Research Article

INFLUENCE OF PRINCIPALS' LEVEL OF ICT LITERACY ON INTEGRATION OF ICT IN PUBLIC SECONDARY SCHOOLS IN MACHAKOS SUB-COUNTY

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ABSTRACT

In Machakos Sub-County ICT integration by the principals is yet to be effectively implemented. In most cases principals' skills in ICT are minimal thus the purpose of the study was to investigate the influence of principals' level of ICT integration in Public Secondary Schools in Machakos sub-county, Kenya. The study was delimited to principals' level of ICT literacy in ICT integration. The study was guided by two theories: Unified Theory of Acceptance and Use of Technology (UTAUT) and Technology Acceptance Model (TAM) The study adopted a descriptive research design. Cronbach alpha (α) was used to test the reliability of the instruments. The data was collected by means of a well-structured questionnaires for heads of departments (HODs) and, principals were interviewed. Quantitative data was analyzed through descriptive statistics which included the use of percentages and frequencies while qualitative data was analyzed thematically. The findings of the study were principals' level of ICT literacy influenced ICT integration in school management. The study concluded that principals' level of ICT literacy affected the integration of ICT in public secondary schools of Machakos Sub-County, Kenya. The study recommended that the ministry of education which was responsible for ensuring that schools offer quality education and ICT be included in the syllabus and train principals on ICT developments for them to be updated.

Keywords: ICT Literacy, Information Communication Technology.

INTRODUCTION

Information Communication Technology (ICT), according to United Nations Development Plan (UNDP, 2001) has been defined to include the full range of electronic technologies and techniques used to manage information and knowledge. Tinio, (2003) states that Information Communication Technology (ICT) was first made compulsory in the developed nations in 1980s and then integrated in education. According to Clark and Mayor, (2003) states that in around 1950s is when study of information technology implementation in organization and institution began.

Felton, (2006) states that in Europe, appropriate use of ICT in school education is considered a key factor in improving quality at this educational level. OECD, (2004) states that in most developed countries such as UK, schools have entrenched the practice of Information Communication Technology (ICT) in teaching and learning into the curriculum and establish high level of operational and suitable use to sustain teaching and learning.

Studies such as done by Tondeur, Van Keer, Braak and Valcke, (2008) show that sub-Saharan Africa compared with developed countries is lagging behind in ICT literacy, availability of relevant content, affordability and access hence this makes the adoption is slow or absence of ICT in school management. As Wang and Woo (2007) put it, ICT implementation depends on a school's positive communication regarding ICT. Paryono & Quito, (2010) states that African classrooms and schools have also been shaped by ICT.

Afshari, (2012) states that secondary school leadership is a significant factor in the actual ICT integration in school administration.

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Schiller, (2003) established that as principals for development like ICT integration in schools, they should have a personal proficiency in computer use. Principals ought understand the significance of the new technologies in education and advance their knowledge and skills in the use of computer and other technologies. Nevertheless, although technology leadership tasks may have been allocated officially to school principals, most of them do not have the skills on ICT.

THEORETICAL FRAMEWORK

This study was based on two theories: Technology Acceptance Model (TAM) by Davis 1989 and Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh, Morris and Davis, (2003). These theories were appropriate for the study because they aimed at explaining the intensions of user on system information and their usage behavior. They also predicted on acceptance, adoption and use of information technologies. The theories were relevant to this research because they show how the principals will adopt ICT to improve their performance in management through innovating in ICT resource. Also they show some of the factors affecting the integration of ICT in public secondary schools like age and gender depending perception and believe on whether the technology is easy for use and the benefits attained and will it help them attain the job performance.

RESEARCH METHODOLOGY

This study adopted the descriptive research design because the method was proficient in gathering background data hence the researcher had the chance to motivate or influence respondents' responses. Descriptive survey design was appropriate for the study since it described the features of a large population and results were significant even when analyzing multiple variables. Target population comprised of 44 principals and 528 heads of department all totaling

to 572 from which a sample size of 9 principals and 105 heads of department was determined based on the sampling chart by Mugenda and Mugenda (2013), at a confidence of level of 75% and a margin error of 0.005. The simple random sampling method and purposive sampling technique were used in the study to select the public secondary schools where 9 principals and 105 heads of the department participated in the study. Simple random sampling was used as responses could be generalized to the whole population while purposive sampling technique was used to select individuals with knowledge or experience with the phenomenon of interest. Data analysis began by taking frequency counts and percentage of response to generate descriptive information about the respondents and to illustrate the general trend of finding on various variables that were under investigations. Quantitative data were analyzed using descriptive statistics such as frequency and percentage .The quantitative findings were presented using tables.

RESULTS AND DISCUSSIONS

The main objective of the study was to investigate how principals' level of ICT literacy affect integration of ICT in public secondary schools in Machakos Sub-County, Kenya.

Respondents' Background Information

In this study 9 principals were interviewed and 105 questionnaires were administered to heads of department. In return 87 heads of department filled and returned their questionnaires. This gave response rates shown in Table 1;

Table 1: Response Rate

Respondents	Sample Size	Participants	Non-participants	Response Rate (%)
Principals	9	9	0	100
HODs	105	87	18	83
Total	114	96	18	92

Source: The researcher 2025

Table 1 indicates 96 respondents had filled in the questionnaire giving a response rate of 92%. This is supported by Best and Khan, (2006) who indicated that a response rate of 50% is considered adequate, 60% good and above 70% very good. Therefore, in view of this, the response rate was considered very good and exceeded the threshold postulated by Best and Khan.

Investigate how principals' level of ICT literacy affect integration of ICT in public secondary schools in Machakos Sub-County.

