

# The Influence of School Administrators Attitude on effective use of ICT in Management of Public Secondary Schools in Uasin-Gishu County in Kenya

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DOI: 10.29322/IJSRP.12.09.2022.p12934

<http://dx.doi.org/10.29322/IJSRP.12.09.2022.p12934>

Paper Received Date: 5th August 2022

Paper Acceptance Date: 5th September 2022

Paper Publication Date: 15th September 2022

**Abstract-** There “is increasing interest, attention and investment being put into the use of ICT in education worldwide. The Ministry of Education Science and Technology in Kenya has developed an Information Communication Technology (ICT) strategy which outlines how ICT will be adopted and utilized to improve access, quality and equity in the delivery of education services in Kenya. With the introduction of computer-based technology in schools, major changes should be observed in the way education is managed, but there is still minimal evidence on the impact of these technologies in public secondary schools. The general objective of the study was to analyze selected socio-technical issues influencing effective management of public secondary schools in Uasin-Gishu County in Kenya. Specifically, the study sought: To Examine how school administrators’ attitude on ICT influence effective management of public secondary schools in Uasin-Gishu County, Determine how ICT frequency of use influence effective management of public secondary schools in Uasin-Gishu County, Establish how school administrators’ access to ICT facilities influence effective management of public secondary schools in Uasin-Gishu-County and Investigate how school administrators’ ICT technical competencies influence effective management of public secondary schools in Uasin-Gishu County. The study was based Open Systems Theory and The Technology Acceptance Model (TAM). The researcher adopted the correlational and descriptive research design. “The population for the study was 166 public secondary schools in Uasin-Gishu County. The sample size use was 61 principals, 61 school bursars, 61 school secretaries and 6 Sub-County Directors. Stratified random sampling methods were used to select the respondents. Primary data was collected using structured questionnaire measured on liker type interval scales of 1-5 between April 2021 and August 2021. Reliability of the research instrument was tested against Cronbach’s alpha coefficient where an overall reliability score of 0.814 was achieved while validity was gauged using panel of experts, ensuring that the indicators of each variable were within the same construct and operationalizing the instrument as per the variables. Descriptive statistics comprising means and standard deviations were used to analyze the data while hypotheses were tested using multivariate linear regression model to generate relevant statistics.” The findings indicated that

administrators’ attitude on ICT has a moderate relationship ( $R = 0.637$ ,  $\beta_1 = 0.637$ ,  $R^2 = 0.405$ ,  $p < 0.05$ ) with effective management of schools indicating that a positive change in administrators’ attitude leads to adequate improvement on management of schools. ICT frequency of use and effective school management were also found to have a moderate relationship ( $R = 0.549$ ,  $\beta_1 = 0.449$ ,  $R^2 = 0.302$ ,  $p < 0.05$ ) demonstrating that whenever school administrators’ frequently employ ICT facilities in their management functions there was a significant improvement on effective management of schools. Based on the study findings, there was also a moderate relationship between access to ICT facilities and effective management of schools ( $R = 0.383$ ,  $\beta_1 = 0.287$ ,  $R^2 = 0.147$ ,  $p < 0.05$ ) which demonstrated that those administrators’ who have access to ICT facilities tend to manage their schools better. Lastly, the study established a moderate relationship between administrator’s ICT technical competencies and effective school management ( $R = 0.588$ ,  $\beta_1 = 0.506$ ,  $R^2 = 0.346$ ,  $p < 0.05$ ). Implying that administrators’ skill set are necessary in leveraging on ICT facilities to realize success in management of schools. On the basis of these findings, it was concluded that the Ministry of education should: ensure that the administrators’ develop a favourable attitude; frequent use of ICTs in school management is encouraged; resources are allocated for the acquisition of ICT facilities and administrators given training on how to utilize ICTs their schools to enable them achieve effective management. The study may be useful to stakeholders in the education sector in providing information on the state of ICT in public secondary schools in Kenya.

**Index Terms-** Attitude, Information and Communications Technology, Administration, Educational Management

## I. INTRODUCTION

### Background of the Study

Information and Communication Technology (ICT) in educational management is used to overcome the barriers of distance and time and significantly improves the accessibility of information and knowledge (Gavua, Okyere-dankwa & Offei, 2018). Rapid growth in the global economy and technological

advancement has pressurized the education institutions to use ICT not only for teaching and learning but also for managing school operations. Since ICT has become an essential part of everyday life, its integration in education is inevitable and cannot be avoided. However, it is important to note that Schools are open systems that interact with their environment, and the effective use and integration of technology is directly associated with the role of various socio-technical factors that may impact the integration of ICT in schools (Tay, Lim & Lim, 2013).

