# Factors Influencing the Integration of ICT in Resource Planning In Secondary Schools in Mashuuru District, Kajiado County, Kenya

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*Abstract:* - The study sought to investigate factors influencing ICT integration in Resource planning in secondary schools in Mashuuru district, Kajiado County. Specifically, the study sought to establish the availability of ICT infrastructure and the level of training personnel, all in the integration of ICT in resource planning. The study employed descriptive survey design with both qualitative and quantitative approaches targeting 13 secondary schools, 13 school principals, 226 teachers. A sample of 88 respondents was randomly selected and interviewed for argumentation purposes of the study findings. Data was mainly collected using a questionnaire tool. Structured interview were also used in collecting quality data from the Principals. The study established that most schools had desktops, phones, television, laptops, DVD players, projectors and radios. Based on linear regression, availability of ICT infrastructure, R-Squired was 0.224 which explained (22.4%) of the factors influencing integration of ICT in resource planning in schools. The study found out that most teachers were well trained in Microsoft word, emails, Google search and excel with mean average of 3.22, 3.15. 3.30 and 2.73 respectively. Training in power point, access, office tools and quick books showed a low level training with mean average of 2.51, 2.38, 2.19 and 1.83 respectively. The sum mean average for all the variables was 2.66 implying a moderate level of training. This indicates that, in average, teachers in Mashuuru district were moderately trained in ICT use. The regression mode is adjusted R-Squired was 0.145 which explain (14.5%) extent at which training factors influenced integration of ICT, in resource planning in schools. Based on the findings, many schools in Mashuuru district had quite considerable enough ICT infrastructure that can necessitate the utilization of the same resource planning in schools. Quite a good number of teachers were also trained in ICT and this is attributed to the fact that most of the teachers were young. They had the prerequisite skills needed in the use of ICT in schools.

*Key words:* ICT Integration, Information Technology, Resource management, resource planning and software technology components.

## I. INTRODUCTION

There was evidence from developed countries that investment in ICT in education planning in schools has had a significant impact (FAWE, 2015). However, there was little doubt that majority of sub-Saharan Africa's populations were missing out on the boons of ICT in resource management in schools (Tuysuz, 2010). As a region lagging behind in integration, use and innovation in the ICT sectors, its people were missing out on a better education and well managed education systems and entities. ICT has contributed greatly to educational planning in schools worldwide (Peeraer and Petergem, 2011). Educational institutions in Kenya in the 21st century, just as in other parts of the world, are increasingly becoming complex multidimensional organizations requiring tremendous input in terms of human, financial and physical resources (FAWE, 2015). Such school working environments are bound to overwhelm the abilities of today's teacher and administrator if they were not aided in the performance of their school administrative and planning duties. These developments demand therefore that educational institutions modernize their tools of conducting business to enhance the effectiveness of planning and leadership (Adu and Adu, 2013).

The incorporation of ICT in school management has been promoted as a key step in bridging the digital divide (Gulbahar and Guven, 2008). ICT shows the way of distributing information in the school and is being used in management of school affairs to change education outcomes (Krishnaveni and Meenakumari, 2010). The main ICT tool to be used in planning and administration is likely to be the computer, together with basic software packages especially MS Word, Excel, PowerPoint, or the equivalent open source packages, and access to email and the internet. In addition there are software packages designed specifically for school planning and administration, including timetabling, databases for learner records, systems for the recording of school development plans, syllabus completion reports, test data, school based assessment records and financial records (Krishnaveni and Meenakumari, 2010).

From early 1990s, increasing numbers of secondary schools in Kenya acquired computers for use in the institutions. The initiative was partly due to pressure from parents, communities and politicians. Some of the computers installed in these schools came in the way of donations

(Amutabi, 2012). Despite the central role occupied by administration in the schools, for a long time there has been little emphasis on the effectiveness goals of ICT in the Kenyan schools. However, since the turn of this century, the Kenyan Government has been working towards the realization of transforming all educational institutions in the country to be ICT compliant as attested by the interest shown on ICT in a number of government policy documents (Republic of Kenya, 2005). Amidst this favorable gesture from the Government of Kenya to embrace ICT, studies suggest that integration and use of ICT in schools all over the world has not been automatic.

