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Influence of Principals' Perception of Computers on Their Use in Administration of Public Secondary Schools in Kiambu County, Kenya

Samuel N. Njathi
School of Education, Maasai Mara University, Kenya
Boniface Ngaruiya
School of Education , University of Nairobi, Kenya
Paul Maithya
School of Education, Maasai Mara University, Kenya

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Abstract

This paper is a report of a study carried out to establish the relationship that existed between principals' Perception towards computer application and the actual computer use by principals in public secondary schools in Kiambu County. Computer use in schools administration is a contemporary issue in the improvement of quality leadership in schools. The study was triggered by the need for effective leadership in schools which would lead to improved academic performance in Kiambu County, a county surrounding the Kenyan capital city of Nairobi.. The study adopted descriptive survey research design. The target population for this study was 307 principals of public secondary schools in Kiambu County. The study sample comprised of 205 principals which translated to 67% of the target population. Simple random and purposive sampling techniques were used in the selection of the respondents. A questionnaire was used for data collection. Relationship between the two variables under study was established by use of spearman rho. Descriptive statistics and Pearson's Chi- square test of independence through the Statistical Package for Social Sciences (SPSS) were used to test the null hypotheses. The study found out that principal's attitude towards use of computers influenced the use of computers among school principals. The study recommended that the MOE in collaboration TSC to mount regular ICT workshops to sensitize school principals on the need to use computers in school administration with a view of changing their attitudes towards computer use.

Keywords: Computer Use in school, Public School Administration, Attitude to ICT

Introduction:

A computer is one of the most important gadgets among other ICTs that may be integrated into education. The most common used ICT in Kenya is the radio, and the mobile phone. The Kenya National ICT Survey reported that only 8.3 % of the population had accessed computer in a reference period, with more males than females having more that access (National ICT Survey Report, 2010). This report noted that among the places a computer was accessed, the school lagged behind houses, cyber cafes and offices, in the percentage of people who had accessed a computer. These points to a need to for schools to provide more leadership in preparing students for technology around the school. Principals are important in ensuring the success of ICT integration in schools, and therefore they must take up a major responsibility in any such endeavour (Ssimons, 2011; Tearle, 2004). Carmen (2013) notes that school administration needs computers to keep the records of all the activities in school, examination results, schedules of all departments, meetings and minutes, teacher-parent conferences and many others tasks. The use of computers can increase school efficiency and reduce unnecessary bureaucracy in school administration. Without computers, schools administrators will have to monitor all the records of the school activities by entering the details manually on the books and records of the schools (Carmen 2013). However, the use of computers and the various computer programs available can greatly enhance school administration.

Administrators in school act as mediators to integrate technology into education system by playing a key role in encouraging, supporting and helping the teachers to use computers in the teaching and learning process. In this case, a school principal can either be a hindering factor or a facilitator for computer use in education (Wakhu, 2013). Through the Kenya National ICT Strategy for Education and Training, the Kenya government has now included relevant technology in educational management (MOE, 2006). In this strategy, it is hoped that the use of ICT will lead to rapid expansion of knowledge, improved examination outcomes, enhanced communication and technical efficiency.

Access to computers and other ICT infrastructure is one of the critical barriers to ICT integration in schools (Han, 2002; Keiyoro, 2010). However, many schools in Kenya now have computers, and these are more likely to be found in the principal's office (Aguyo, 2004; Wakhu, 2013). Although studies (such as Blake, 2000; Meador, 2011; and Carmen, 2013) have shown the benefits of using computer in schools administration, school principals in Kiambu County, and around Kenya had been reported to lag behind in embracing the use of computers . Momanyi, C. , Nyakweba and Momanyi, G., (2015), for example, reported that in Nyamira county, Kenya most principals there had low computer usage because they could barely open and close a computer. Kiambu is a peri-urban area located next to the City of Nairobi, and

which has about 98% mobile network coverage and national grid power connection. Referring to records available at the Githunguri Sub County Education Office in 2013, Muchiri (2014) notes that out of the 32 public secondary schools in the Sub County, only 12 (38%) of them, had integrated computer use in school administration. This was a very low percentage considering that some countries had reported up to 41% of computer use in school administration and learning by 2003 (Kelles, 2003). Despite the government's efforts to encourage the use of computer technology in school administration, different stakeholders have expressed dissatisfaction with the levels of its application. No documented study had been carried out to address the principals' attitude towards computer use as a factor influencing the use of computers by school principals. This study did exactly that.

