various information technologies. These technologies provide large amount of information contribute to more accurate comprehension of situation in the company and thus they cut the level of risk in everyday or strategic decision making. This in the end contributes to wider application of performance indicators in the company and thus to a higher efficiency of financial management. Slavici, Mnerie, Darvasi Untaru and Dorneanu (2011) studied Innovative ICT means in financial management aimed at proposing new innovative methods of artificial intelligence in financial management. The authors also contend that such a method can help in detecting bankruptcy within organizations. Kirmani, Wani, and Saif, (2015) also add information, global financing, storing and protecting information, marketing and communication as key advantages of ICT. While the author offers a clear approach to transform the financial management process, the effect of the same must be measured to ascertain the position of ICT in financial management. This study concerned itself with this. Čebišová (2011) examined the impact of the adoption of software tools for financial management support on the financial management function. For medium-sized companies, a low to moderate dependence was established. Therefore, in this case the use of soft ICT to some extent contributes to better economic performance. In contrast for small companies the dependence was negligible and sometimes even slightly negative, the use of software tools here can thus be counterproductive. Kirmani, Wani, and Saif, (2015) studied the impact of ICT on effective financial management. They established that ICT has increased efficiency, reliability, effectiveness, performance and other characteristics of modern-day commercial operations. ICT has increased and renovated financial structure both in quality and quantity. ICT has sophisticated the way transactions are catered in any financial system with optimal levels of performance and efficiency. Equally, Mue (2014) examined the application of information communication technology in school administration in selected public secondary schools in Lang'ata division, Nairobi county and established that for financial administration process, most schools are limited in terms of the ICT application. This is mainly because they only apply it in the collection of school fees and salary payment. In Uganda, schools are still using traditional methods of salary payment and fees collection. It is possible to find a school receiving students' fees directly through the school bursar while teachers are also paid directly. On a better note some schools have started utilizing technology to effect payments but still at a low level. Whether the effect of ICT integration has been critical to the transformation of schools' financial management processes is a good cause for research and the current study undertook the same in Nakawa Division, Kampala.

Regarding ICT integration in school systems and supervision and monitoring, it should be borne in mind that supervision does not mean "an inquisition or fault finding, but rather signifies guidance, assistance, and sharing of ideas with all those involved in the process of teaching and learning" (Wiles & Bondi, 2000;

Clark, 2008). Meanwhile, Cano and García (2013) studied ICT strategies and tools for the improvement of instructional supervision, the virtual supervision. The analysis in this context led the authors to postulate that a supervision model that complements the techniques and strategies of traditional supervision and incorporates new ways of addressing the educational processes based on Web 2.0 is needed. Equally, Mue (2014) examined the application of information communication technology in school administration in selected public secondary schools in Lang'ata division, Nairobi county and established that information communication technology has been limited only to the monitoring of classroom facilities, as well as monitoring lab facilities and stationery. Brar and Relhan (n.d.) also explored the role ICT can play in informing the Uganda post primary and training project (UPPET) and contend that Information communication technology is helpful in monitoring progress of construction as well as monitoring the number and frequency of visits by supervision firms as well as Ministry officials. Lazarus *et al*, (2013) carried out a study on ICT effectiveness in secondary school administration and management in rural southern Kenya. The study found that both teachers and administrators use ICT mainly for student administration and supervision of instructions. ICT is vital in management of secondary schools because it reduces the administrative costs and improves decision making (Al-Harbi, 2014). ICT is used as a tool for enhancing efficiency and effectiveness in administration and management (Geisert & Futrel, 1999) of organizations especially communication and supervision. Thus, it can be argued that supervision must integrate ICT from different perspectives for the development of different subsystems in which it operates. However, the supervisors generally observe the teachers, evaluate the performance of the teachers, and take appropriate action. The activities of supervisors involve inspecting, checking, telling, rating, and monitoring, and for the development of these activities, supervisors behave as coordinators, consultants, group leaders, and evaluators. ICT can be a valuable resource that serves to enhance both these functions and processes of supervision of school contexts mediated by ICT. Moreover, the studies take school efficiency as a general concept which becomes hard to measure at certain levels. In conclusion, therefore, it is safe to opine that there is limited literature on ICT integration and school management. Most of the available literature is inclined to ICT and teaching and learning practices. However there seem to no agreement among researchers on the effect of ICT on school management. Some do agree that ICT enhances a school's effectiveness and efficiency while others disagree. They all agree that ICT is fast positioning its self in the education sector and into the school's curriculum especially in teaching and learning process. This study sought to add variables and consider the effect of ICT integration in school systems on the various management practices; in this case managerial communication, financial management and supervision and monitoring.

