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## Principal's Characteristics: Key Driver to Information Technology Uptake in School Management in Public Secondary Schools in Machakos County, Kenya

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### **Abstract:**

*This study sought to establish the influence of principals' characteristics on the use of Information Technology in secondary school management in Machakos County. The study adopted the descriptive research design. The target population was the 58 principals and 868 teachers in Machakos County. The sample size was 194 including the 21 principals identified through purposive sampling, and 173 teachers identified through purposive sampling and simple random sampling. The study used both qualitative and quantitative data. Quantitative data were collected using the questionnaire while qualitative data were collected using the interview schedule. Validity was established through expert judgement, while test-retest method was done to ensure reliability. Quantitative data was analyzed using SPSS version 22. Descriptive statistics i.e. Mean and Standard deviation were used to analyze quantitative data. Inferential statistics i.e. correlation analysis was done to establish the influence of the independent variables on the dependent variable. Content analysis was done for the qualitative data, and presented through narration and verbatim quotes. Pearson Correlation Coefficient was used to test the relationship between the dependent variable and independent variables of the study at 95% confidence level or at 5% level of significance. The findings revealed that the principals' personality, attitude, ICT skills and the social networks positively influenced the use of IT in school management in Machakos County.*

**Keywords:** *Principal's characteristics, Information Technology, school management, attitude, personality*

### **1. Introduction**

The rapid growth in Information Communication and Technologies (ICT) has seen the introduction of major changes in the twenty-first century. It has also necessitated changes in the priorities of contemporary societies; ICT is gradually becoming an indispensable tool not only in our daily lives but also in the systems of education (Buabeng-Andoh, 2012). ICT has styled itself as a principal driver of both economic and social progress. As a result of this, there is need to invest in education and adopting reforms geared towards integrating these technologies in teaching, learning and even school management (Kozma, 2005). ICT implementation is a reality in many developed countries for example, according to UNESCO (2014) report, in the USA, the one-to-one laptop program in the primary schools was hailed as an important project.

Maki (2008) postulates that ICT integration is key to the improvement of daily school management. In a study done in secondary schools in Cyprus, it was established that ICT integration is important for employees, student, resources, fiscal and general management. The successful initiation and implementation of technology in the school management programs, however, depends a great deal on the principals' attitude. It is generally believed that when the principal perceives technology as neither satisfying their needs nor those of the learners, it becomes unlikely that they would integrate that technology into the school management (Hew & Brush, 2007).

Again, the effective use of ICT in school management requires ICT skills on the part of the user in order to enable them use technology with confidence and thereby assimilate it in the professional operations (Wanjala, Khaemba & Mukwa, 2011). Another factor that determines the principal's use of ICT is the principal's social networks (Mac Vaugh & Schiavone, 2010). In the adoption of technology, people will tend to compare themselves with their peers in the community. This implies that if a particular kind of technology is acceptable among peers who are considered reference groups by certain individuals, it is then likely that those individuals affiliated to the reference group will adopt it (Lekhanya, 2013).

In Kenya, the use of ICT in teaching and learning has been ongoing since the launch of Vision 2030 policy, however not much has been going on in the area of using ICT in school management (Ibrahim, 2016). Consequently, it would be important to find out the influence of principals' characteristics on the current status of ICT in school management. In Machakos county, there is a considerable technological backwardness among secondary schools (Mwunda, 2014). A great deal of management duties in secondary schools are still carried out manually regardless of the ICT policy of 2006 for administrators of secondary schools to use ICT (Makewa, Meremo, Role & Role, 2013). This implies that the use of ICT in school management has not been embraced

fully (Mobegi, Ondigi & Oburu, 2010). It is common to find schools still analyzing results manually, filling report forms, writing hard copy letters to invite parents for school functions among other areas. This is in spite of research showing that principals, who have ICT skills, are more likely to adopt ICT in school management and therefore improving efficiency.

According to the Machakos County Director of Education Office (2019), only 58 public secondary schools in the County are using ICT in school management. Bench marking trips are often made, symposia organized and even friendly sports competitions conducted among sister schools in every school term in the county. One striking factor though is that a majority of these participating schools do not use IT in school management. The continued failure to make use of the opportunities brought about by technology in education embodies a far-reaching gap in skilled innovative manpower. Whereas efforts have been made by the Ministry of education to provide the requisite infrastructure in the schools, use of ICT in school management is still wanting and this triggered the conceptualization of this study. Specifically, the study aimed at answering the following questions:

- How does the principals' personality influence the use of information technology in public secondary schools' management in Machakos County?
- How does the principals' attitude influence the use of information technology in public secondary schools' management in Machakos County?
- What is the influence of the principals' ICT skills on the use of information technology in public secondary schools' management in Machakos County?
- How do the principal's social networks influence the use of information technology in public secondary schools' management in Machakos County?

