School Administration Related Factors that Influence Access to and use of ICT in Special Schools of Learners with Visual Impairment

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ABSTRACT: The infusion of Information communication technology into teaching and learning in schools is growing by day. Information Communication Technology is now a reliable source of knowledge for transforming and reforming education. However, the school administrators' personal beliefs and theories about integration of ICT in teaching and learning are widely considered to play a central role in the implementation of the new technologies in schools. Therefore, given the role the head teachers play, there is need to investigate their influence in the access to and use of ICT in special schools of learners with visual impairments. The findings are significant for it would help policy makers to understand the role of school administration in the implementation of ICT in special schools with learners with visual impairments. The objective of the study was to establish school administration factors that influence access to and use of ICT in special schools for leaners with visual impairments in Kenya. The study adopted descriptive survey design. The study targeted seven public special primary schools for leaners with visual impairments with a population of 1667, 161 teachers, seven head teachers, seven computer teachers and seven ministry of education officers. The study sampled three schools situated in different counties in the country; Kiambu county, Meru county and Mombasa county. Judgmental sampling technique, stratified random sampling and simple random sampling were used to draw the samples. The samples consisted of three primary schools for leaners with visual impairment, 168 learners, 18 class teachers, 3 computer teachers, three head teachers and three Ministry If Education officials in the counties where the schools are situated. Data collection instruments were questionnaires, interview schedules and observation schedules. Content validity was determined by seeking expert review. The Cronbach Alpha formula was used to compute the reliability of the instruments. A reliability co efficient of 0.72 was used to judge the reliability of the instruments. The data collected was analyzed using descriptive statistics. The study found that head teachers are willing to support the learners with visual impairment to access and use ICT in the schools. However, there are hindering factors such as unstable internet connection, low teachers' capacity to use ICT, lack of enough time allocated to ICT learning, some of the head teachers had little knowledge on how to get adapted ICTs for learners with visual impairment and finally, there was no mechanism or model for accessibility of the ICT and other assistive resources for learners with visual impairments in the schools. The study recommended that the government through the ministry of education to train head teachers and teachers on the use of ICT suitable for learners with visual impairments in schools and ensure their functionality and availability. There is also need for a model for access of ICT and provision of the learning support for the learners with visual impairments in the special primary schools in Kenya.

KEYWORDS: School administrators; access and use of ICT; special schools; school managers' personal beliefs in ICT.

I. INTRODUCTION

Series of studies have shown that a positive attitude, personal beliefs and supportive school head teachers significantly affect the extend in which schools implement information communication technology (Nangunda 2018; Biwot , 2012 , Afshari, 2008; Mrazek , Hollingsworth and street,2005). Empirical evidence in several literature reviewed have highlighted head teachers leadership styles, lack of proper planning at the school level, ICT knowdge by head teachers, ICT practice models, lack of institutional administrative and technical support, were cited as obstacles to ICT adoption in schools. (Akbar et al.2022; Papainoannou and Charalambous, 2011; Afshari, 2008; Mutisya et al 2017). This study was guided by the above dimensions to determine the influence of School administrators in the implementation of ICT in schools for learners with visual impairment.

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Lack or scarcity of ICT in schools is not a standalone barrier to the use of the same in the educating of learners with visual impairments. A bigger problem comes when there's little support from the school administration. For the school administrator to apply new technology, knowledge development is necessary. They will need to update and improve their technological abilities in order to use new technology. Computer use in education and training is growing in popularity. Institutions of learning cannot function without computers. The majority of administrators however, find it difficult to start a computerization project at school because ICT is a relatively new sector and very expensive (chin et al; 2022). Many school administrators feel overburdened by the mandate to incorporate ICT in classrooms and the enormous responsibility of managing schools in a world that has been altered by technologies. School administrators are expected to take on leadership roles for which they have very little experience and are unfamiliar. For them to be effective in their new roles as technology leaders in controlling the use of ICT in schools, they must acquire new competencies. The head teachers' personal beliefs and theories about integrating of new technologies in teaching and learning are widely considered to play a central role in the implementation of ICT in schools. The head teachers styles and beliefs in schools can facilitate or inhibit curricular implementation (Papainoannou and Charalambous 2011). Findings by Mrazek, Hollingsworth and street (2005) stated that school leaders with positive attitude towards ICT integration can facilitate integration largely. Afshari (2008), construed that, for a successful in integration of ICT in teaching and learning, there has to be proper planning at school level. The school is expected to provide necessary ICT resources for the teacher and learners to use. An ICT integration plan provides a detailed blue print of the steps and methods needed to translate the school ICT vision reality. A plan is a guide to action not substitute for it, argued Bryderup and Kowalski (2002). They further stated that the existence of a written ICT plan and strategy does not guarantee the comprehensive use of ICT in schools, nor the absence of an ICT plan necessity equate the lack of ICT integration in a given school, but it is the work of the head teachers to make sure there is a comprehensive structure to enable effective use of ICT in the schools.