Methodology

The study adopted a cross-sectional survey design because it allows collection of data at one point in time. A quantitative approach was adopted to help the researchers measure elements within the variables objectively. Moreover, quantitative data is always based on a set standard that makes data control quite easy. The study collected information from a cross-section of teachers spread across five (5) schools. The teachers in the five selected secondary schools made up a total population of 220 respondents. The population of the study was chosen because the teachers command first-hand knowledge regarding integration of ICT in school systems and how it obtains in managerial communication, financial management as well as supervision and monitoring. Moreover, they were expected to be objective compared to either head teachers or students who are the directly affected groups. The sample size involved 195 teachers selected under the auspices of Krejcie and Morgan's (1970) table for determining sample size from a given population. This was done based on each school's population of teachers (48/55, 63/75, 32/35, 28/30 and 24/25). Simple random sampling was used to ensure that respondent teachers had an equal chance to participate in the study to avoid biasness whilst a fish-bowl technique guided the final selection of respondents. A self-designed closed-ended questionnaire was administered to all the teachers since they were literate enough. The validity of the instrument was ascertained through expert judgment and a content validity index of 0.87 was registered. The researchers pre-tested the questionnaire on randomly selected respondents with similar characteristics to those targeted by the study to ascertain the reliability of

instruments and a Cronbach's Alpha reliability of .818 was obtained. The researchers analysed data from questionnaires using descriptive statistics with the help of the statistical package for social sciences (SPSS). The data was then presented in form tables with frequencies and percentages. Meanwhile, to establish the effect of the independent variable on elements of the dependent variable, simple regression analysis was computed. The researchers observed ethical considerations in the form of informed consent, confidentiality, anonymity, originality and right to withdraw from the study by detailing this information in the instrument, not revealing the names of respondents, not identifying responses with responses and testing for plagiarism.

Findings and Discussion

The key findings of the study are presented in line with the three major research questions that guided the study. The descriptive findings of the study are presented first, then results of the simple regression analysis are later presented to answer the key research questions. Nevertheless, the demographic information brought to bear on the study were in the realm of gender of respondents and working experience. Findings in line with the demographic characteristics are presented in table 1:

Table 1: *Demographic Characteristics of Respondents*

Variable	Individuals	No.	%
Gender	Male	122	62.6%
	Female	73	37.4%
Experience	0-5 years	61	31.3%
	6-10 years	70	35.9%
	11 years & above	64	32.8%

Source: Field Data

As shown in table 1, results indicate that 122 of the respondents representing 62.6% were male while 73 reflecting 37.4% were female implying that the study drew on gender representation in terms of findings. In terms of working experience, 61 (31.3%) were between 0-5 years, 70 (35.9%) were between 6-10 years while 64 (32.8%) had 11 years and above which shows that the respondents had the required experience to understand school operations and thus fit to answer the questions posed. The researchers found it necessary to explore demographic characteristics since according to Affum-Osei, Acquah and Acheampong (2015) demographic characteristics correspond with employee commitment to the organization as well as understanding of the structures and dynamics thereof.

Responses on ICT Integration in School Systems

The researchers sought to establish how ICT integration in school systems is executed as a backdrop to conceptualizing the effect it has on key management functions and the investigation was reduced to key elements thus: there being a clear and well communicated ICT policy in the school, ICT training being conducted regularly in the school, ICT infrastructure being well developed in the school, ICT equipment being fully installed in the school and ICT being utilized in school programs and activities. Accordingly, findings are presented in table 2:

Table 2: Responses on ICT Integration in School Systems

Item	SD		D		UN		A		SA	
	n	%	n	%	N	%	n	%	N	%
There is a clear and well communicated ICT policy	15	7.7	44	22.6	21	10.8	88	45.1	27	13.8
ICT training being conducted regularly	14	7.2	23	11.8	15	7.7	124	63.6	19	9.7
ICT infrastructure is well developed	13	6.7	16	8.2	40	20.5	72	36.9	54	27.7
ICT equipment is fully installed	9	4.6	13	6.7	28	14.4	88	45.1	57	29.2
ICT is utilized in programs and activities	10	5.1	56	28.7	48	24.6	55	28.2	26	13.3