## 2. Theoretical Framework

The study was guided by the Technology Acceptance Model (TAM). TAM was propounded by Davis in 1989. The model revolves around a person's behavior and their intention to use ICT. The theory stipulates that an individual's actual behaviour is largely influenced by their intention to use technology, which is also an indication of the attitude of the user towards that technology and how they perceive that technology to be of use to them. Nevertheless, attitude of the user towards that technology and how they perceive that technology to be of use to them is usually determined by how easily the user can put that technology into use (perceived usefulness). Adoption of the TAM model, therefore, requires that the user understands the end-users' needs with regard to usefulness and how user-friendly it is (Chtourou & Souiden, 2010). Davis (1989) argues that usefulness and user friendliness influences such users' attitudes towards that service. Davis (2019), therefore, suggested that value for any technology is in meeting the users' needs which again depends on their perception of how useful it is rather than its objective assessment. Those, who are opposed to this view, disagree with its emphasis on the technical aspects while downplaying the very important social aspects of the technology users including ability, time, environmental/organizational limits and which all can limit the users' freedom (Olumide, 2016).

This theory was, nevertheless, adopted in this study since it addresses the factors that determine the adoption and use of technology. This study focused on the principal's characteristics that may govern the degree to which they adopt and use technology in school management. Specifically, the perceived usefulness, and ease of use of the technology on the part of the principal will determine his/her attitude towards the adoption of such technology. Again, the ease of use and perceived usefulness will also depend on the user's personality that is, whether the user is interested in learning new ideas or is comfortable with status quo. Also, the principal's ICT skills in technology would also determine whether they adopt the technology or not. Further, the people, whom the principal considers significant in his/her social networks (colleagues), would also influence the decision to adopt technology or not.

### 2.1. Conceptual Framework

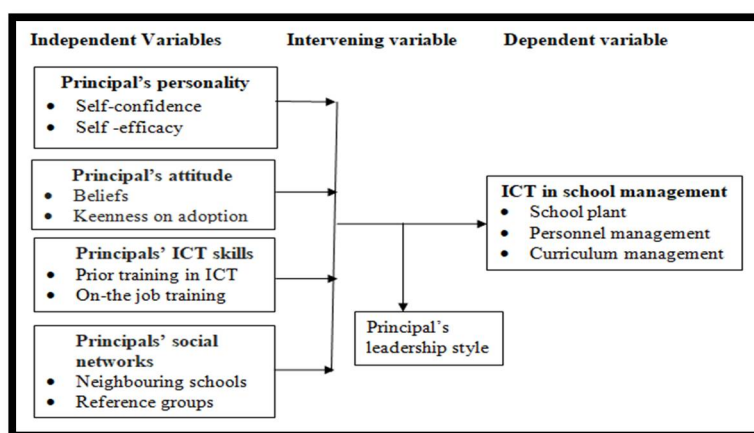


Figure 1: Conceptual Framework

From Figure 1, the independent variables of the study were personality, attitude, ICT skills and social networks. The dependent variable was the use of ICT in school management. The intervening variable, which may have affected the findings of the study but was not being studied, was the principal's leadership style.

### 3. Research Methodology and Methods

The study adopted a correlational research design. The target population was the 58 principals and the 868 teachers of the 58 secondary schools using ICT in school management in Machakos County. Purposive sampling was used to identify the 58 out of 153 schools in the county, which are using ICT in school management. Stratified sampling was used to stratify the various schools in the county into various categories. These categories include National (4 schools), Extra County (9 schools), County (14 schools) and Sub-County schools (31 schools). Simple random sampling was used to select 173 teachers from a population of 868, and 13 principals from a population of 58. The study adopted the argument by Mugenda & Mugenda (2003) that a sample size of 10-30% is acceptable. Therefore, 173 teachers (20% of the teachers' population) and 13 principals (22% of principals' population) were adopted as summarized on Table 1.