Today, all schools are already equipped with computers and connected to the Internet, and 93.2% operate their own wireless network or information system (Wichova, 2020). The ICILS international comparison of computer and information literacy states that Czech schools (Frailon, Ainley, Schulz, Friedman, and Duckworth (2018). Even though teachers are generally positive about ICT and its ability to support their administrative and management duties, the findings point to low levels of use of ICT for administration and management.”

Globally, the use of ICT innovation in school management can be dated back to the 1960s when the computerization of schools gained momentum (Mimbi& Bankole, 2016). Anderson, Potočnik and Zhou (2014) stipulated that secondary schools should embrace ICT use in school management. In Malaysia, the University Science Malaysia (2009) “brought to light that successful diffusion of ICT was due to perceived administrative and technical support on the use of technology. In Spain, familiarity with computers and years of experience with ICT correlate positively with levels of institutional management (Selwood, Fung & Mahony, 2003). Palagolla and Wickramarachchi (2019) in a study in the North Central Province (NCP) of Sri Lanka documented that there was a very low use of ICT among schools in the territory due to poor ICT infrastructure, leadership support, school planning, and ICT competency. Although different actions have been taken to promote effective ICT usage among secondary schools of Sri Lanka, ICT is under-utilized in secondary schools.

In African countries, initially, the use of ICT in management of schools was low compared to other fields such as business and engineering, however, in recent times, school managers have embraced ICT in the education sector” (Mwadulo&Odooyo, 2020). Farrell and Isaacs (2007) observe that Rwanda is among few African countries to have embraced ICT policy more specially in the management of schools (Farrell & Klemperer, 2007). In South Africa many educational institutions have embraced ICT in management of their operations (Hennessy, Harrison &Wamakote, 2010).

Studies in Nigeria such as Jegede, Dibu-Ojerinde and Ilori (2007) and Mohammad, 2012) revealed that one of the challenges impeding the use of ICT for school management was the school administrators’ attitude towards ICT. There are isolated cases where individuals are technophobia or just develop a dislike towards ICT. This will make them not to acquire literacy skills or better still work negatively towards equipping the schools with requisite skills.

Even though the importance of using ICT in school management, studies worldwide show that to date some principals still have a negative attitude towards the utilization of ICT for school management. Examples of such studies include Takach, Ayoub and Kibbi (2018) among the Lebanese public secondary

schools, Papaioannou and Charalambous (2011) among the Cyprus primary school principals’ and Bahrain, Abdul Razzak (2013) among Arab Countries. However, these studies did not explore how this negative attitude affected effective use of ICT in the management of public secondary schools which is the interest of the current study.

Principals and other school administrators need requisite technical competencies for effective school management (Polizzi, 2011). Several studies however, show that majority of school administrators’ do not have adequate technical competencies for ICT utilization in school management hence leading to negative attitude towards ICTs. For instance, studies by Obiekwe and Obadigie (2019) and Ogachi (2014) in Nigeria and Chepkonga (2015) in Kenya demonstrated that school administrators lack essential skills required “for use of ICT in school management.

Like many other countries in the world, Kenya developed National ICT policy in 2006, giving priority to ICT. The ICTs in Education Sessional Paper one (MoE, 2012), explains that ICT can be leveraged to support and improve school management (MoE, 2012). In regard to educational institutions adoption of ICT the mandate was to improve school management. In the quest for integrating ICT in education, four various policy documents spelt out the ICT policy in schools, namely; e-Government Strategy, National ICT Policy and Sessional Paper No. 1 of 2005” (MOE, 2006).

ICT policy in this study was taken as a theoretical variable that the researcher used to explain a connection between Socio-Technical issues and the management of public secondary schools in Uasin-Gishu County in Kenya. A sound policy in place would ensure that the issues bedeviling the ICT usage in secondary schools in Uasing-Gishu County would be addressed adequately enabling schools to adopt technologies that are relevant to their business processes.