Source: Field data

Table 2 shows that on there being a clear and well communicated ICT policy in the school (59%), it is safe to say that schools have made effort to communicate the ICT policy. On ICT training being conducted regularly in the school, the 73% agreement level signifies a strong effort made by the school authorities while ICT infrastructure is well developed in the school as represented by the 65% agreement level among the teachers. As far as ICT equipment being installed in the school is concerned, 74% of the teachers agreed that the equipment is installed but on whether ICT is being utilized in school programs and activities, only 41% of the respondents agreed indicating a low level of utilization of the ICT. What is a concern to the researchers is the fact that the ICT equipment is installed in the schools but not well utilized which points to wastage. This may imply that schools are still comfortable with traditional and rudimentary approaches to executing tasks than adopting ICT equipment which can be explained by the fact that adaptation is not easy on the part of the school-based authorities yet resources may also not be so friendly. Meanwhile, the fact that schools lack competent personnel to engage utilization of ICT cannot be overlooked.

ICT Integration in School Systems and Managerial Communication in Secondary Schools in Nakawa Division

The research question sought to establish the effect of ICT integration in school systems on managerial communication in secondary schools in Nakawa Division. The data obtained was analysed using frequencies and percentages of responses. The responses reflected the following key elements: urgent and regular communication to teachers, efficient communication of key issues to students, timely calling of parents over urgent issues, urgent communication of new programs to school personnel and regular communication of school activities to the community. The findings indicate that educational managers have grasped the relevance of urgent communication to teachers in school systems as reflected in the 89% agreement among teachers. The findings also indicate that schools see students as being relevant regarding critical aspects of the school system as reflected in the efficient communication of key issues to students being at 85% agreement. Also, there is timely calling of parents over urgent issues (73%) which shows that it is always important that teachers are aware of what is going on with the parents in the schools. The findings also indicate that schools endeavour to communicate new programs to their staff on an urgent basis as indicated by the 73% agreement among teachers in the study. While on regular communication of school activities to the community, the 51% agreement shows that schools try to communicate to the community regarding critical aspects of the school system though still wanting and that teachers are abreast with knowledge of their role as a bridge between the school and the community. The researchers opine that teachers in schools are interested in school-related issues of management and administration since they were able to make concrete responses to the items relating to school leadership.

The researchers adopted a simple regression analysis to establish the effect of ICT integration in school systems on managerial communication in secondary schools as a way of determining the effect of the elements in the questionnaire. The resultant total average scores were then used to determine the statistical

effect of ICT integration in school systems on managerial communication in secondary schools in Nakawa Division, Uganda. The results are accordingly presented in table 3:

Table 3: Simple Regression Analysis for ICT Integration in School Systems on Managerial Communication Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	12.524	.700		17.891	.000
	ICT Usage in Schools	.256	.045	.380	5.700	.000

a. Dependent Variable: Managerial Communication

Results in table 3 revealed that ICT usage in school systems had a very strong significant effect on managerial communication ($\beta = 0.380$, $p < 0.05$) suggesting a statistically significant contribution as indicated by the significance which is less than $\alpha = 0.05$. This strong effect could be because of ICT being new to the schools as well as head teachers and other school personnel being largely obsessed with technology. Moreover, computers and internet (especially social media platforms) in the schools coupled with mobile phones have meant that head teachers and other school personnel can easily oversee internal and external communication of key school programs. The findings are consistent with the views of the UNESCO Institute for Statistics (2014) which argued that ICT has a multiplier effect on education. Equally, guidelines developed for e-learning (2011), Matovu (2009), Bisaso et al. (2008) and Hamzah et al. (2010) described ways in which ICT can be integrated in the school system and how this can inform better execution of school communication. The finding however, differs from that of Cuban, Kirkpatrick and Peck (2001) who concluded that there was no conclusive evidence on the effectiveness of ICT in education. Also, Samath (2010), Ulf and Elizbieta (2009), Manduku et al. (2012), Adeyeni and Olaleye (2010) did not specify how ICT integration can be approached and therefore, do not describe ways it can improve on school communication. The study thus, adds a new dimension to literature by confirming the positive effect of ICT usage in secondary schools on managerial communication.

