

An Investigation of the Relationship of ICT Training of Principals in ICT integration in Management Public Secondary Schools: A case of Nairobi County, Kenya

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Abstract

The purpose of this study was to find out whether there exists a relationship between ICT training of principals and ICT integration in management of public secondary schools in Kenya. Cross-sectional survey design was used in Nairobi County where quantitative research strategy was applied for the collection of data using questionnaires. The target population comprised of 75 secondary schools in Nairobi County at the time of data collection. Simple Random sampling was used to select the public secondary schools with 7(10%) participating in the pilot study. Data collected by questionnaires from 68 principals were analyzed using Pearson's chi square with the help of Statistical Package for Social Sciences (SPSS). The findings of the analysis of data revealed that there was a significant relationship between the principals' educational level and ICT integration in management of public secondary schools in Kenya. Out of this study recommendations were made to the county government and secondary schools in Nairobi County and Kenya in general.

Keywords: ICT Training of Principals, ICT integration and Management

1. Introduction and background to the study

Knowledge in ICT includes the training one receives to use available ICT facilities (Chemwa and Mburu, 2007). ICT literacy requires formal or informal training in basic skills such as the use of hardware and the application software (Ferrigan, 2007). On the other hand, knowledge is a feature of the interaction between the information supplied through ICT and the user of such information (Amara, 2006).

Developing foundational knowledge should be essentially about creating awareness of ICT and its nature. According to Pernia (2008) key competencies that can be expected of individuals who have completed a foundational knowledge course on ICT are as follows: Familiarity with hardware like mobile phones, computers, Internet and other ICTs, ability to identify ICTs, appreciation of actual and potential functions of these technologies in everyday life, understanding basic features and uses of ICT (for instance, mobile phones; voice calls and SMS; computers: word processing, spreadsheet, database, information storage; Internet: web browsing, e-mail and instant messaging).

1.1 Objectives

This research was guided by the following objective:

To assess whether the level of training in Information Communication Technology (ICT) is related to their level integration of Information Communication Technology in management of public secondary schools in Nairobi County, Kenya;

2 Research Questions

This study answered the following research question:

What is the relationship between the principals' level of training and the level of integration in information communication technology in the management of public secondary schools in Nairobi County in Kenya?

3 Hypothesis

The null hypothesis that guided this study was:

H_{01} : There is no significant relationship between the principals' level of training in ICT and integration of information communication technology in management of public secondary schools in Nairobi County, Kenya.

4. Review of related literature

In this study, the knowledge dimension is considered by investigating the principals' ability to use ICT facilities in various administrative tasks and the frequency of use of ICT facilities. The ability to use ICT facilities involves investigating the skills dimension of principals and often results from experience with the technologies (Amara, 2006). For many, the abilities "to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in networks via the Internet" are hallmarks of an ICT-literate individual (Pernia, 2008).

Due to the expansion of systems and increased diversification of the educational structures, there arises the need to create suitable training and re-training of administrative personnel to meet the requirements of such increased complexity in administration (Chepkonga, 2012). Technical skills training ensures that an individual is proficient in the various applications of ICT, which include searching and accessing information; collecting and organizing data, integrating and interpreting information from multiple sources, assessing validity and reliability of

information; and generating new information. Pernia (2008) adds that such technical skills include: -ability to use ICT features and applications of mobile phones, cameras, video recorders and players, voice recorders, music players, multi-media services, word processing, spreadsheets, infrared, presentation software, Bluetooth and internet connectivity; applications for computers include: word processing, spreadsheet, database, information storage; for Internet: web browsing, e-mail, and instant messaging; ability to access and search a website for example, log on to the Internet, use search engines, and refine search using keywords; ability to use Internet-based services by being able to create an account, compose e-mail, attach and download files, participate in discussion for social networking sites and create blogs; ability to collect and process electronic data for immediate or later use by being able to create a database, organize, store and filter out irrelevant data; ability to convert data into graphic presentation and other visual formats; using ICT to support critical thinking, creativity and innovation for educational, work-related and leisure purposes. For example, one should be able to make the most of multi-media information and cross-reference information across websites; frequency of use of ICT hardware and software and period of experience with ICT facilities.

The confidence and competence of principals in the use of ICT are key determinants of the effective use of ICT in administrative duties (Amara, 2006). Markauskaite (2005) reveals that many school principals have low levels of confidence and competence for effective use of ICT in school leadership. School principals not only need formal training, but also sustained and ongoing support from their colleagues to help them learn how best to integrate technology into their administrative duties (Amara, 2006). The level of ICT training measured low among secondary school staff in schools of West England.