## II. STATEMENT OF THE PROBLEM

The use of ICT in school management helps enhance effectiveness in three main areas of administration, that is, student administration, staff administration, and general administration. ICT assists in enhancing timeliness, accuracy, completeness and quality of school management. To achieve this, school administrators need to embrace the adoption of ICT for use in school management in order to register required management effectiveness. On the other hand, the government should ensure that a policy to address the socio-technical issues be in place to help address them and enable schools adopt technologies that will help them achieve their objectives. Schools’ ought to have relevant ICT hardware and software and related ICT skills for effective management of various business processes in schools. Nevertheless, past studies in Kenya indicate that “secondary school principals’ lack proficiency in database, spread sheet, presentation/multimedia software, the internet and information seeking which are requisite for school management leading to negative attitude towards implementation of ICTs in their stations.. When school administrators fail to embrace ICT in their work place, they will experience challenges with respect to organization of information, computation and processing of paper work, organization communication, planning, monitoring, and management of instruction. This paper examine how school

administrators' attitude on ICT influence effective management of public secondary schools in Uasin-Gishu County.

### **Hypothesis**

*There is no significant influence of school administrators' attitude towards ICT on effective management of public secondary schools in Uasin-Gishu County*

### **ICT use in Management of Public Secondary Schools**

Information and Communication Technology (ICT) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software. Information and Communication Technology in education encompasses the utilization of ICT in carrying out management functions (Sweeney, 2012). These applications in the field of education are regarded as effective facilitators to creating, accessing, storing, manipulating and transmitting or sharing various forms of information, such as audio, visual and word formats.

In a school context, ICT applications can be utilized for various functions including enhancing the teaching-learning process and the overall school administration purposes. School administrators utilize these applications to ease their mundane administrative tasks. They leverage these applications in the registration of students, preparing school reports, announcements and notices. ICT is also employed in giving in-house training preparation of schemes of work, teaching plans and timetables. Finally, schools' administrators utilize ICT applications in handling financial work, keeping records, collecting data, processing documents and maintaining communication across the school and with the external environment alike (Mwalongo, 2011).

### **School Administrators' Attitude toward ICT and Effective Management of Public secondary schools**

Hashim, Ahmad and Abdullah, (2010) observed that in Malaysian schools "individuals' attitudes toward ICT have been recognized as an important factor for the success of technology integration in education. Administrators who have positive attitudes toward technology are very helpful and supportive in introducing these new technologies in schools. They encourage their colleagues to have ICT training, equip the school with sufficient computers and ensure that staff has access to relevant technology.

Papaioannou and Charalambous (2011) explored the Cyprus primary school principals' attitudes towards Information and Communication Technologies (ICT) as well as their perceptions about the factors that facilitate or inhibit ICT integration in primary schools in Cyprus. Using the formula of Krecjje and Morgan (1970) it was estimated that a sample of 180 principals would be representative for the purpose of this study. According to the findings of the research, primary school principals in Cyprus hold positive attitudes towards ICT.

In "Lebanon, Ghamrawi (2013) investigated the relationship between the leadership styles exhibited by 651 Lebanese public-school principals and their attitudes and the level of use of technology for educational purposes. The study documented that though the principals of these schools bear positive attitudes towards computers; they did not consider them as important tools for the enhancement of teaching and learning. They valued

computers as tools for the facilitation of the management of information in their schools and for administrative purposes. The study also revealed the existence of positive correlation between the autocratic leadership style of school principals and their negative attitudes towards the use of ICT for educational purposes. In addition, the results of the study accentuate another positive correlation existing between principals' attitudes towards the use of ICT for educational purposes and the level of its use by their teachers in schools.

Oluyemisi (2015) in Nigeria investigated administrators' perspective towards using ICT for effective school management. The sample used for the study consisted of 120 administrative staff randomly selected from different Secondary Schools in Ilesa Local Government area in Osun State. The results indicated that school administrators have a positive perspective towards the use of ICT tools in effective school management by solving the problem of poor communication in schools and achieving effective planning. Ogachi (2015) studied the factors influencing principals' integration of information communication technology in administration of public secondary schools in Isinya Sub-County, Kenya. Simple random sampling was utilized to select a sample of 10 public secondary schools to participate in the study. The study established that principals' attitude towards ICT affected effective utilization of ICT in secondary schools. The attitudes of the principals towards the use of ICT have a fundamental impact on the principals' integration of ICT in administrative undertakings. Principals with a positive attitude towards the use of ICT will be primed to utilize ICT in their administrative endeavors since they comprehend and appreciate the benefits of employing ICT. Conversely, principals with a negative attitude towards the use of ICT, perhaps due to their previous experience with ICT, will be hesitant to integrate ICT in their administrative roles because of their pessimistic perspective towards ICT use.