Purpose of the Study and Research Hypothesis:

Much research has been conducted in secondary schools in the use and impact of information and communication technology in administration in Kilungu and Nairobi (Mumbua, 2009; Kanyeki, 2006). Although many secondary schools in Kenya introduced computers in great numbers starting in the early 1990's there has been limited information on their use in school administration. According to Muriko (2015), Kiambu County had shown slackness in embracing the use of computers in the administration of schools which had resulted in some schools employing many workers to handle the enormous paper work in the schools. Manually performed tasks demand a lot from the administrators which may at times cause unnecessary stress on the part of the principal (Angie and Rita 2013). These were administrative issues that would be addressed by use computer use in school administration. Research had not been carried out to establish the causes of low uptake of computer use in the administration of secondary schools in Kiambu County.

The Purpose of this study was to determine the effect of principal's attitude towards computer application on computer use in the administration of public secondary schools in Kiambu County. To this end, the following null hypothesis was formulated and tested;

"*There is no significant relationship between principal's perception of computer application on their computer use in administration of public secondary schools by school principals in Kiambu County."*

Review of Related Literature:

The principal must lead the school's efforts and act as a change agent (Murphy & Shipman, 1999). Of course, this can only be done if the principal believes in the innovation and has a positive attitude towards it. Actually, the attitude of the principal will determine if this innovation is going to succeed or fail (Pelgrum, 1993). Menjo and Boit (2005) found out that attitudes of

administrators to computer use in the secondary schools were generally positive; with an overall mean of 4.06 on a scale of 1 to 5.

Jegege, Dibu-Ojerinde & Ilori (2007) in a study on the relationship between attitude towards computer application and computer use concluded that there is a significant link between attitude and practices and ICT adoption. 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. Han (2002) who conducted a case study on pre-school leaders' practices in the use of information and communication technology also found out that principals who have positive attitudes toward technology are very helpful and supportive in introducing new technologies into the school. For example, they encourage their colleagues to have information and communication technology training, equip the school with sufficient computers and ensure that staff has access to relevant technology. Individual principals' attitudes toward computer use have been recognized as an important factor for the success of technology integration in education (Akbulut, 2008; Bebetsos & Antoniou, 2009; Hashim, Ahmad, Abdullah, 2002; Richardson, 2005; Abu, 2010).

During the last two decades, with the wide expansion of technology in schools, a considerable number of research studies have been conducted about the attitudes of educators (teachers and principals) towards ICT integration (Jimoyiannis & Komis, 2007 ; Wen & Shih , 2008). Results indicate that a respectable number of educators hold a negative attitude towards integration of information and communication technology, exhibiting negative reactions to computers ranging from "mild discomfort to extreme avoidance" (Todman, 2000). School leaders' attitudes towards computer use should be of primary concern because principals' positive attitudes, enthusiasm, and commitment towards integration of information and communication technology can play a significant role in overcoming the various impediments that occur during the integration process. Schools whose principals have positive expectations regarding the educational impact of computers, tend to emphasize computer integrated learning more than schools with principals who are less positive (Pelgrum 1993).

In addition, Walsh (2002) stresses that integration of information and communication technology could be achieved in schools only if school leaders are totally committed over a period of time. Momanyi, G , Nyakweba and Momanyi, G. (2015) observed that computer technology was a new idea that had not sank deep into the minds of the Principals. This problem could have been attributed to the individual's attitude toward information and communication technology as having hindered the computer success (Antoniv,

2009). The administrators could have a negative attitude to computer use especially those who did not advocate transparency in financial accounting.

Researchers at Field Research Corporation (1995) surveyed 1,000 elementary teachers in the United States and observed that most teachers surveyed had favourable attitudes toward computers. Attitude determines whether a person is willing to try a new innovation (Rogers, 1995; Flanagan & Jacobsen, 2003; Ajzen & Fishbein, 2005). Attitude appears to be a related factor in principals' use of computers in administration of schools. Further, recent report by the National Council for Science and Technology (2010) indicated that computer use in Kenyan classrooms is still in its early phases, and concluded that the perceptions and experiences of teachers and administrators do play an important role in the use of computers in Kenyan classrooms. This study explored the principals' attitude towards the use of computers to establish how it impacts on the actual application of computers in administration of schools.