ICT Integration in School Systems and Financial Management of Secondary Schools in Nakawa Division

The research question sought to establish the effect of ICT integration in school systems on financial management of secondary schools in Nakawa Division. The data obtained was analyzed using frequencies and percentages of responses. The responses were in line with the following key aspects: regular preparation of appropriate budgets, appropriate recording of school payments, issuance of electronic receipts, regular accountability and effective utilization of school funds. The findings indicate that schools consider budget preparation as a critical aspect of the school system as reflected in the 59% agreement among teachers. Meanwhile, it was found out that schools give priority to recording of all payments and have knowledge of record keeping as signified by the 77% agreement by teachers. The finding on issuance of electronic receipts (42%) shows that schools have not yet fully embraced the concept of electronic receipts in dealing with financial management issues. On regular accountability, it was established that school leaders put into practice this critical aspect of the school system as reflected in the 67% agreement among teachers. The findings also show that schools endeavour to utilize funds according to plan as by the 62% agreement elicited from teachers. Generally, the researchers posit that school leaders have not only mastered but also practice the basic aspects of financial management though a lot is still desired. There is also no gain saying that the perfection cannot be demanded of anyone.

The researchers sought the aid of a simple regression analysis to establish the effect of ICT integration in school systems on financial management of secondary schools so as to determine the effect of the elements

in the questionnaire. The resultant total average scores were then used to determine the statistical effect of ICT integration in school systems on financial management of secondary schools in Nakawa Division, Uganda. The results are accordingly presented in table 4:

Table 4: Simple Regression Analysis Regarding the effect of ICT Integration in School Systems on Financial Management

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	7.769	.807		9.625	.000
	ICT Usage in Schools	.486	.052	.560	9.395	.000

a. Dependent Variable: Financial Management

Results in table 4 revealed that ICT usage in school systems had a very strong significant effect on financial management ($\beta = 0.560$, $p < 0.05$) suggesting a statistically significant contribution as indicated by the significance which is less than $\alpha = 0.05$. This strong contribution could be because of ICT being new to the schools as well as head teachers and other school personnel being largely obsessed with technology. Moreover, computers given to schools have enabled electronic school financial records to be managed better, electronic receipts issued, automated pay systems as well as electronically generated documents that inform accountability. The findings of the study are consistent with those of Kirmani, Wani, and Saif, (2015) who also believe that ICT leads to efficiency and effectiveness of financial management. Also, Esharenana and Kpangban (2010) Čebiřová (2011) describe how financial management can be handled from an ICT perspective. Nevertheless, the findings differ from those of David (n.d.) who proposes an economic intelligence model to improve financial management in organizations but falls short of mentioning the same model and the way it operates. Equally, Oz (2009), Slavici, Mnerie, Darvasi Untaru and Dorneanu (2011) do not specify how ICT can be incorporated into financial management processes much as they discuss relevance of ICT to a school financial management process or the financial management process on its own. The study thus, adds to the existing body of knowledge regarding the effect of ICT usage in secondary schools on financial management.

ICT Integration in School Systems and Supervision and Monitoring of Secondary Schools in Nakawa Division

The research question sought to establish the effect of ICT integration in school systems on supervision and monitoring in secondary schools in Nakawa Division. The data obtained was analysed using frequencies and percentages of responses. The responses reflected the following key elements: efficient management of supervision rosters, effective monitoring of student performance, regular supervision of teaching, efficiency of the security and alert system as well as regular and effective monitoring of students' activities. The study found out that there is efficient management of supervision rosters (77%) which indicates that educational managers have grasped the relevance of involving school personnel in management laden aspects of the school system. It is also clear that school leaders have effectively handled critical aspects of the school system as reflected in the highly positive laden responses to the item regarding effective monitoring of student performance standing at 90% agreement among teachers. The findings continue to show that school leaders regularly supervise teaching which is one of the critical aspects of the school system. This was made clear by the 92% agreement level on the part of teachers involved in the study. It was also discovered that some schools have security and alert systems while others do not have despite it being one of the critical aspects of the school system. This was evidenced by the 56% agreement level posted on the efficiency of the security and alert system. Meanwhile, on regular and effective monitoring

of students' activities, the 77% agreement level elicited from teachers is testament to giant strides made by schools in supervision and monitoring. According to the researchers, the findings imply that teachers in schools are abreast with school-related issues of management and administration since they were able to make concrete responses to the item relating to student monitoring. Since teachers take over the role of parents and caregivers once learners come to schools, it is very imperative that they get to know about what students do always.