The leadership of the principals is crucial to the adoption of ICT in schools. According to a study by Incluer et al (2010), the usage of ICT was dependent on the principal's cooperation in setting up in service training sessions and maintaining the school website for use. In order to ensure integration, principals must use their creativity while obtaining resources. This creates a climate that is conducive for teamwork. Lack of ICT practice models as well as a lack of institutional administrative and technical support, were cited by Akbar et al (2002) as obstacle to ICT adoption in schools. In the opinion of Binder and Nederle (2007) in Biwot (2012), the head teachers are implemention leaders, the principal functions are to coordinate and organize organizational parts that must operate in harmony in order to achieve implementation of goals. Binder and Nederle (2007) argue that locating and organizing of necessary human material, technical and financial resources; establishing and facilitating organizational structures; creating and operating an effective communication network and developing a viable decision making procedures are the core functions of the head teachers. In other words, they are instrumental in enabling and facilitating the capacity of other implementers. Apart from sourcing and procuring ICT for the school, the headteacher should provide the technical support staff. Lewis (2003) asserted that without both good technical supports in the classroom and whole school resources teachers could not be expected to overcome the barriers preventing them from using ICT. Korte and Housing (2007) and Pelgrum (2001) argued that ICT support and maintenance contracts in schools help teachers to use ICT in teaching without losing time through having to fix software and hardware problems.

II. STATEMENT OF THE PROBLEM)

Current trends in primary schools of learners with visual impairment in Kenya show that there is minimum utilization of ICT resources in pedagogy. Kenya has made considerable effort to ensure quality education for all learners including those with visual challenges. The government has given support and put emphasis in the use of ICT in all schools at all levels including the special schools and colleges. Moreover, legislation such as the Kenyan constitution (2010), Persons with Disabilities Act (2003) and the special Needs Education Policy (2009) has resolved a number of important issues affecting the quality of education of learners with visual impairments. However, research has shown that these learners still lag behind their sighted peers in education, this has generated numerous questions with respect to what could be done to help the learners compete equally with their peers. Special schools with learners with visual impairment in Kenya have legal obligation to provide learning support and substantive accommodations for the learners that afford them quality education and equal opportunities in their future lives. However, the current practice of providing this essential support to the learners in special primary schools lacks sufficient research. Therefore, this has provided an opportunity for this research to investigate the school administration related factors that influence access to and use of ICT in special schools for the learners with visual impairments in Kenya.

Objective of the study

This study was undertaken to establish the school administration related factors that influence access to and use of ICT in special schools for learners with visual impairment in Kenya.

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III. METHODOLOGY

The study aimed to establish if there exist relationship betweenschool administrators' leadership styles with access and use ofICT in special schools for learners with visual impairments. Descriptive survey design was adopted in the study. This designwas suitable because the study was about description of an existing situation. The study was carried out in three special primary schools for learners with visual impairment. Thika primary for the blind, in Kiambu county; St. Lucy primary for visual impairment in Meru county and Likoni primary for the visual impairment in Mombasa county. The target population of the study comprised 1667 learners; 161 teachers; 7 computerteachers; 7 head teachers and 7 ministry of education officers. The sample size comprised of 168 learners, 18 teachers: 3 computer teachers; 3 head teachers and 3 ministry of educationofficials. Purposive sampling was used to select the schools, head teachers, teachers and ministry of education officials. Stratified random sampling method then simple random sampling was used to sample the learners. Questionnaires with5 scales; interview schedules and observation schedules were utilized for data collection in the study. The quantitative were coded and related information grouped together to predetermine themes. The data was then entered into the computer and analysed using(SPSS). Qualitative data was presented in a narrative form where the voice of the interviewers were captured in the analysis.