An illustration on leadership in the use of ICT is provided by Pflaum (2004) who quotes a respondent in a USA high school student saying; "We had plenty of computers, but we did not have teachers who were ready to use them or an administrator committed to technology" (p.100). A school principal whose attitude and perceptions are not positive may not support reasonable changes that affect the overall school administration and performance. Since the principal is the key actor in the process of reform and redefinition, governments should work with them as Moyle (2008) observes that "many school leaders however, are unsure of how data can be used to inform their work, what decisions concerning technologies should make or what type of decision require their direct oversight" (p. 615). A case study by Han (2002) on pre-school leaders" practices in the use of information and communication technology in Iran established and found that principals who had positive attitudes towards technology were very effective in introducing these new technologies into their schools. They encouraged their colleagues to have information and communication technology training, equip their schools with sufficient computers and ensure that staffs have access to relevant technology.

Muthomi, Mbugua and 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. About 28% agreed and 72% strongly agreed that computers usually saved time. Around 97%of head teachers believed that they were better principal with computer technology. When the head teachers were asked whether using computer was very boring and frustrating 74% strongly disagreed and 26% disagreed. This implied that majority of head teachers valued the use of computers in learning. Woodrow

(1994) had also found out that the use of computers provided new instructional strategies which the teacher and students can use. He found that principals surveyed had a positive attitude towards the use of computers, with 95% agreeing that using computers in school management improved the operation of most schools.

This study uses a technology acceptance model advocated in Davis (1986) to conceptualise the use of computers by administrators. The model emphasises the importance of perceived ease of use (PEOU) and perceived Usefulness (PU) in helping to shape the attitude of users and their intention to use new technology. It was reasoned this model may help to explain acceptance of computers among principals, who are on average older than their teachers.

Research Methodology:

The study adopted a descriptive survey design to investigate the effects of principals' attitudes towards computer use. The locale for this study was Kiambu County in Kenya. Kiambu County is located in central Kenya. Kiambu County is densely populated mainly due to her location and nearness to the capital city and her attractive climate and landscape. The target population for this study comprised of all the 307 principals of public secondary schools in Kiambu County. Stratified random, simple random sampling techniques were used to acquire the intended appropriate. . National schools, extra county, county and sub county secondary schools had different characteristics in terms of information and communication technology infrastructure which dictated the use of computers in schools among other characteristics. The sample comprised of 205 principals which was an adequate representative sample of the population. Researcher's self developed questionnaire was used for data collection. The questionnaire comprised a number of items on specific issues on the use of computers in the administration of secondary schools. Respondents were also requested to indicate their opinions about the usefulness and ease of using computers on a 5-point Likert type rating scale.

Quantitative data analysis techniques were employed for data analysis. Pearson's Chi- square test of independence with the help of Statistical Package for Social Sciences (SPSS) was used to test each of the null hypotheses at alpha level of 0.05 (Orodho, 2005). The values obtained guided the researcher on rejection of the null hypothesis.

Results and Discussion:

The researcher was first interested in establishing the frequency of computer use by school principals to confirm or dispute the use of computers by schools principals. Findings showed that 79 (39.5%) of the principals used computers only once in a month while 68(34%) used computers at least once

in a week. Six (3.0%) reported that they never used computers in the administration of their schools. Only 47 (23.5%) of the principals reported that they were using computers on daily basis. This was a very small percentage considering the effort that had been put by the government and other bodies to ensure computer use in school administration. Table 1, shows the frequency of usage of computers among school principals.