The study sought to investigate how principals' level of ICT literacy affects ICT integration in public secondary schools in Machakos Sub-County. The objective was addressed through descriptive and qualitative analysis techniques.

Descriptive findings

Quantitative analysis was used on the data and the findings are below based on percentages and frequencies.

Statement	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I apply and use ICT knowledge in preparing professional documents	0 (0.0%)	0 (0.0%)	0 (0.0%)	34 (39.1%)	53 (60.9%)
I know computers and their functions	0 (0.0%)	0 (0.0%)	2 (2.3%)	33 (37.9%)	52 (59.8%)
I can construct a learning website	10 (11.5%)	31 (35.6%)	15 (17.2%)	24 (27.6%)	7 (8.0%)
I create teaching aids with computers	2 (2.3%)	9 (10.3%)	2 (2.3%)	43 (49.4%)	29 (33.3%)
I use the internet to update and check professional documents for my teachers and students	0 (0.0%)	0 (0.0%)	3 (3.4%)	28 (32.2%)	56 (64.4%)
I teach my teachers and students how to find information on the internet	0 (0.0%)	6 (6.9%)	2 (2.3%)	30 (34.5%)	49 (56.3%)

From the table, all the respondents agreed that they applied and used ICT knowledge in preparing professional documents. Therefore, the respondents agreed that they applied and used ICT knowledge in preparing professional documents.

The findings were consistent with the assertions of Chisenga (2006) asserting that principals should have the skills and knowledge of how to use a computer and its software packages and ensure that there are enough computing resources that can be distributed in the school.

The table shows that 2.3% of the respondents were undecided that principals knew about computers and their functions. 97.7% agreed that principals know about computers and their functions. Further, the findings showed that principals knew about computers and their functions.

The findings agree with Schiller (2003) and Chisenga (2006) who argued that training of school leaders on ICT can have impact on their management; lack of access to computer hardware and software is one of the reasons why administrators may not use computer technology.

The findings show that 47.1% of the respondents disagreed that principals can construct websites. 17.2% of respondents were undecided on whether principals can construct websites. Further, 35.6% of the respondents agreed that principals can construct websites. The findings shows that majority of respondents disagreed that principals can construct websites.

The findings also lend credence to the assertions by Sandlots (2001), explaining that teachers who acquired knowledge and skills on use of computers led to increased levels of classroom implementation of computers.

The table shows 12.6% of the respondents disagreed that they could create teaching aids with computers. In addition, 2.3% of respondents were undecided on whether they could create teaching aids with computers. 82.7% of respondents agreed that they could create teaching aids with computers. The findings revealed that majority of the respondents agreed that they could create teaching aids with computers.

The findings concur with Albirini (2006), ICT integration can be used to efficiently manage lesson plans, outcomes and prepare objectives that can be covered in upcoming lessons.

Findings indicated that 3.4% of respondents were undecided on whether they use the internet to update and check professional documents for my teachers and students. 96.6% of respondents agreed that they use the internet to update and check professional documents for my teachers and students. The findings implies that majority of respondents agreed that they use the internet to update and check professional documents for my teachers and students.

The findings agree with Schiller (2003) who mentioned that availability of sufficient ICT resources facilitates efficient use and personal proficiency. Principals should ensure that their learning institutions have sufficient resources to ensure that at least there is internet and PC's that can effectively function and serve all the people in the school society.

The study findings shows that 6.9% disagreed that the principal guides teachers and students on how to find information on the internet. 2.3% of respondents were undecided on whether the principal guides teachers and students on how to find information on the internet. 90.8% of respondents agreed that the principal guides teachers and students on how to find information on the internet. The findings implies that majority of the respondents agreed that the principal guides teachers and students on how to find information on the internet.

The researcher also interviewed principals to determine the influence of the principals' level of ICT literacy affects implementation of ICT integration. A school manager who was an interviewee asserted the following:

> "*It is challenging for a principal to commence the implementation of ICT if he/she lacks basic understanding of the benefits that can be derived. As school leaders we must learn the basic computer packages to have grasp of how to work with computers.*"

In another outcome, a principal said;

> "*Most of us we are not updated on the changes and developments in ICT integration. Most of the principals lack skills in new software's, programs, websites and have no formal trainings.*"

These findings concur with Visscher (2003) and Tearle (2004) who indicated that school administrators require facilitation with appropriate ICT and related infrastructure to optimize ICT integration in their administrative and academic duties.

The findings support that to ensure that principals and teachers have knowledge about computers and their functions, it should be mandatory that holders of positions of management in secondary schools must possess basic knowledge and experience in computer packages. Additionally, schools must ensure that there are enough computer resources for staff and students to facilitate use by management and continuous knowledge development for students. This will gradually enhance ICT integration in secondary schools in Machakos sub-county.

The findings concluded that ensuring that teachers are well trained in using ICT equipment will enhance their teaching and learning processes. Additionally, ICT integration can be used to efficiently manage lesson plans, outcomes and prepare objectives that can be covered in upcoming lessons. Principals should ensure that their learning institutions have sufficient resources to ensure that at least there is internet and PC's that can effectively function and serve all the people in the school society.

CONCLUTION

From the study finding some of the principals were not updated and lacked the skills that are required in the new software's and websites hence it is challenging for a principal to commence the implementation of ICT if he/she lacks basic understanding of the benefits that can be derived.

RECOMMENDATIONS

The study recommends that for the principals to integrate ICT in management of public secondary schools Universities should also prioritize the allocation of sufficient and up-to-date ICT resources for both staff and students. Regular assessments and upgrades of these resources are necessary to maintain their effectiveness.

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