Njathi, Ngaruiya and Maithya (2018) studied the relationship that existed between principals' perception towards computer application and the actual computer use by principals in public secondary schools in Kiambu County, Kenya. The study adopted descriptive survey research design. The study sample comprised of 205 principals which translated to 67% of the target population. The study found out that principal's attitude towards use of computers influenced the use of computers among school principals." However, the study only focused on one type of IT, the computers and thus did not explore other forms of IT, such as phone applications, tablets and other gadgets that can be utilized in school management.

Muchiri (2014) "identifies the lack of enthusiasm towards ICT integration among principals as the main cause of low use of information and communication technology. Another factor that influences the utilization of computers in school administration is the attitude towards the use. The researcher found that individual principals' attitudes toward computer use was an important factor for the success of technology integration in secondary schools.

Muthomi, Mbugua & Githua (2013) in their study on reactions of schools' Headteachers toward computer use in teaching and learning in secondary schools in Tharaka-Nithi County in Kenya found out that all the head teachers who participated in the study believed that it was very important for them to learn how to use computers." Majority of the principals agreed that computers usually saved time. The school managers

believed that they were better principals with computer technology. Majority of school principals valued the use of computers in learning. However, the researchers did not find out if this positive attitude of using computers made them more effective in their work.

### III. REVIEW OF RELATED LITERATURE

#### **Theoretical Framework**

##### **Open Systems Theory**

The “theory was developed by a biologist Ludwig Von Bertalanffy in 1937 in Chicago. The theory views an organization as an integrated system of interdependent and interrelated structures and functions. In the open systems theory, the school is viewed as an open social-technical system composed of four major inter-dependent subsystems namely; structure, technology, task and people. These subsystems interact with the external environment in such a way that bringing change in one would lead to changes in all the others (Waweru, 2008).

The incorporation of ICT into the day-to-day functions of educational institutions has a marked impact on every aspect of management structure and dynamics. It means the study on ICT introduction in the schools would not have been exhaustive if the social and technical aspects were not considered in their entirety explaining the reason for the adoption of the socio-technical approach in the study based on the open systems theory as espoused by Kast and Rosenzweig (1985).

According to Owen & Valesky (2011), the organization is structured, equipped and staffed appropriately to accomplish its mission. The organization must have technological resources and people who contribute to the task achievement. The four internal organization factors; task, structure, technology and people are variables that are highly interactive, each tending to shape and mold the others. Significant change in one factor will result in some adaptation on the part of the other factors. A technological change, such as introduction of computers in a high school will require personnel with new technical skills. It may lead to change

in the structure as a new department may be created. Technology is usually developed outside the school system. The school may either adapt it smoothly and easily, or it may resist technological changes (Muriko, Njuguna, & Njihia, 2015).

