

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

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ABSTRACT

Purpose of the Study: The study aimed to investigate the influence of principals' characteristics on the integration of Information and Communication Technology (ICT) in public secondary schools in Machakos Sub-County, Kenya.

Problem Statement: Despite government efforts and ICT policies, many public secondary schools in Kenya still experience significant delays in effective ICT integration for teaching, learning, and management.

Methodology: A descriptive research design was employed. Data were collected using questionnaires administered to Heads of Departments and interviews conducted with principals. Reliability of instruments was tested using Cronbach's Alpha. Quantitative data were analyzed using descriptive statistics such as frequencies and percentages, while qualitative data were analyzed thematically.

Findings: The results revealed that principals' characteristics—age, gender, technological background, academic qualification, and administrative experience—significantly influenced ICT integration in public secondary schools.

Conclusion: Principals' demographic and professional attributes play a critical role in determining the extent and effectiveness of ICT integration within secondary school settings.

Recommendation: The study recommends continuous training and capacity-building programs for school managers to enhance their ICT competencies and strengthen their administrative effectiveness in promoting digital adoption in schools.

Key words: *ICT integration, IT, principal's characteristics, public secondary schools, principals.*

INTRODUCTION

Information Communication Technology (ICT), according to United Nations Development Plan (UNDP, 2001) includes 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. Clark and Mayor, (2003) point out that it is around 1950s when study of information technology implementation in organization and institution began.

Afshari (2012) states that secondary school leadership is a significant factor in the actual ICT integration in school administration. Schiller, (2003) established that as principals plan for developments like ICT integration in schools, they should have a personal proficiency in computer use. Principals ought to understand the significance of 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.

Blake (2000), states that ICT has been mostly integrated in administration of staff which will include work allotment and recruitment of administrative staff and teaching, monitoring their attendance and managing leave and in performance appraisal. Suitable training to feel confident in dealing with technology is required (Stuart, 2009). Yuen, Law and Wong (2003), founded out that to enhance the daily school routine schools have to introduce ICT in programming, solving individual or groups problem and updating the evaluation of school programme.

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 can adopt ICT to improve their performance in management through innovating in ICT resource. They also 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 whether it helps them attain the job performance.

RESEARCH METHODOLOGY

This study adopted the descriptive research design because the method is 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 describes 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 nine (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 0.05. Purposive sampling method and simple random sampling technique were used in the study to select the public secondary schools where nine (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 was collected through a questionnaire for heads of department and interview schedule for the Principals. 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.

FINDINGS

The main objective of the study was to examine the influence of principals' characteristics on integration of ICT in public secondary schools in Machakos Sub-County.

Respondents' Background Information

In this study nine (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 that a total of 96 respondents had filled in the questionnaire and the interview schedule 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.

Influence of principals' characteristics on integration of ICT in public secondary schools in Machakos Sub-County.

The study sought to examine the influence of principals' characteristics on ICT integration in Machakos Sub-County. This was done using descriptive statistics of frequency and percentages. Thematic analysis was also done for the qualitative data findings.

Descriptive findings.

The findings obtained are shown below.

Age of the Principals

Table 2: Middle-aged principals have positive attitude towards ICT compared to retiring principals.

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	22	25.3	25.3	25.3
Agree	61	70.1	70.1	95.4
Strongly Disagree	4	4.6	4.6	100.0
Total	87	100.0	100.0	

From table 95.4% of the respondents agreed that middle aged principals had positive attitude as compared to retiring principals. 4.6% of the respondents disagreed that middle aged principals had positive attitude as compared to retiring principals. Therefore, majority of the respondents agreed that middle aged principals had positive attitude as compared to retiring principals.

The findings concur with (Jurich & Haddad, 2005) that the younger and less experienced teachers use computers in broad micro transformation fashion, and they are more likely to be ICT proficient. The older principals ought to adopt ICT as any other new mechanism that is required to improve teaching and learning processes.

The findings revealed that majority of the older generation lack the educational knowledge of using ICT which makes it more challenging to adopt it due to lack of understanding. However, the younger generation of principals are able to adopt and enforce technology because of the knowledge they possess and the experience they've garnered through ICT utilization.

From findings in Table 3, 12.6% of the respondents disagreed that males are more interested in ICT as compared to females. 85.1% of the respondents agreed that males are more interested in ICT as compared to females. 2.3% of the respondents were undecided .