| School Category | No. of Principals | 20% Sample | No. of Teachers | 20% Sample |
|-----------------|-------------------|------------|-----------------|------------|
| National        | 4                 | 1          | 121             | 24         |
| Extra County    | 9                 | 2          | 162             | 32         |
| County          | 14                | 3          | 213             | 43         |
| Sub-county      | 31                | 7          | 372             | 74         |
| Total           | 58                | 13         | 868             | 173        |

Table 1: Sample Size

Data were collected using questionnaires and interviews. Field data was organized, coded and input into SPSS. Quantitative data from the close-ended parts of the questionnaires were analyzed using descriptive statistics i.e. through use of mean and standard deviation, frequencies and percentages (Kothari, 2014). Qualitative data from the open-ended parts of the questionnaire and the interview guide were grouped according to themes guided by the research objectives. It was then analyzed through content analysis and presented using narration and verbatim quotes as appropriate. Correlation analysis was also done to establish the relationship between the independent and dependent variables. This was done with the help of SPSS version 22. It was then integrated within the quantitative data and discussed in line with the relevant literature. Tables, charts and graphs were generated appropriately for presenting data.

#### 3.1. Ethical Considerations

Ethical considerations included voluntary involvement and informed consent from the informants. It is usually carried out to ensure that the informants' right to privacy and anonymity is guaranteed (May, 2011). Informants filled the consent form before filling the questionnaire. They were asked to omit their names on the tools for anonymity.

### 4. Findings and Discussion

#### 4.1. Findings on the Influence of Principal's Personality on the Use of IT in School Management

The first objective of the study was to establish the influence of principal's personality on the use of IT in school management. Teachers were consequently asked to show their degree of concurrence with declarations on the principal's personality. Their reactions were graded on a 5 point Likert scale where: 5 - Strongly Agree, 4 - Agree, 3 - Neutral, 2 - Disagree and 1 - Strongly Disagree. The mean and standard deviations were generated from SPSS as illustrated on Table 2. A mean range of 1-2.5 meant Disagree and 2.5 - 3.5 meant Neutral, while 3.5 - 5 meant Agree. A standard deviation of 0.0000 meant unanimous agreement on a certain statement, while figures above 0.0000 showed varying degrees of agreement with the same statement.

| Statement                                                                                            | Mean   | Std. Dev |
|------------------------------------------------------------------------------------------------------|--------|----------|
| The principal is always open to new innovations especially those related to technology               | 4.5217 | 0.8630   |
| The principal is achievement oriented and always wants to complete whichever project he starts       | 4.3436 | 0.0440   |
| The principal prefers uniqueness and is always trying out new ideas in ICT that can make work easier | 4.3213 | 0.6373   |
| The principal does not allow others access to ICT equipment in the school                            | 3.9031 | 0.3393   |
| The principal allows all members of staff to access the ICT equipment in the school                  | 3.8148 | 0.7868   |

Table 2: Teachers' Opinions on the Influence of Principal's Personality on the Use of IT in School Management

From Table 2, the study findings indicate that the teachers generally agreed that their principal was always open to new innovations especially those related to technology (Mean 4.5217). This implied that the principals were objective about technology and readily accepted new innovations in technology. Being open minded towards technology is paramount given the continuous changes in technological innovations happening daily since they are meant to make work easier. The findings agree with those of Lo (2014) who identifies the novelty seeking trait, usually connected to sensory activities that bring about stimulation, spontaneous decision making and over-indulgence. This pre-disposition to watch

out for new ideas, goods and services, involves changes in one's motivation to pursue originality and thus governs the acceptance of innovative products (Adiele, 2012).

The respondents were also in agreement that the principal is achievement oriented and always wants to complete whichever project he starts (Mean 4.3436). This implied that the principal recognizes the contribution of IT in self-efficacy. Efficacy means that one is able to complete what they have started, thereby conserving the available resources which can then be redirected to where there is a shortage. These findings resonate with those of Saleem, Beaudry and Croteau (2011) who posit that self-efficacy is characterized as confidence in one's own capacities to perform an activity that is important in accomplishing an objective or a task. This implies that self-efficacy is the certainty that an individual has in his/her capacity to do the things that he/she tries to do. This subsequently implies that a worker's self-efficacy considers the views of the person utilizing technology and innovation and on how far the individual recognizes accomplishment as being under their control.