##### **The Technology Acceptance Model (TAM)**

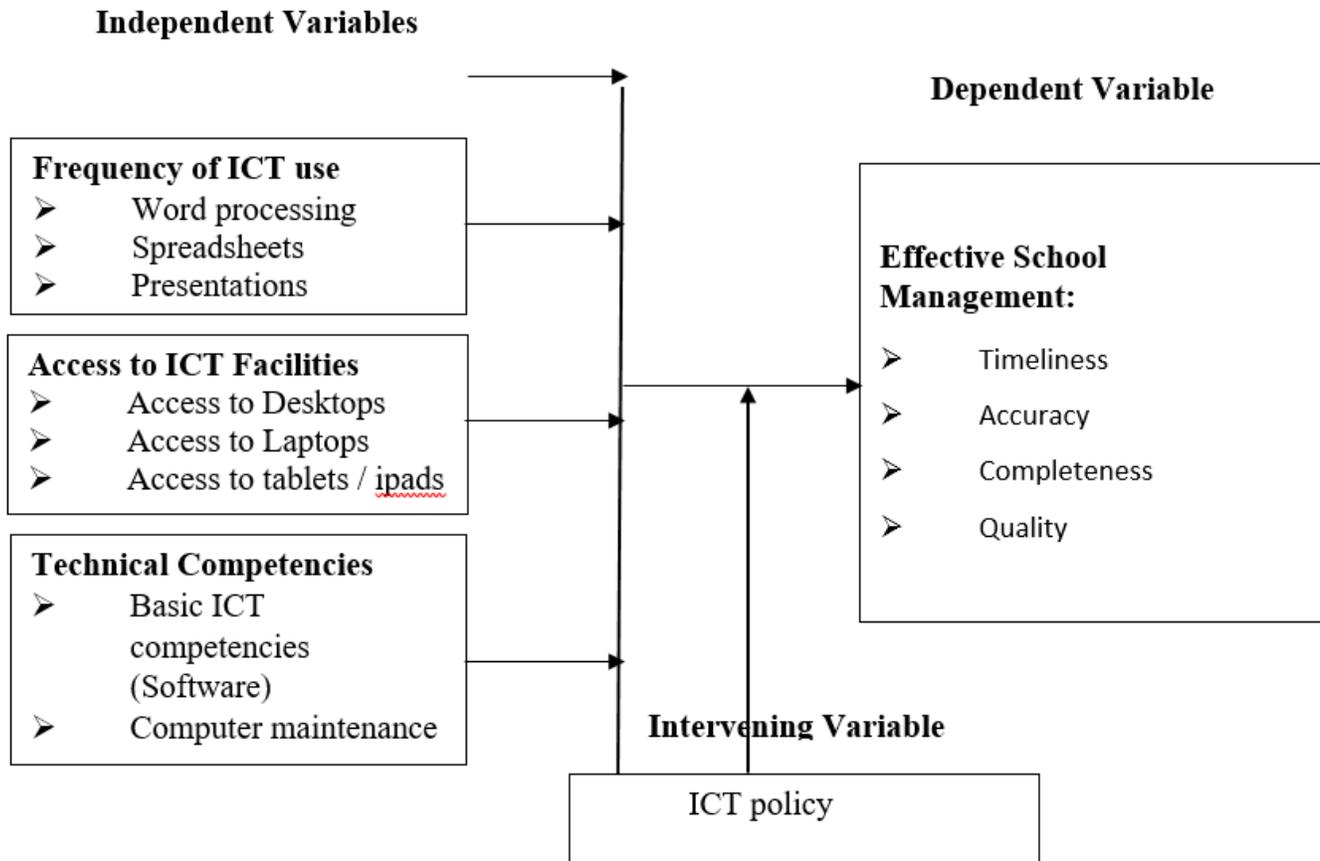
The Technology Acceptance Model (TAM) is a theoretical model that explicates the manner in which users accept and embrace novel technology and was coined by Fred Davis in 1989. TAM postulates that actual technology usage is shaped by behavioral intent. TAM proposes that perceived usefulness of new technology determines the attitude of a user towards the innovation. On the other hand, perceived ease of use influences the users to utilize technology. Generally, TAM assumes that once perceived usefulness and perceived ease of use interact and the intention to act is developed, an individual is boundlessly able to act. However, this comes out as the major limitation of TAM since in reality individuals face constraints including time, limited ability, as well as organizational and environmental restraints (Davis, Foxall & Pallister, 2002). This brings forth the importance of perceived usefulness and perceived ease of use in integration of ICT into secondary schools.

The concept of perceived usefulness, as presented by TAM, will be conceived to influence not only the attitude of principals towards the use of ICT but also the ICT literacy, which they seek in order to tap on the potential benefits of ICT. On the other hand, perceived ease of use will be conceived to be demonstrated through the availability of both ICT infrastructure and the technical support thereof. By comprehending the manner in which new technology is embraced, it is easy to predict the aforementioned factors will impact the utilization of ICT in administration of schools.

##### **Conceptual Framework of the Study**

The following framework describes how the variables under study relate to each other in which Administrators' Attitude is the independent variable and the dependent variable is School Management.

## **Independent Variables**



#### IV. METHODOLOGY

##### Research Methodology

The study used a convergent mixed research design. A convergent mixed research design is a type of design in which qualitative and quantitative data are collected in parallel, analyzed separately, and then merged (Creswell, 2014). This design was chosen because both qualitative and quantitative data was collected, analyzed and interpreted. This design helped gain insight in generalizing a situation without utilizing the whole population. It is suitable in determining reasons or causes for the current status under study (Marshall & Rossman, 2014). The study was carried out in Uasin Gishu County located in Rift Valley region of Kenya 330km North West of Nairobi. The County has 166 secondary schools. The county was selected as a representative of other counties because it is believed that it will give a wider view of the problem under the study. The population of the study was 189 with a sample of 171 respondents being picked. Stratified sampling technique was used to stratify schools based on sub counties while purposive sampling method utilized

to pick respondents. Data was collected using a questionnaire designed based on study objectives. Instrument validity was gauged using a panel of experts who are knowledgeable in the study area while internal consistency of was tested against Cronbach's alpha where a reliability score of 0.778 > than 0.7 was obtained. Both descriptive and inferential statistics were used in the data analysis. Primarily, descriptive statistics encapsulated measures of distribution and central tendencies while inferential statistics constituted correlation and regression analysis that helped determine the relationship between the study constructs. For the purpose of communicative effectiveness the study findings were presented in tables.