Table 3: Gender and Interest

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	10	11.5	11.5	11.5
Agree	64	73.6	73.6	85.1
Undecided	2	2.3	2.3	87.4
Disagree	4	4.6	4.6	92.0
Strongly Disagree	7	8.0	8.0	100.0
Total	87	100.0	100.0	

The findings agrees that males were more interested in ICT as compared to females. The above findings were in tandem with Markaskaite (2005) who pointed out that the discovery of the computer has been as a male domain.

One of the principals said;

“The middle-aged principals have the interest and are excited to use ICT unlike the retiring principals who are resistant to ICT integration.”

The findings concluded that the use of computers and ICT in general was easily adopted by the younger generation because it was introduced to them at an early stage in their academic journey. The older principals ought to adopt ICT as any other new mechanism that is required to improve teaching and learning processes. The findings imply that old stereotypic behavior that associates complex and technical stuff the male gender seems to hinder the feminine society from exploiting new opportunities in ICT thus slowing down the process of adopting its integration.

Background of use of Technology

Findings also established that 10.3% of the respondents disagreed that principals' background affect integration of ICT. 8% of the respondents were undecided on whether principals' background affect integration of ICT. 81.4% of respondents agreed that principals' background affect integration of ICT.

Table 4: Principals' background affects integration of ICT

			Valid	
	Frequency	Percent	Percent	Cumulative Percent
Strongly Agree	50	57.5	57.5	57.5
Agree	21	24.1	24.1	81.6
Undecided	7	8.0	8.0	89.7
Disagree	5	5.7	5.7	95.4
Strongly Disagree	4	4.6	4.6	100.0

The findings revealed that principals' background affect integration of ICT in agreement with Schiller (2003) asserting that for the adoption of ICT to be effective and sustainable, administrators themselves must be competent in the use of the technology, and they must have a broad understanding of the technical, pedagogical, administrative, financial, and social dimensions of ICT in education. The background of using technology, comes from both learning and practically using the technology.

The findings show that the background of using technology, comes from both learning and practically using the technology. These findings are in agreement with Stuart and Remus (2009) who discovered that the relationship between ICT literacy of school leaders and the purpose to integrate ICT showed that principals who perceived themselves as technology leaders have great intensities of ICT and they regularly integrate ICT in their administrative and instructional chores.

Academic Qualification

The table showed that 6.9% of the respondents disagreed that academically qualified principals understand ICT integration in a better way.

Table 5: Academically qualified principals and Understanding Levels

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	60	69.0	69.0	69.0
Agree	17	19.5	19.5	88.5
Undecided	4	4.6	4.6	93.1
Disagree	4	4.6	4.6	97.7
Strongly Disagree	2	2.3	2.3	100.0
Total	87	100.0	100.0	

4.6% of respondents were undecided on whether academically qualified principals understand ICT integration in a better way. 88.5% of respondents agreed that academically qualified principals understand ICT integration in a better way. The findings affirm the fact that academically qualified principals understand ICT integration in a better way.

Experience in ICT and Management

Table 6: Experience of the principals matters in ICT integration

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	57	65.5	65.5	65.5
Agree	26	29.9	29.9	95.4
Undecided	2	2.3	2.3	97.7
Strongly disagree	2	2.3	2.3	100.0
Total	87	100.0	100.0	

The table also show 2.3% of the respondents were undecided on whether the experience of the principals matters in ICT integration. 95.4% of respondents agreed that the experience of the principals matters in ICT integration. The findings shows that 2.3% of the respondents disagree that the experience of the principals matters in ICT integration. The findings concur with Peralta and Costa (2007) asserting that teachers with more experience with computers have greater confidence in their ability to use them effectively.

One of the principals said:

“The adoption and use of ICT is influenced by a period of time served in, management and principals who had served for long period in management tend to have exposure to ICT.”

The findings concluded that for ICT integration to be successful, passion, determination, and skills must be combined to bring about a seasoned implementation. Experience, which is an output of the three aforementioned traits is what school leaders ought to possess or being in the process of acquiring those skills. Any challenges that may come along can be handled due to the existence of tools of trade that mitigate any obstacles.

CONCLUSIONS

From the study findings administrative experience which principals have plays a major role in integrating ICT in management public secondary schools .the middle aged principals had more interest, skills and knowledge that is required in ICT changes and developments.

RECOMMENDATIONS

The study recommends that to successfully integrate ICT in public secondary schools MOE and TSC to develop and implement comprehensive ICT training programs tailored to the diverse proficiency levels of principals and teaching staff. These programs should be mandatory, ensuring that both current and future school leaders are equipped with the necessary skills.

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