IV. ANALYSIS AND DISCUSSION

The objective of this research was to establish the school administration related factors that influence access and use of ICT in special schools for learners with visual impairment. In order to achieve this objective, the respondents' opinions weresought on: time allocated for training learners with visual impairment; access to ICT in the schools; in service for ICT training by the teachers; importance of ICT to learners with visual impairment and how schools obtain ICT resources.

They access ICT outside the school.	3	0	0

The objective of this study was to determine the factors that enabled or deterred access of ICT for pedagogy of the leaners with visual impairment according to the school head teachers of the sampled schools. They were interviewed on various issues that included the time the school gave for the training ofthe teachers and the leaners on ICT, the technical support the school gave to both the teachers and the leaners in the access ofthe ICT and about the school ICT support infrastructure amongother factors.

A. ICT infrastructure in the schools

The researcher requested to be allowed to access the ICT infrastructure. It was found out that all the sampled schools hadelectricity, and each school had a computer laboratory with desktop computers. There was also internet connection but quite often, the internet was unstable. On asking why the internet was unstable, the school head teachers complained thatit was even expensive for the schools to maintain it since the fee was high. It was also found out that each school had an ICTtechnician who was often in the laboratory. The technician work was to repair computers and maintain them. Additionally,he was to train any willing staff on how to use the adapted computers. On asking why the lab technicians did not train theleaners, they mentioned that they only supported them to learnany new skill since the schools had teachers for training the learners on how to use the computers based on the curriculum.

This being the case, the researcher was further interested to findout how ICT was being accessed by both the teachers and the leaners. The findings are as presented in Table 1.

Table 1: ICT Access by the Leaners with VI

	N	Frequency	Percentage
They access ICT resources at school	3	3	100

From the Table above the head teachers confirmed that learnerswith VI accessed ICT at school. This made the researcher to be interested to know why the head teachers said that ICT couldnot be accessed at home. A common sentiment from the three head

teachers was that It is clear that most learners with VI come from poor background and as a result cannot access ICTs at home. ICT for the blind is extremely expensive and most of it is not found locally. Even some parents whomight afford might not have knowledge of where to get the technology. The NGOs and the Government provide the ICT resources.

The above findings are supported by Kimuyu (2016) that the majority of schools did not have Internet access, hence email was not used for management or other forms of communication. The findings are also in agreement with Kahn(2007) who found that 80% of all people with disabilities in thedeveloping world live in what can be considered poor living conditions and therefore among the worlds' poor and thus cannot afford to buy or even access the new technologies. Mostlearners learnt computers at school and were appreciative of it.The findings agree with the research carried out by Coudie, (2007) which indicated that the extent to which schools are in aposition to implement and take advantage of ICT in learning and teaching depends on development across a number of dimensions relating to infrastructure including school policy, resources, teacher confidence and capacity, connectivity, security, and management of the system. Each of these to a greater or lesser extent, has an influence on the way in which ICT becomes part of the learning and teaching process and hasan impact upon the experience of learners, teachers and schools.

Moreover, it is imperative that the learners access ICT including computers at home for the purpose of academic and social connection. Waddell (2000), found out that increased ICT confidence amongst students motivates them to use the internet at home for schoolwork and leisure interests among these being keeping in touch between themselves and even theirteachers. Also, MoE (2006) observed that ICT can play a role in preparing students' competencies and socio skills that are fundamental for competing in the emerging global 'knowledgeeconomy.'

B. Time allocated to ICT training in school

The school head teachers were questioned about the time they allocated for the training of ICT use. The respondent unanimously asserted that learning how to use ICT including computers takes a deserved short period. One of them Johnstone (pseudonym) stated that,

"It is a matter of interest. The school does not even require offering separate time for training on computerespecially to the teachers. Those who know what theyare doing can learn during their free time for instanceduring weekend and during holidays. But due to someof the teachers' negative attitudes they always demandfor time to be trained, surprisingly when we give themtime they don't train'.