Information communication technology foundation skills for school administrators should include file management, word processing, spreadsheets, e-mail and Internet skills (Selwood, Fung & Mahony, 2003). The continued application of ICT increases and deepens the user's critical reading of information and knowledge that is accessed, managed, integrated, created, and communication through ICT (Pernia,2008). In this study, ICT integration is determined by investigating how principals apply ICT in their school leadership functions. These leadership functions are the administrative roles they play in schools as stipulated by the Ministry of Education in Kenya, including monitoring the organisation of the approved school curriculum, control of school finance and stores, management of human resources and correspondence with stakeholders.

Principal agency is a competency added to the role of the principal when incorporating ICT (Creighton, 2003). This is a necessary leadership skill that helps the principal to develop a better understanding of why and how they will use the new technology (Hughes, 2005). Three subcomponents are incorporated within principal agency namely: principal ICT competencies, providing guidance for linking ICT to pedagogy and sustaining ICT change. A principal's ICT competence subcomponent is significant characteristic of a leader during the ICT integration process. According to the investigation carried out on the relationship carried out between skills and using of ICT and attitude. Jegege, Dibu-Ojerinde and Ilori (2007) found a significant link between the changes related to ICT in attitude and practices and the ICT integration (Mohammad, 2012). Their findings revealed that, as self skills improve and personal ICT competencies reach a high level, interest in ICT is increased. Other findings, Otto and Albion (2002) maintain that a principal's ICT competencies are fundamental in creating a positive environment for ICT integration. Principals play an important role in creating successful change in schools (Schiller, 2002). The head of the institution is essentially responsible for corporate strategy (Gakuu, 2006). Limited research is noted that documents the determinants of principals' integration of ICT in secondary school management. Review of literature indicates that scholars must embrace current emerging trends in education (Means, 1994). Literature indicates that the problem with technology integration in public schools is that secondary school principals lack necessary training, knowledge and skills (Persaud, 2006).

5. Methodology

The study was conducted using descriptive survey design. The target population for this study consisted of 75 principals in public secondary schools in Nairobi County at the time of study. In this study the researcher choose census survey and all the 75 principals of public secondary schools in Nairobi County were selected for the study. Further nine principals, one from each district were randomly chosen for interview. The nine principals were interviewed after they had filled the questionnaires. Questionnaires were used to collect data. In the current study, one principal from each of the nine divisions was interviewed once during visits to schools using the interview schedule to allow opportunity for probing and clarifying collected data from the questionnaires. The number of respondents involved in the pilot test was seven public school principals from Nairobi County. The pilot test was carried at the schools with similar characteristics to those sampled. The instruments used for the study were subjected to scrutiny by experts in the areas of educational management. Their corrections on ambiguities, length, structure and wording of the questionnaire and interview schedule were used to modify and restructure the instrument. Cronbach alpha (α) was used for estimating internal consistency.

The primary data was collected from the principals who were the respondents through use of questionnaires and interview schedules. The data obtained from this study were both qualitative and quantitative. Analysis was conducted to provide structure to the gathered data and allowed for triangulation between the various research

instruments used. The data for the questionnaires were entered carefully and accurately into Statistical Package for Social Sciences (SPSS) version 20.0 after it had been arranged and coded. Frequency distribution and percentages were computed for all items. Descriptive statistics used included the frequencies and percentages. The analysis of the hypothesis the researcher used Chi Square test (χ^2) to test the relationships and the level of integration of ICT for management of public secondary schools in Nairobi County. Data for each hypothesis were tested at the 0.05 level of significance. The analysis of data collected by interview was done using focus by question analysis strategy. Data was presented in percentages and frequencies. The researcher also recognized objectivity as vital during data analysis to ensure that the collected data is interpreted correctly. Saunders et al. (2007) explain that researchers must try to minimize risk to participants and society while attempting to maximize the quality of information they produce. Therefore ethical measures were observed throughout the investigation.

6. Findings of the study

For principals to effectively use computer for school administrative tasks, they must first receive training on how to use computers. Principals were asked whether or not they had accessed any ICT based in-service training. Table 1 shows the principals who have participated in ICT in-service training.

Table 1

Attendance of Principals to ICT In-Service Training.