The respondents also agreed that the principal is innovative and always trying out new ideas in ICT that can make work easier (4.2148). This implied that the principals underscored the importance of being innovative and thereby becoming unique through use of IT. The findings are corroborated by Manu (2012) who indicates that in reference to the uniqueness theory, there are individuals who find high levels of resemblance and variation unpleasant and consequently endeavour to become distinct from their peers. The greater the degree of their perception of similarity with others, the greater their desire to be unique thus they seek for new ideas. In this case, therefore, the more the individual exhibits these traits such as, novelty and desire for uniqueness, the more likely they are to adopt new innovations compared to those with less of the traits. The respondents, however, disagreed that the principal did not allow others access to ICT equipment in the school (1.2031). Also closely related to that finding is the finding that the principal allows all members of staff to access the ICT equipment in the school. This implied that the principals underscored the important role played by allowing others access to ICT so that they can also be empowered. When more people have access to IT equipment, it means then that more tasks can get done at. The findings were similar to those of Neyland (2011) who evaluated the role of state senior school principals as leaders of technology adoption in Australia. The study noted that the decision to use ICT in the school lay with the willingness of the principal to adopt it and allowing other members of staff access to it. Further, teachers in the school expected the leader to guide them in the areas of ICT use.

The principals also indicated that their personality greatly influenced their use of technology in school management. One of the principals commented:

*The adoption of technology, just like other areas of life, is greatly influenced by personality traits. For example, a person, who is averse to change, is unlikely to adopt technology especially because it keeps on changing. But if you are achievement oriented and want to complete projects in record time, then you must adopt technology. I use technology all the time in sending report forms to parents, inviting them for meetings and even circulating the minutes of previous meetings, it saves me time and resources which can, in turn, be used elsewhere.*

These findings indicated that the principals also concurred on the key role played by personality in the use of IT in school management. These findings are corroborated by those of Den Ouden (2011) who posits that owing to the fact that people react in different ways in response to new ideas, practice, or objects based on differences in their personalities, the same applies to their response towards innovations. Again, Weber (2012) argues that the main factors critical to the adoption of ICT in school management include the leaders' exposure to ICT, teachers' willingness to use ICT and the school manager's personality.

#### 4.2. Findings on the Influence of Principal's Attitude on the Use of IT in School Management

The second objective of the study was to establish the influence of principal's attitude on the use of IT in school management. Teachers were consequently asked to show their degree of concurrence with declarations on attitude. Their reactions were graded on a 5 point Likert scale where: 5 - Strongly Agree, 4 - Agree, 3 - Neutral, 2 - Disagree and 1 - Strongly Disagree. The mean and standard deviations were generated from SPSS as illustrated on Table 3. A mean range of 1-2.5 meant Disagree and 2.5 - 3.5 meant Neutral, while 3.5 - 5 meant Agree. A standard deviation of 0.0000 meant unanimous agreement on a certain statement, while figures above 0.0000 showed varying degrees of agreement with the same statement.

| Statement                                                                                     | Mean   | Std. Dev |
|-----------------------------------------------------------------------------------------------|--------|----------|
| The principal believes in adopting technology to ease the performance of administrative tasks | 4.1212 | .1136    |
| The principal is very helpful and supportive in introducing new technology in the school      | 4.3273 | .2099    |
| The principal keeps on emphasizing the need for adopting technology to make work easier       | 4.8061 | .0163    |
| The principal encourages teachers to enroll for ICT classes to improve their skills           | 4.6515 | .1072    |

Table 3: Respondents' Opinions on the Influence of Principal's Attitude on the Use of IT in School Management

From the study findings on Table 3, the respondents agreed that the principal keeps on emphasizing the need for adopting technology to make work easier (Mean 4.8061). This implied that the respondents were aware of the positive attitude towards technology that their principal had as seen through his emphasis on using technology to make work easier.

Closely related to this finding was the finding that the principal encourages teachers to enroll for ICT classes to improve their skills (4.6515). This implies that the principal underscores the need to have more teachers familiarize with one another and use technology as he considers it a useful tool in management. These findings are similar to those of Mingaine (2013) who posits that in order for full implementation of ICT, the implementers must have positive attitudes towards the solution of the challenges that they come across while implementing ICT projects in secondary schools. Further, Al Sharija and Watters (2012) argue that the principals, who favoured ICT adoption, were those with a positive attitude towards technology. These individuals were provided a lot of training during the introduction of useful technology in performing tasks in school administration, specifically tasks which involved them directly.