#### V. RESULTS

##### Discussion of Findings

##### School Administrators' Attitude on ICT and Effective Management of Public secondary schools

The objective was to find out how School Administrators' Attitude on ICT influence Effective Management of Public secondary schools in Uasin-Gishu County.

**Table 1.0 Model Summary for Regression Analysis for Administrators’ Attitude and Effective Management of Public secondary schools**

Variable	No. of Observations	Beta	Standard Error	t-Statistic	p-value
Constant	171	1.873	1.702	1.101	
Attitude	171	.637	.056	11.294	.000

R =.637  
R<sup>2</sup>=.405  
F = 127.546  
Durbin Watson=1.266

\*p<0.05

Predictors: (Constant), Attitude

Dependent Variable: School Management

Source: Research Data (2022)

The results in Table 1.0 indicates the regression analysis for administrators’ attitude, the value for Durbin-Watson (D=1.226) is also within the established range of 1-3 indicating the absence of autocorrelation in the sample.

The correlation in the relationship between Administrators’ Attitude and Effective Management of Public secondary schools was positive and significant (R = 0.637, p<0.05). This means that there was a significant relationship between Administrators’ Attitude and Effective Management of Public secondary schools indicating that whenever Public secondary schools in Uasin-Gishu County invested in ensuring that there is a good Administrators’ Attitude towards ICT usage there was a positive and significant improvement on Effective Management of Schools. The results of the regression further indicated that Administrators’ Attitude significantly predicted Effective Management of Public School ( $\beta_1 = .637, t = 11.294; p < 0.05$ ), which means a unit increase in Administrators’ Attitude produced a 0.637 variation in Effective Management of Public secondary schools in Uasin-Gishu County. The R squared value indicated that Administrators’ Attitude explained 40.5 percent of the variance in Effective Management of Public Secondary Schools in Uasin-Gishu County ( $R^2 = 0.405, F = 127.546; p < 0.05$ ). This demonstrates that the larger proportion of disparity in effective management (59.5%) is explained by other factors not captured in the first model. The Hypothesis that there is a significant relationship between Administrators’ Attitude and Effective Management of Public secondary schools in Uasin-Gishu County is therefore supported.

The results illustrate that Effective Management in Public Secondary Schools may not necessarily be solely attributable to Administrators’ Attitude but could be based on how Public secondary schools in the county can combined attitude, frequency of use, access to ICT facilities and their technical competencies to effectively achieve good management. The findings are consistent with those of Hashim *et.al* (2010), Ogadi (2015), Njathi *et.al* (2018), Muchiri (2014), Muthomi *et.al* (2013), Ghamrawi (2013), Papaioannou & Charalambous (2011) and Oluyemisi (2015), however the findings differed with those of Kavagi (2010) who found out that school administrators see the computer as another typewriter hence its use is likened to turning the boss into the school secretary.

## VI. CONCLUSION AND RECOMMENDATIONS

### Summary of the Findings

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<http://dx.doi.org/10.29322/IJSRP.12.09.2022.p12934>

The study sought to find out how school administrators’ attitude affects the effective utilization of ICT in management of public secondary schools in Uasin-Gishu County. Most of the school administrators believe that ICT helps them to handle management activities and that schools can be managed effectively using ICT, and this is justified by a significant and positive relationship between administrators’ attitude and effective management of schools in the County implying that whenever school administrators in the County invest in developing a positive attitude towards ICT, there was likely to be effective management of public secondary schools.

Specifically, study concluded that school administrators’ attitude toward ICT positively influenced the effective management of public secondary schools in Uasin-Gishu County. Most of the school administrators believed that ICT can contribute significantly towards effective management of the schools they manage

### Recommendation

Based on the conclusion of objective one that administrators’ attitude toward ICT positively influenced effective management of public secondary schools in Uasin-Gishu County, the Ministry of Education should consider organizing arranging for mentorship programs for school administrators geared at fostering positive attitude towards ICT use for effective school management. School administrators need to be psychologically influenced so as to appreciate the benefits of ICTs in management of schools.

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