Table 1 Usage of Computers by Level and Frequency

Computer Usage		
Rank	Frequency	Percent
High level	1	.5
Low level	11	5.5
Very low level	188	94.0
Total	200	100.0

The Principals were asked to rate their use of computers on three levels of computer use labelled as; High Level=1, Low Level=2 and very low level =3. Data analysis showed that majority (188, 94%) of the respondents reported that they were using computers for administrative purposes at very low level. Through 24 items the principals also responded to how they use the computers and it was found that the main use was for storing and retrieving information, and for generating student reports. On a scale of 1 to 5, the principals scores ranged from 1.92 to 3.67 (M =2.214, SD = .2251). This very low level of computer use among school principals was construed as revealing the principals' self confidence in the use of computers in their administration job, what Richardson (2005) referred to as e-confidence. However, this finding is rather puzzling considering that principals are required by their employer to use ICT in making reports such as the Teacher performance appraisal and development tool (TPAD). It may mean that principals ask other staff in or without the school to do computer tasks for them or that they use other ICTS such as the smart phone to do the same. Waema and Ndungu (2012) reported that in Kenya at least 98% of the sampled respondents in a Kenya ICT survey reported using the mobile phone rather than the computer for accessing the internet.

The study investigated the effect of principals' attitudes towards computer applications on computer use in administration of public secondary schools. The researcher had hypothesized that there was no significant relationship between principal's attitude towards computer applications and his/her computer use in administration of public secondary schools by school principals in Kiambu County. The results of Crosstabulation between principals' attitudes towards computer use were as presented in Table 2.

Table 2 Computer Usage * Principals' Ease in Use of computers

Levels of use	Principals Ease in using of computers				
	Very Comfortable	Comfortable	Uncomfortable	Very Uncomfortable	Total
High level	1	0	0	0	1
Low level	3	7	1	0	11
Very low level	28	69	55	36	188
Total	32	76	56	36	200

According to Table 2, 108 (54%) of the principals reported that they were comfortable with the use of computers in schools administration while 92(46%) said they were uncomfortable with the use of computers. Those who reported themselves as very uncomfortable make 18% of the sample. The table also shows that 188(94%) of the principals were using computers at very low levels. Only one principal reported high level of computer use while 11(5%) reported low level of computer use. The principals ease in using computers averaged to 2.51 on a scale of 0 to 5. (n= 200, SD= 1.088). Principals were also asked to react to 25 items on the perceived usefulness of computers in school administration. Their mean response on a scale of 1 to 4 ranged from 1.28 to 3.36 (N=197, M = 2.24, SD = 0.326). These findings are rather surprising considering that the government has spent a lot of money in advocating the use of computer in almost every aspect of school management. This contrasts with Oluoch (2016) who painted a more rosy picture of principals schools at ease with computers.

To establish whether there was any relationship between principals' perception on the usefulness of computers, their total score on perception scale was correlated with their score on computer use. The analysis of the Pearson correlation between perception towards computer applications and computer use in the administration of public secondary schools gave a correlation value of .387, (n= 195, p =0.000) which was significant at the 0.05 level. This finding was in line with Wabuyele (2003), who found out that while ICT had penetrated many sectors including banking, transportation, communications, and medical services, the Kenyan educational system seemed to lag behind. The study found that computer use in Kenyan schools was still in its early phases, and concluded that the perceptions and experiences of teachers and administrators did play an important role in the use of computers in Kenyan classrooms. In a study conducted by Antoniv (2009) on readiness of administrators to embrace computer use, negative perception of computer use was seen as a challenge.

The researcher had hypothesized that there was no significant relationship between principals' perceptions towards computer applications

and use of computers in the administration of public secondary schools. Upon testing the hypothesis using the chi- test of independence, a p value of .000 was obtained, and thus the null hypothesis was rejected at 95% level of confidence. This implied that principals' perceptions towards computers negatively influenced computer use among public school principals in Kiambu County.

6. Conclusion

The findings of this study confirmed that a principal's perceptions on ICT is related to the use of computers by school principals. It also found that principals barely used the computer for administration. This may point to a symbiotic relationship between other school staff, private ICT providers and the school, with ramifications for strengthening the school community relationship. It also points to the growing popularity of the mobile phone as an important tool that should be of right integrated into the formal School ICT system. From the findings of the study, the researcher concludes that Principals' attitude towards usefulness of ICT to some extent determines whether they will use it or not. Principals will use technology if they find it useful. Because new technologies such as personal computers are complex, coupled with the fact that principals may have their own doubts about successful adoption of ICT, principals may form attitudes and intentions toward trying to learn to use the new technology prior to initiating efforts directed at using it..

The study recommended that the Ministry of Education in collaboration Teachers Service Commission mounts regular ICT workshops to walk through computer operation and practice them on the use of computers in school administration with a view of changing their attitudes towards computer use and e-confidence.

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