The respondents also agreed that the principal was very helpful and supportive in introducing new technology in the school (Mean 4.3273). This finding was closely connected to another which states that the principal believes in adopting technology to ease the performance of administrative tasks (Mean 4.1212). This implied that the respondents had noted how far their principal appreciated how technology made work easier and therefore had adopted its use. These findings are corroborated by Ghavifekr, Afshari, Siraj & Seger (2013) who state that the principals' attitude towards the use of ICT in classroom management has a major influence on the decision to use ICT and even the choice of technology to use. Further, the principal's perceived ease of use of certain technology and the usefulness of that innovation in classroom management has a major influence on the decision to adopt and use it. The principals also underscored the influence of attitude towards IT use in school management; one of the principals commented:

*I always use technology since it makes my work easier as an administrator. Take for example the analysis and dissemination of examination results to the parents. With only the touch of a button, all parents get the results even before the learners can get home. I've always been attracted to technology and therefore wherever and whenever I can use it, I always use it in management. I would use technology any day any time. The use of ICT has minimized the cases of parents complaining that they never received the results of their children or even not receiving letters inviting them for meetings; I send text messages en masse and they all receive them. I would say that attendance has improved since we adopted technology. I would say my attitude towards the use of ICT is greatly shaped by the cultural background I came from. I've been interacting with technology since I was young and I'm always excited to use it.*

These findings are supported by Lee, Trimi and Kim (2013), who posit that the principals' attitudes towards ICT are attributable to their cultural sensitivities. This means that the attitudes of these principals were shaped by their culture, which acts as the blueprint for societal standards. If an individual hails from a culture that easily embraces change and innovation in technology, then the individual will be more willing to adopt the use of technology in the school and the reverse is also true. The cultural background of the principal in this sense has a major influence on the adoption of ICT in school management.

#### 4.3. Findings on the Influence of the Principal's ICT Skills on the Use of IT in School Management

The third objective of the study was to explore the influence of principal's ICT skills on the use of IT in school management. Teachers were consequently asked to show their degree of concurrence with declarations on the subject. Their reactions were graded on a 5 point Likert scale where: 5 - Strongly Agree, 4 - Agree, 3 - Neutral, 2 - Disagree and 1 - Strongly Disagree. The mean and standard deviations were generated from SPSS as illustrated on Table 4. A mean range of 1-2.5 meant Disagree and 2.5 - 3.5 meant Neutral, while 3.5 - 5 meant Agree. A standard deviation of 0.0000 meant unanimous agreement on a certain statement, while figures above 0.0000 showed varying degrees of agreement with the same statement.

| Statement                                                                                                                | Mean   | Std. Dev |
|--------------------------------------------------------------------------------------------------------------------------|--------|----------|
| The principal has skills in use of computer and internet                                                                 | 4.9091 | 0.2278   |
| The principal has taken the lead role in ensuring training in e-mails and internet use and its integration in the school | 3.7576 | 0.4257   |
| The principal does candidates' online registration on his own                                                            | 4.8065 | 0.2369   |
| The school is equipped with ICT facilities which help the principal to do exams analysis using ICT                       | 4.6818 | 0.1389   |
| The principal uses web-based services to communicate with parents and other stakeholders                                 | 3.8636 | 0.4020   |

Table 4: Respondents' Opinion on the Influence of the Principal's ICT Skills on the Use of IT in School Management

From Table 4, the study findings indicated that the respondents agreed that the principal had the requisite skills in use of computer and internet (Mean 4.9091). Closely related to that was the finding that the principal does candidates' online registration on his own (4.8065). This implied that the respondents were aware of the paramount role played by the possession of IT skills in influencing its use. The findings are related to those of Wanjala, Khaemba and Mukwa (2011) who assert that the effective implementation of instructional innovations require sufficient preparation to allow leaders to

confidently integrate ICT in technical tasks. They further argue that the success of such integration into the management of schools in developing countries like Kenya largely depends on whether the managers and teachers have received adequate preparations to use computers during their training. When adequately prepared, the school managers' capacity to choose, assimilate and assess technology tools to ease school management improves.