The effective implementation of ICT in schools is a multifaceted, complex process that just not involves providing the technology to schools but also involves teachers' competencies, schools readiness, long term financing and curriculum rest As a Planning tool ICT has made school management tasks less complex, which according to Mingaine (2013), includes coordination of teaching and learning process, along with educational programmes; financial, human resources and supporting resources; library and information science, and general administration. For coordination to achieve educational goals, Alexander (2012) grouped tasks as financial, administrative and instructional management. In financial planning in schools ICT has been used in budgeting, accounting and auditing, which has streamlined financial management and minimized seepage. Again schools have used ICT in directing and controlling activities which includes staff and students' records management plus stores management and procurement implementation process. Instructional planning in schools has used ICT in timetabling, examination management, academic records and teaching-learning process (Ismail, Ahmad and Affandy, 2013).

Studies by Becta (2004) indicates that ICT has played an important role in improving planning in educational systems in various ways. For example, through availing data widespread to parents and the public at large through central administration websites and in some cases through direct access to central databases by school personnel. The convergence between telecommunication, broadcasting multimedia and related technologies commonly known as ICT, promises a fundamental change in educational planning. ICT could be the missing tool in improving efficiency of secondary schools to cope with rapidly changing world to effectively meet management tasks combined with flexibility in learning and administrative activities essential in enhancing efficiency in educational institutions (Ismail, Ahmad and Affandy, 2013).

*1.1 Statement of the problem*

Most of the meetings held in Mashuuru Sub-county had experienced wastage of time in tracing the previous records, a times missing records as a result of misplacing them. These were as a result of handling records in manual sheets which get lost each and every time. The sub-county being located in a semi arid area, some donors from Non-Governmental organizations had played a great role in providing Computers in some of the school. According to Mashuuru district inspection report carried out on 20th March, 2014 there were a problem of record keeping, the files with confidential information were nowhere to be seen. The principals who had integrated ICT had kept their documents safe and were easily accessible. During their General annual meeting on 10th October 2014 by the District Education Board (D.E.B.) most principals could not present their Human resource planning details in schools in power point form apart from the few who had integrated ICT in their schools (Mashuuru District office, 2014). Due to this, the researcher decided to investigate the problem.

*1.2 Purpose of the study*

The purpose of the study was to investigate factors influencing ICT integration in Resource Planning in secondary schools in Mashuuru district, Kajiado County.

*1.3. Objectives of the Study*

This study was set to establish the following objectives:-

1. To establish the influence of availability of ICT infrastructure in integration of ICT in resource planning in schools.
2. To establish the influence of level of training of personnel in integration of ICT in resource planning in schools.

*1.4 Research questions*

The objectives were guided by the following research questions;

1. To what extend did the availability of ICT infrastructure influence resource planning in schools?
2. What was the influence of teacher's level of training in integration of ICT in Resource Planning in schools?

*1.5 Hypothesis of the study*

➢ Secondary schools have established ICT infrastructure in integration of ICT in resource planning.

➢ Secondary schools have well trained personnel in ICT integration in resource planning.

*1.6 Scope of the study*

The study delimited itself by concentrating on factors influencing ICT integration on Resource planning in secondary schools in Mashuuru district. This was because ICT had numerous applications at different levels of education as well as wide range of use in virtually all aspects of life which cannot be covered under one study. Mashuuru district had individual private schools, mission private schools and public secondary schools. The respondents of this study

were teachers and principals from both public and private secondary schools.

## II. LITERATURE REVIEW

### 2.1 Introduction

There is plethora of literature on ICT, but there is scarcity of literature exclusively focusing on the influence of ICT in the performance of science subjects especially in Kenya secondary schools. This chapter summarizes the information from the available literature in the same field of study. It is important to note that integration of ICT into the resource planning process in schools is not an initiation independent process but it enormous resources in terms of facilities and human capacity as well as participation of all the stakeholders. This section discusses the integration of Information Communication and technology, availability of infrastructure in integration of ICT in resource planning, summary of literature, theoretical framework and conceptual framework.

### 2.2 History of ICT Innovation in School Planning

The use of ICT innovation in school planning can be tracked back to the 1970s when the computerization of schools gained momentum (Gray, 2007). However, a visible presence of this was evident to the customers since 1980s when some schools in Kenya could communicate to the outside world without necessarily the use of letters. The early decade of the 1990s saw the emergence of automated voice response (AVR) technology. The 1990s is a period in Kenya when the policy allowed the teaching of computer science in secondary schools as a subject though with challenges in terms of trained personnel and lack of power for most schools especially in the rural areas (Lai, 2014).