This statement showed that the head teachers were not very willing to give time for training both the leaners and the teachers. One head teacher even thought that learning special computer applications was so easy. The researcher got interested to get more information from the head teacher and asked him whether he would be willing to be part of the team of trainers of computers for the blind. He responded that he would be willing if he were first well trained on the various technologies for the blind. Time is a very important resource, especially in the field of technology use in schools. A study bythis finding is in agreement with Al-Alwani (2005) that time isan important factor affecting the application of new technologies in education. Lack of time is a barrier affecting the application of ICT in education. Schoepp, (2005) further identified time limitations and the difficulty in scheduling enough computer time for classes as a barrier to teachers' use of ICT in their teaching. According to Sicilia (2005), the most common challenge reported by teachers was a lack of time to plan technology lessons, explore different internet sites or look at various aspects of educational software. Mugo, (2013) observes that most of the technologies used by learners who areblind were not initially designed with the mind of these learners. Due to this, the teachers who might also not have a clue of how these technologies are made should have ample time to learn, explore and figure out how the technology can best be used to teach the learners.

Learning ICT especially for leaners with special needs requiresample time. Waycott, Bennet, Palgamo, and Kennedy, (2010), conducted a study on 99 undergraduate students who had gonethrough some computer training and found out that most students were uncomfortable with computers use and most of them indicated that using technology in their learning increasedtheir workload. It was clear that some learners were not yet competent in using the new technologies and that is why they found it taking a lot of time. Giving very little time for trainingon ICT is therefore not fruitful at all.

Due to the inaccessibility of the ICT for the blind in the schools,it therefore demanded that the Kenya Government come in to support. The role of the government in equipping teachers andlearners with the requisite ICT knowledge was instrumental in enabling access to quality education for these learners.

C. In-service Teacher Training

The researcher sought from the head teachers whether teachershad attended any in-service traing on the technology for the blind. The findings are as presented in Figure 1

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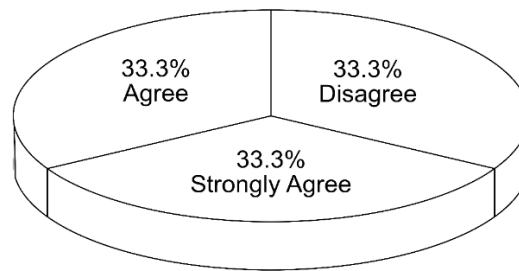
Figure 1: In-Service Teachers Training

From the figure, two third of the respondents indicated that teachers had attended in-service training on the new technology while a third disagreed. It was also established that the in- service training was to equip teachers with the new technology though the teachers who attended it still found using ICT a frustrating affair.

The findings are not unque to kenya situatuation. Ozden (2007)conducted a research in Turkey where he found that the main problem with the implementation of new ICT in science was the insufficient amount of in-service training programmes for science teachers. Also, research by Gomes (2005) relating to science education concluded that lack of training in digital literacy, lack of pedagogic and didactic training in how to use ICT in the classroom and lack of training concerning the use of technologies in science specific areas were obstacles to using new technologies in classroom practice. This finding is also inagreement with Mugo's (2013) who asserted that training of teachers on how best to use assistive technologies in the classroom is a major concern world over. Thus teachers especially those who are blind lack trainers on focusing on thestudy of technologies themselves leave alone that of educational technology (support for teaching in the classroom). These trainers lack knowledge and skills in pedagogy and andragogy.

D. Head teachers support of ICT

The head teachers were asked to give reasons why they supported the use of ICT in their schools. The following assertions were made: (i) "the Learners use computers to writenotes and access textbooks a practice which has improved theirperformance" (ii) "braille material is very expensive and therefore soft copies which are easily accessed hence cutting down the cost". (iii) "Most of ICT resources for instance laptops are more portable compared with braille text books which are cumbersome and heavy to carry. (iv) "The leaners are able to access academic and non-academic material online and even learn at their own pace". What the head teachers concluded has been supported by various empirical studies. Forinstance, UNESCO (2006) affirmed that ICT offers a great potential to support lifelong learning to all groups of students including those who have special educational needs. Additionally, Mugo (2013) construed that those ICT resourcesif well used leads to access of quality education for the leanersthat are visually impaired.