The respondents also agreed that the school was equipped with ICT facilities which help the principal to do exams analysis using ICT (Mean 4.6818). This implied that the principal is cognizant of the fact that the facilities must be put in place in order to be used. Also the respondents agreed that the principal uses other web-based services to communicate with parents and other stakeholders (3.8636). This implied that the principal had acquired the requisite ICT skills to be able to adequately integrate it in management. Further, the informants were in agreement that the principal had taken the lead role in ensuring training in e-mails and internet use and its integration in the school (3.7576). This implied that the principals also had prioritized implementation and use of technology in their institutions.

The findings are consistent with those of Al-Zaidiyeen, Mei and Fook (2010) who stated that proper pre-service teacher education can provide a good chance for experimenting with technology even before it has been adopted in school administration. The absence of focus on ICT in pre-service teacher education has been an obstacle to the school managers' use of ICT. This implies that in the absence of effective training on educational technology, teachers are unable to use ICT resources for the adoption in school management. The study further asserts that prior ICT skills have to be acquired by the school principals if ICT integration in management is to succeed. Again, Ogachi (2015) argues that the school managers, who had adopted ICT administration, had participated in ICT training programs in the course of their work.

The principals also agreed that the possession of ICT skills were a major influence on the adoption of technology in management. One principal noted:

*I would say that I have reasonable ICT skills which help me completing basic tasks in school management. I've been using IT for as long as I've been a school manager and I would say the future of school management is in technology. It has made management easy. Take for example the financial management software. I do not need to be an accountant to understand the statements. I do not need to visit the stores or the boarding section to know what is happening there. This information is available at the click of a mouse. The greatest motivation I had while introducing the use of ICT was the skills I had acquired over the years; in any case you cannot use what you do not have.*

This finding implied that the principals affirmed the role of prior ICT skills in school management. The finding is supported by that of Wanjala, Khaemba & Mukwa (2011) who affirm that the managers' knowledge, skill and philosophy influence the ICT adoption approaches. The effective implementation of instructional innovations requires sufficient preparation to allow leaders to confidently integrate ICT in technical tasks.

#### 4.4. Findings on the Influence of the Principal's Social Networks on the Use of IT in School Management

The fourth objective of the study was to establish the influence of the principals' social networks on the use of information technology in public secondary schools' management. Teachers were consequently asked to show their degree of concurrence with declarations on the subject. Their reactions were graded on a 5 point Likert scale where: 5 - Strongly Agree, 4 - Agree, 3 - Neutral, 2 - Disagree and 1 - Strongly Disagree. The mean and standard deviations were generated from SPSS as illustrated on Table 5. A mean range of 1-2.5 meant Disagree and 2.5 - 3.5 meant Neutral, while 3.5 - 5 meant Agree. A standard deviation of 0.0000 meant unanimous agreement on a certain statement, while figures above 0.0000 showed varying degrees of agreement with the same statement.

| Statement                                                                                                         | Mean   | Std. Dev |
|-------------------------------------------------------------------------------------------------------------------|--------|----------|
| Regular bench-marking with reference groups around our school has influenced the school's extent of ICT use       | 4.2273 | .7399    |
| The adoption of ICT has made the school community feel part of a larger community of schools using ICT            | 4.8061 | .8063    |
| ICT integration in the school has improved communication and relations with the community                         | 3.9515 | .8272    |
| The friendly schools around the County seem to have a great influence on the extent of ICT adoption in the school | 4.1091 | .7227    |
| The cultural values and norms around the community where the school is found seems to favour the adoption of ICT  | 2.1621 | .6136    |

Table 5: Opinions on the Influence of the Principal's Social Networks on the Use of IT in School Management

From Table 5, the study findings indicated that the respondents were in agreement with the following opinions on the influence of the principal's social networks on the use of IT in school management; the school's adoption of ICT has made the school community feel part of a larger community of schools using ICT (Mean 4.8061). Again, regular bench-marking with reference groups (schools using ICT) around our school has influenced the school's extent of ICT use (Mean 4.2273). Also related to these findings is that the friendly schools around the County seem to have a great influence on the extent of ICT adoption in the school (Mean 4.1091). This implied that the principals' adoption of IT in school management was influenced by the feeling of being part of an IT community. These findings are echoed by Lekhanya (2013) who argues that the community, in which one lives, shapes their attitude towards the use of new systems. The study attributes this to

the argument that peoples' decision to use a technology takes into account the external impressions which include cultural principles and standards to which such people are subjected.