Before 1979, computers existed primarily in tertiary level educational institutions. Then, in the eighties, microcomputers began to be distributed to schools, and teachers began to grapple with the question of how to use computing for education rather than simply educating about computing (Mentz, 2010). Starting from the mid nineties, the use of ICTs in schools rapidly expanded in developed nations through curriculum support, networking, the professional development of teachers and software improvements (Afshari, Bakar and Luan, 2009).

The potential of information communications technology (ICT) to enhance human capabilities and revolutionize the planning of organizations was first realized in other sectors of human society, mostly in the business world and the military, other than in education (Albirini, 2007). The importance of ICT contribution is also widely recognized both in the workplace and at home (Koehler, 2011). Through the pledges by the current Government of Kenya during their campaigns, the teaching of Computer literacy is supposed to commence in standard one in all Kenyan primary schools. These examples are just a few pointers which show that ICT is becoming a vital enabling tool that can no longer be ignored in the planning of resources of schools.

### 2.3 The Use of ICT in Resource Planning Schools

In educational administration, computers have been used in timetabling, personnel management, financial control and examination administration. Spence & Smith (2009) noted that technology can help administrators to deal with some of the challenges they face but only if they have a vision and know how to harness it and make it part of the fabric that supports the teaching and learning process in schools. The use of computers has also helped school administrators to plan and allocate human resource and physical resources more effectively.

ICT plays a key role in the planning and management of complex information flow and integration of such information towards effective policy formulation and planning towards the utmost maximization of human capital and potential in the school environment. Thus, it involves the development of effective and integrated tools as well as training modules to enable their application through effective teacher training (Sookram, 2008).Integration of ICT is rapidly becoming an indispensable part of school life and an inevitable in financial management. In support of this position Ngugi (2012) noted that ICTs has become valuable for storing and analyzing data in school financial planning which includes budgetary allocations, expenditures, students' fees payment and general accounting.

### 2.4. Benefits of ICT in Education Planning

The benefit of introducing ICTs in education planning and development is an intricate process that requires reliable, timely, user-friendly data (North, 2011). ICTs can be valuable for storing and analyzing data on education indicators; students' assessments; educational, physical and human infrastructure; and cost and finance (Bryderup and Kowalski, 2010). The use of computer related technology is particularly helpful in this field. For instance, administrators and policy makers can construct virtual scenarios around different policy options to determine needs and analyze potential consequences. Each scenario can be analyzed and evaluated systematically, not only in terms of educational desirability, but also in terms of financial afford-ability, feasibility and sustainability over a sufficient period of time to show results (Kidombo and Gakuu, 2009).

Makhanu and Kamper (2012) further noted that ICT automation of admission process from enquiry by students, applying for admissions through electronic media, registration and enrolment using computers has improved planning initiatives to adequately, handle both students and stakeholder related issues. On staff administration, Alexander (2012) asserted that ICT has enabled allocation of work, attendance, and leave planning and performance appraisal, raising efficiency in task distribution, data collection and planning. Oguta, Egessa and Musiega (2014), noted that ICT helps in staff planning by processing of voluminous records in a quick, meticulous, and impeccable manner, it fastens data retrieval. In supporting of this position, Mingaine (2013) indicated that

ICT can help in providing a good communication system in providing timely information internal and external users acquisition and dissemination in all institution including schools.

### 2.5. Integration of Information Communication and Technology in Resource Planning in Schools

Information Communication Technology according (ICT) to Ewumi (2011), comprises of computer and telecommunication. It was concerned with the technology used in handling, acquiring, processing, storing and dissemination of information. Evey et al. (2010) observes that ICT is an innovative device that can carry out such functions as receiving, storing, computing, analyzing, transmitting and retrieving information presented to them and allowing for one -to-one or group communication among humans. In the same vein, Folorunso, Longe and Ijere (2003) identified ICT infrastructure as the hardware technologies which should also include internet, World Wide Web (www), Electronic Data Interchange (EDI), Local Area Network (LAN), Wide Area Networks (WAN), Protocols, Content Management and Meta Data Standard (MDS).

Evey et al. (2010) observes that ICT is an innovative device that can carry out such functions as receiving, storing, computing, analyzing, transmitting and retrieving information presented to them and allowing for one -to-one or group communication among humans. Obashoro (2007) identified ICT infrastructure to include multi-media CD-ROMs, MP3 players, websites, discussion boards, emails, computer-aided assessments, learning management software, blogs, etc.