The researchers engaged a simple regression analysis to bring out the effect of ICT integration in school systems on supervision and monitoring in secondary schools as a way of determining the effect of the elements in the questionnaire. The resultant total average scores were then used to determine the statistical effect of ICT integration in school systems on supervision and monitoring in secondary schools in Nakawa Division, Uganda. The results are accordingly presented in table 5:

Table 5: Simple Regression Analysis Regarding the effect of ICT Integration in School Systems on Supervision and Monitoring

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	12.173	.700		17.382	.000
	ICT Usage in Schools	.281	.045	.411	6.257	.000

a. Dependent Variable: Supervision and Monitoring

Results in table 5 revealed that ICT usage in school systems had a very strong significant effect on supervision and monitoring ($\beta = 0.411$, $p < 0.05$) suggesting a statistically significant contribution as indicated by the significance which is less than $\alpha = 0.05$. This strong contribution could be because of ICT being new to the schools as well as head teachers and other school personnel being challenged to show changes courtesy of technology. Moreover, computers given to schools have enabled electronic report cards to be printed thus aiding monitoring of students' performance, electronic documents about teachers as well as other school programs. The findings are consistent with the views of the BECTA (2004) and Pelgrum (2002) who found a positive effect of ICT usage and educational attainment. Equally, Cano and García (2013) emphasize need for ICT strategies in supervision while Lazarus *et al* (2013) also underscored the relevance of ICT in school management. The finding however, differs from those of Tella *et al.* (2008) and Leuven Lindahl, Oosterbeek and Webbink (2007) who found no real positive effect of ICT usage and school efficiency. The study thus, adds a new dimension to literature by confirming the positive effect of ICT usage in secondary schools on supervision and monitoring.

One glaring point of interest however, is the fact that prior to conducting the study, there was a strong belief and view that secondary schools are not well managed and that ICT usage was at its worrying low. Consequent to completion of the study, it was established that school leaders are doing their best to manage the schools and ICT is also being integrated. The only set back being that the strides are still few and narrow coupled with the challenge of adaptation. It can thus be effectively pointed out that ICT is making in-roads in the management of schools and all stakeholders can ill afford to stonewall the process but rather harness the potential thereof.

Conclusions and Recommendations

In line with objective one, the study concludes that ICT usage in schools has a highly strong contribution to managerial communication in the secondary schools studied. This strong contribution could be because of ICT being new to the schools as well as head teachers and other school personnel being largely obsessed with technology. Moreover, computers and internet (especially social media platforms) in the schools

coupled with mobile phones have meant that head teachers and other school personnel can easily oversee internal and external communication of key school programs. Meanwhile, in tandem with objective two, the study concludes that ICT usage in schools has a highly strong contribution to financial management in the secondary schools studied. This strong contribution could be because head teachers and other school personnel find ease of work with technology. Moreover, computers given to schools have enabled electronic school financial records to be managed better, electronic receipts issued, automated pay systems as well as electronically generated documents that inform accountability. Whilst, in line with objective three, the study concludes that ICT usage in schools has a highly strong contribution to supervision and monitoring in the secondary schools studied. This strong contribution could be because ICT offers flexible means to head teachers and other school personnel. Moreover, computers given to schools have enabled electronic report cards to be printed thus aiding monitoring of students' performance, electronic documents about teachers as well as other school programs.

The study has made recommendations geared toward improvement of ICT usage as well as management of schools. In line with objective one, the study recommends that schools ought to improve on the timing of communication to parents over urgent issues regarding school operations. When the communication is late, the parents lose interest in what is going on in the schools. Parents need to be real stakeholders in the school system. As far as objective two is concerned, the study recommends that schools ought to make provisions for issuing electronic receipts to ease payments within the school system. This can also help schools to keep on track with the latest developments in education that call for technological innovations to be a part of the school system. Meanwhile, in line with objective three, the study recommends that school heads need to find ways of installing security and alert systems in schools as well as utilizing them efficiently especially at a time when school-based crime and accidents are on the rise. Each school needs to launch its own security system to avoid falling victim of rampant crimes and accidents. Equally, the study proposes further research on ICT integration in school systems and other management functions like planning, delegation and decision making, ICT integration in school systems and management of secondary schools focusing on other school personnel and a purely qualitative study based on open-ended instruments.

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