These findings are also echoed by Mac Vaugh and Schiavone (2010) who note that the adoption of new technology can fall within three domains just like most economic phenomena. The domains are the market/industry domain (macro domain), meso type dimension and the individual (micro) dimension. Social networking falls in the second domain. This alludes to the fact that humans are social beings and they do not exist in seclusion. Rather, they are surrounded by community and other societal systems. This, therefore, means that, people generally agree that they are constantly influenced by others within their communities.

Again, Olise, Anigbogu, Edoko and Okoli (2014) argue that social networks consequently encompass the individual's internalization of the reference groups' subjective beliefs, and particular relational contracts which the person has entered with others, in specific social circumstances. They posit that three basic conditions influence the social environment to which an individual chooses to belong; (social approval/disapproval); this happens if an individual joins with the hope to get acceptance from an individual or the whole group. Compliance; when the person accepts to be influenced so as to preserve a gratifying self-defining connection with others. Internalization; when an individual considers to be influenced since such influence agrees with the value system held (Mazman, Usluel, & Çevik, 2009).

The respondents also agreed that ICT integration in the school had improved communication and relations with the community (Mean 3.9515). This implied that the use of ICT in school management had impacted the community around the school. Perhaps this was because of the efficiency associated with technology in reaching more people in a short time. The finding is supported by Mac Vaugh and Schiavone (2010) who argue that another major reason why people adopt technology is the impact on the prevailing social relations among the members of that community. A case in example is the technologies that are introduced within a community of workers and ends up changing how people relate among themselves. This implies that social networks which favour being stable may not encourage their membership to adopt new technologies as opposed to the more risk taking and open networks, which may promote the adoption of new innovations.

Nevertheless, the respondents did not agree with the view that the cultural values and norms around the community where the school is found seems to favour the adoption of ICT (Mean 2.1621). This implied that the respondents didn't consider the community around the school supportive of technological innovations. Perhaps this was because of the general poor intake of technology in school management in the schools around them. This finding contrasts that of Mac Vaugh and Schiavone (2010), who argue that the domains that influence technology uptake include social networking which alludes to the fact that humans are social beings and they do not exist in seclusion. Rather, they are surrounded by community and other societal systems. This, therefore, means that people generally agree that they are constantly influenced by others within their communities. The principals had this observation to make:

*Technology uptake is greatly influenced by social networks. Humans are social beings and as such, they always imitate best practices in use elsewhere. Therefore, it is true that I am influenced by peers especially in this county. Since most of the schools receive almost similar funding, we usually benchmark with colleagues and adopt what works for them; this includes technology. I first saw the school administration software in a school in this county and I thought it was a good idea, eventually I procured it and it is in use today.*

The findings indicate that the principals influenced each other in matters of using ICT in school administration. The findings are corroborated by those of Mathipa and Mukhari (2014) who evaluated the factors that influence leaders to use ICT in classroom instruction in South African urban schools. The results showed a significant positive link between social networks and ICT adoption. This was especially reflected in the fact that where the head teachers had peers who had adopted ICT in managing their schools, they also adopted ICT in management.

## 5. Inferential Statistics

### 5.1. Correlation Analysis

Pearson Correlation Coefficient was used to test the relationship between the dependent variable (use of IT in school management) and independent variables (principals' personality, attitude, ICT skills and social networks) of the study at 95% confidence level or at 5% level of significance. The results are as shown on Table 6.

|                     | Use of IT | Personality | Attitude | ICT skills | Social Networks |
|---------------------|-----------|-------------|----------|------------|-----------------|
| Use of IT (r)       | 1.000     |             |          |            |                 |
| (p) Sig. (2 tailed) |           |             |          |            |                 |
| Personality (r)     | 0.381     | 1.000       |          |            |                 |
| (p) (2 tailed)      | 0.179     |             |          |            |                 |
| Attitude (r)        | 0.415     | 0.221       | 1.000    |            |                 |
| (p) Sig. (2 tailed) | 0.037     | 0.156       |          |            |                 |
| ICT skills (r)      | 0.483     | 0.271       | 0.199    | 1.000      |                 |
| (p) Sig. (2 tailed) | 0.029     | 0.118       | 0.337    |            |                 |
| Social networks (r) | 0.606     | 0.314       | 0.162    | 0.272      | 1.000           |
| (p) Sig. (2 tailed) | 0.018     | 0.163       | 0.177    | 0.201      |                 |