### 2.6. Availability of ICT Infrastructure and Integration of ICT in Resource Planning

For teachers and their students, the availability of ICT materials like modern computers, peripherals, networking and resources within an increasingly diverse range of technologies was an essential part of school planning in the 21st century (Peeraer and Petergem, 2011). ICT constitutes an input in the teacher planning process that should help produce better learning output. The availability of ICT resources can enhance proper planning by making education less dependent on differing teacher quality and by making early education planning possible (Olukemi, 2014). The use of ICT can positively transmit knowledge to students. Infrastructure requirements were costly and involved various stakeholders, particularly the governments of African states. There were a number of challenges concerning access to and use of ICT in Kenya, including high levels of poverty, limited rural electrification, and frequent power disruptions (GOK, 2015).

Therefore, the expansion of basic services and the development of sustainable infrastructure are key challenges of ICT integration in schools. Basic infrastructures are critical for successful implementation of ICT resource planning in schools (World Bank, 2014). Technical and basic

infrastructures, coupled with sustaining schemas, make up structures that can empower or constrain the application of ICT in secondary education. Infrastructure requirements are costly and involve various stakeholders, particularly the governments of African states. There are a number of challenges concerning access to and use of ICT in Kenya, including high levels of poverty, limited rural electrification, and frequent power disruptions (GOK, 2015).

According to FAWE (2015), costs were also an important factor that guides the integration of ICT in a country. A small number of schools had direct access to high-speed connectivity through an Internet service provider. Generally there is limited penetration of the national physical telecommunication infrastructure into rural and low-income areas. Consequently, there was limited access to dedicated phone lines and high-speed connectivity for e-mail and the Internet. Many schools in Kenya were constrained by resource scarcity. Even where the importance of ICT is recognized, allocation for the development of ICT is often inadequate. Mugenda (2006) points out that one of the greatest challenges in ICT use in education were balancing educational goals with economic realities.

Another important infrastructure that enhanced the integration of ICT in school was the availability of technical support specialist. They were essential to the continued viability of ICT use in a given school. The general competencies required were in the installation, operation and maintenance of ICT. Without on-site technical support, much time and money may be lost due to technical breakdowns and can delay the teaching and learning process. In many parts of Kenya, for example, one of the major obstacles to optimizing computer used in high schools have been the lacks of timely technical support (FAWE, 2015).

Kenya's educational technology infrastructure sits on top of the national telecommunications and information infrastructure. Before any ICT-based programme is launched in schools, school managers and other policy planners must carefully consider the following: appropriate rooms or buildings available to house the technology, availability of electricity and telephony, availability of adequate and trained human resource as well as adequate information technologies like computers or enough resource to purchase them (UNESCO, 2015). The structure of the curriculum of the school should also be tailored towards the use of ICT (NEPAD, 2015).

In some extreme cases involving schools in remote areas, disabled computers take months to be sent to the nearest city hundreds of kilometers away (GOK, 2015). Higgins& Moseley (2011) observed that content development was a critical area that was too often overlooked. The bulk of existing educational material for institutions was in printed form. There was a need to develop original educational content, adapt existing content, and convert print-based content to digital media. School administrators and teachers

had a positive attitude and confidence in these facilities, which was in turn reliant on the facilities reliability or degree to which they were sure that they had access to them at all expected times and utilize them predictably to the betterment of their work, an issue on which consensus is enormous as was clear from ICT in education scholars like Higgins and Moseley (2011), Khan et al., (2011), and Ayere et al., (2010).

### 2.7. Human Resource Level of Training and Integration of ICT in Resource Planning

According to Evey et al. (2010), a teacher is the creator and manager of stimulating a learning environment. He must be a good communicator and demonstrator to achieve the needs of today changing world. In order to plan and communicate effectively, he has to employ varying strategies and means of giving out and recovering of the message of the intended recipients (TS and Logistics Group, 2011).ICT-enhanced planning mobilizes tools for examination, calculation and analysis of information, thus providing a platform for student inquiry, analysis and construction of new information. Therefore, adoption and use of ICT in schools required skilled human resource that was knowledgeable about the potential that ICT presents during the planning of activities in schools (Peeraer and Petergem, 2011).

According to Prestride, (2012) computer aided resource planning was the most appropriate skill required for human resource. According to Andoh, (2012) training was directed to " using ICT to plan and manage teaching and learning resources" rather than " learning to use ICT" . Prestride, (2012) outlined some of ICT packages required such as data processing, word processing, use of internet, use of spreadsheet, use of presentation software like PowerPoint and e-mail. These ICT packages were important to teachers because they assisted in creating lesson plans, analyzing and setting students' tests, acquiring new knowledge and presenting lesson in a clear way among others (Higgins and Moseley, 2011) the receptionist , bursars also required the same programmes.