Although the head teachers knew the importance of supportingthe use of ICT in their schools, implementing what they said was not easy. They revealed that they feared that some of the ICT resources would be stolen, that the learners can access pornographic sites, most learners tend to depend on the voice output software thus forgetting on how to use braille and that the schools lacked of storage facilities. In other words, this fearmade the head teachers to restrict the use of ICT in the school.Mwakyeja (2013) postulates that schools for learners withspecial needs faces many challenges and are often forgotten bythe government and the society when it come to the provision of learning resources and material. Additionally, there is often inadequacy of teacher training in special areas including the school management for schools that houses learners with special needs (Korir, 2015).

The inadequacy of teacher education gives rise to challenges within the course of acquisition of education by the visually impaired students (Mwakyeja, 2013).

E. How ICT resources are obtained in the schools

When asked how the schools obtain the ICT for their schools, the school head teachers unanimously revealed ICT resources

used by learners with VI were donated and maintained by Non-Governmental Organizations (NGO) and not the government. The head teachers were for the opinion that the government should support the schools. They also requested for the teacherstraining to enhance their ICT skill levels and consequently theirquality of teaching the learners with VI. The head teaches reiterated that in-servicing teachers on the use of ICT for the blind should be allocated more time.

F. Technical support in the schools

On the issue of technical support, the researcher requested the computer laboratory technicians to describe the management of ICT resources in the schools. The computer specialists revealedthat they were all employees of the In-able (NGO) which installed computer laboratories for learners with VI in the schools. They further reiterated that computer laboratories are not enough for the learners. One statement, which was echoed by all, was that:

"The management of the school could include parentsand the community to raise funds to build more computer laboratories to decongest the available ones.This will go a long way to improving ICT accessibilityto many learners with VI."

These findings contradict the ICT policy where the ministry ofeducation demands that all teachers must embrace the use of ICT in the process of teaching and learning (MoE, (2010). Furthermore, MoHEST (2012), found out that there was a key issue affecting ICT provisions, especially in special schools. The lack or scarcity of ICT in schools is not a standalone barrier to the use of the same in the education of learners with visual challenges. According to Nang'unda (2019), the establishment of an efficient management structure,goal-setting, decision-making, and relationship-building are alladministrative tasks that school leaders find crucial insupporting. A school administrator's job is to make sure that certain tasks are allocated, carried out, and that there is ongoinginput to enhance overall school management. Technology is changing education, but not all students or staff members will benefit from its advantages, claims Malik (2018).

The emphasis on ICT use during initial teacher training courseswas acknowledged to have an impact on more recently qualified personnel in all the three schools under examination,and whole school training days were recognized as being influential. Ghavifekr et al. (2016) opine that teachers must alsounderstand when technical assistance is available and how to use it. Computer use in education and training is growing in popularity. Institutions of higher learning now cannot functionwithout computers. School administrators are expected to takeon leadership roles in fields with which they have little experience and are unfamiliar. The findings of this study are also in agreement with those of Mutisya et al. (2017) which revealed that there is a significant positive association between computer infrastructure and ICT integration in school management. According to a study by Uncluer et al. (2010), the usage of ICT was dependent on the principals' cooperation in setting up in-service training sessionsand maintaining the school website for faculty use. Since ICT is a crucial part of organizational management procedures, the principal and the larger staff must be ICT knowledgeable.

To ensure integration, principals must use their creativity whileobtaining resources. This creates a climate that is conducive to teamwork. The lack of appropriate ICT practice models, as wellas a lack of institutional, administrative, and technical support,were cited by Akbar et al. (2022) as obstacles to ICT adoption.The hurdles were further broken down into school and individual barriers, suggesting that they might not always be about administrative help but rather going beyond their bounds. The type of administrative support offered is largely related tothe attitude of principals toward ICT integration in management.

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