Table 6: Correlation Matrix \*Correlation Is Significant at the 0.05 level (2-tailed)

Source: Research data (2021)



Results (as illustrated on Table 6) illustrate that there was a significant positive relationship between principal's personality and use of IT in school management ( $\rho = 0.381$ ,  $p\text{-value} > 0.05$ ). This implied that an improvement in personality traits is associated with increased use of IT in school management in Machakos County. The findings also indicated a significant positive relationship between principal's attitude (PF) and use of IT ( $\rho = 0.415$ ,  $p\text{-value} < 0.05$ ) implying that an improvement in attitude was associated with increased use of IT in school management in Machakos County. Further, the findings indicated that there was a significant positive relationship between principals' ICT skills and use of IT ( $\rho = 0.483$ ,  $p\text{-value} < 0.05$ ), implying that an improvement in ICT skills acquisition by the principals was associated with increased IT use in school management in Machakos County. Lastly, the findings indicated a significant positive relationship between the principals' social networks and use of IT in school management in Machakos County ( $\rho = 0.606$ ,  $p\text{-value} < 0.05$ ), implying that an increase in the principals' social networks was associated with increased use of IT in school management in Machakos County.

### 5.2. Use of IT in School Management

The study sought to establish the areas where IT is used in school management and recorded the findings as shown on Table 7.

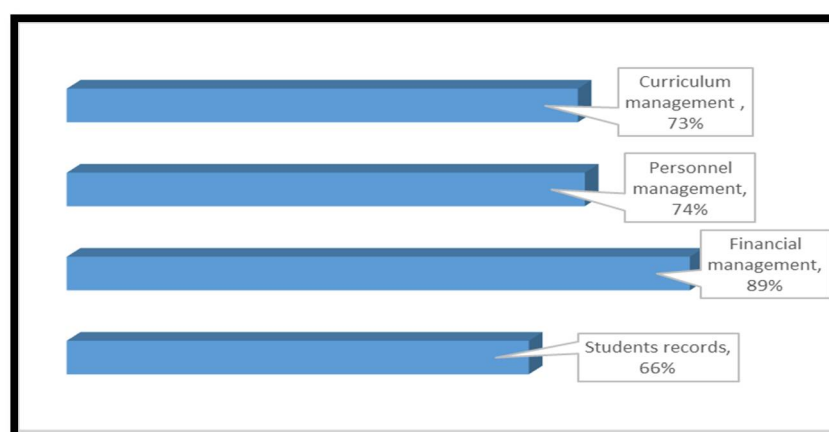


Figure 2: Areas of Use of IT in School Management  
Source: Research Data (2021)

From figure 2, 88% ( $n=51$ ) of the principals used IT in financial management, 72% ( $n= 42$ ) in personnel management, 78% ( $n=45$ ) in curriculum management, while 66% ( $n=38$ ) used IT in student records. This implied that indeed IT was in use in the schools and that the principals used IT in the key areas of school management. The findings are echoed by those of Githagu (2017) who states that in personnel management the principal can use ICT to ensure an efficient way of guaranteeing that personnel within an organization are drafted, hired and paid while providing a work environment that promotes work performance and attaining goal. Additionally, Ibrahim (2016) argues that the school managers also monitor learner records, curriculum and financial management, provision of resources, both educational and human while availing finances to run the school. ICT has, therefore, provided a number of programs that have eased the management of and monitoring the school activities with the touch of a button.

### 5.3. Limitation

Geographical location was a limitation in that study. Machakos County is only one of the 47 counties in the country; therefore the sample drawn from only one county may not adequately represent the whole country. As such generalization of the study findings to the whole country should be approached with adequate caution.

## 6. Conclusion

The study concluded that the principals' personality, attitude, ICT skills and social networks positively influenced use of IT in school management.

## 7. Recommendations

- Since the principals were open to using IT in school management, the government through the Ministry of Education should enhance the provision of IT resources in schools, so the schools can take advantage of the benefits IT offers.
- Since the principals' ICT skills influence the adoption of technology, the Ministry of Education should consider sponsoring principals in IT courses in order to improve their skills and thereby enhance IT usage in school management.
- Since the principals' social networks influence use of IT, the schools should strive to build partnerships with both government and the community in order to broaden their networks so they can compare notes while adopting the best practices to their schools.



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