Access to ICT in-service	F	%
Has attended	63	92.6
Has not attended	5	7.4
Total	68	100.0

Table one shows that a high proportion (92.6%) of the public secondary school principals had received information communication technology in-service training while 7.4% had not. Through the interview of public secondary schools principals it revealed that although most of them were trained, the training was only basic resulting in most of them not possessing adequate skills in technology to enable them be confident and creative in the use of information communication technology for school management. Further responses revealed that, some of them do not even understand the rationale for use of information communication technology in school management. From analysis of the checklist it revealed that only 10 public secondary schools were connected to the internet at the time of study and many schools could not benefit from the advantages of using internet for communication, administration and teaching. The researcher was interested in finding out how training affected the level of ICT integration of public secondary school principals. From Table 2 and Table 3 there is overwhelming evidence that computer in service training plays a big role in determining the levels of integration of ICT by principals of secondary schools. Table 2 shows in-service training in ICT of principals and level integration of ICT.

Table 2

In-Service Training in ICT of Principals and Level Integration of ICT.

	Level of ICT integration							
	High		Moderate		Low		Total	
Have you taken an in service course?	N	%	N	%	N	%	N	%
Yes	22	32.5	39	57.3	2	2.9	63	92.6
No	0	0.0	0.0	0.0	5	7.4	5	7.4
Total	22	32.5	39	57.3	7	10.2	68	100

From Table 2 it can be observed that 32.5% of the respondents had trained in an in service course for computer and had highly integrated ICT and 57.3 % of the respondents had trained in ICT. Examining further, the results revealed that those who had not received any training in the use of computers had not integrated ICT.

Table 3
Chi Square Tests on In -Service Training of Principals in Integration of ICT.

	Value	Df	Asymp. Sig. (2-sided)	Sig. (2-Exact sided)	Sig. (2-Exact (1-sided)
Pearson Chi-Square	38.343 ^a	2	.000	.000	
Likelihood Ratio	17.678	2	.000	.000	
Fisher's Exact Test	15.282			.000	
Linear-by-Linear Association	14.282 ^b	1	.000	.000	.000

Table 3 indicates the results of the chi square (χ^2) testing of the hypothesis on relationship between the level of information communication technology in service training of the principal and their integration of information communication technology in management of secondary schools. The null hypothesis (H_{04}) was tested using chi square statistic (df=2, Pearson $\chi^2=38.34$, p= 0.00 at 0.05 level of significance) indicated that the finding was significant and therefore the null hypothesis (H_{04}) was therefore rejected. The level of training of the principal in information communication technology is therefore significantly related to the level of integration of information communication technology in management of secondary schools. The chi square table confirms that there is a very strong relationship between training and ICT integration. Answering structured question 12 (derived from research question 4) which was seeking information on whether there was a relationship between principals ICT training and the level of ICT integration in secondary schools, 5(55.5%) out of the 9 interviewees agreed that training matters while 4 (44.4%) out of 9 disagreed. The results of the analysis are presented in Table 4

Table 4

Responses from Interviewees on Principals' level of Training in ICT in Nairobi County

Does ICT training influence ICT integration % responses from the 9 sampled principals	
Accepted that ICT training level influenced ICT integration	55.5%
Those who disagreed	44.4%
Total	100.0%

Results of the Chi Square test based on hypothesis 4 and research question 4 (item 12) are in agreement that ICT training is paramount for ICT integration in management of public secondary schools in Nairobi County. The finding of this study on the significant relationship between ICT in-service training of principals and level of integration of ICT in management of secondary schools in Nairobi County is expected. Principals with ICT training would be expected to use ICT with ease than those without. Such principals would be expected to be technically functional compared to the one who has not gotten training. This finding concurs with the findings of the study by Peansupap & Walker (2005) which indicated a need for users to get intermediate training when exposed to ICT applications.

7. Conclusions

On access to ICT based in-service training, majority 92.6% of the respondents had received ICT in-service training while 7.4% had not. The results of testing the hypothesis on relationship between the level of information communication technology training of the principal and integration of information communication technology in management of secondary schools indicated that Pearson $\chi^2 = 38.34$, p=0.000 at 0.05 level of significance (df=2). The null hypothesis (H_{03}) was therefore rejected. The hypothesis was not accepted. The level of training in ICT of the principal is therefore significantly related to the level of integration of information communication technology in management of secondary schools. While enhancing integration of ICT to promote effective management of secondary schools, it is important to enhance and provide principals with adequate training in various management systems for financial, administrative, human resource management, library and student personnel. Therefore the issue of training should be addressed for the benefits of ICT to be realized.

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