A major challenge identified in Kenya regarding integration and use of ICT in schools is that there are  few human resource staff, and where there are, they are most likely IT professionals without any education experiences, skills, and/or qualifications. Trained human resource played a critical role in integration and use of ICT as they were at the centre of innovation at school level. However, many schools faced a challenge of shortages of ICT teachers and other ICT professional that support adoption and use of ICT in resource planning purposes. Many schools continue losing well trained ICT teachers to private sector which seems to pay higher salaries (GOK, 2010).

Therefore, inadequate preparation of human resource trainees on how to use ICT could be perceived as a reason why the adoption and integration has been hard. A report by Ministry of Higher Education, Science and Technology (GOK, 2010) on secondary school teachers' adoption and use of ICT also indicated the number of teachers skilled in ICT in secondary schools was low. The study revealed that out of the number available, few had ICT training effective in integration and use of the technology in schools. There is therefore a likelihood that teachers could integrate and use ICT if professional training provided them with ample time to learn, share, practice, and collaborate with colleagues about the technology (Peeraer and Petergem, 2011).

## III. METHODOLOGY

### 3.1. Research Design

Research design is the structure of any scientific work that gives direction and systemizes the research. This study adapted descriptive survey design. According to Orothe (2005) is a method of collecting information by interviewing or administering questionnaire to a sample individual. A descriptive survey design with both qualitative and quantitative methods was adopted. The descriptive survey design was also adopted to allow describe the state of affairs as they exist currently (Kothari, 2004) in the schools regarding the utilization of ICT. The researcher applied this design to investigate the influence of ICT on resource planning in schools.

### 3.2. Target Population

Target population is a group of people that is identified as the intended participant for research. The target population for this study involved 13 secondary schools, 13 principals, 226 teachers in Mashuuru District. County Education Office (2016). They were targeted since they were stakeholders to planning, integrating and evaluating ICT infrastructures, projects in their respective schools.

### 3.3. Sample Size and Sampling Technique

According to White (2003), a sample is a group of subjects or situations selected from a population. Sampling therefore is the act, process, or technique of selecting a suitable sample, or a representative part of a population for the purpose of determining parameters or characteristics of the whole population. According to Mugenda and Mugenda (2003) a sample of (30%) will be appropriate in social science study. In this study the sample used was: 88 teachers as a result of sampling out (30%), all the 13 principals, and all the 13 schools in Mashuuru District irrespective of their category.

### 3.4 Research Instruments

The data collection instruments included in-depth interview with the school Principals, and questionnaire for both Principals and teachers. The questionnaire items comprises of both close-ended and open-ended questions, as well as matrix items that give the advantage of collecting both qualitative and quantitative data to generate maximum required information.

### 3.5 Validity of the instruments

Validity indicates the degree of accuracy of the measuring instrument used that is measure what it is suppose to measure. Therefore, relevant, free of bias, reliable and available (McGarty and Haslam, 2003). Based on analysis of the sample study results, rectification was made to the research instruments. The researcher's supervisors helped the researcher to assess the concepts that the instruments were to measure in order to determine whether the set of items accurately represents the items under study. An average index found was 0.761 and this was above 0.7 hence the instrument was accepted as valid as suggested (Amin, 2005).

### 3.6 Reliability of the instrument

A correlation coefficient was adopted which indicated the reliability of the instrument used. The scores were correlated using Pearson's Product Moment Coefficient and this was taken as an estimate of reliability. The coefficient of 0.74 was attained, therefore, the instruments were adopted for use in the study and otherwise necessary adjustments would have been made to the research instruments (Amin, 2005)

### 3.7 Data Analysis Techniques

The data collected was coded and entered in the computer for analysis using the Statistical Package for the Social Sciences (SPSS) version 21 for windows since SPSS is able to handle large amount of data, and given its wide spectrum of statistical data presentation and analysis process. The data was presented using frequency percentages, tables and pie charts analyzed according to the theme in the objectives. Regression analysis was then used to show the extent at which independent variables influenced the dependent variable. Correlation analysis was done to establish the relationship between independent variables.

## IV. RESULTS AND DISCUSSION

### 4.1 Influence of Availability of ICT in Integration of ICT in Resource Planning

### 4.1.1 Gender of the Respondents

The first aspect investigated was gender of the respondents.

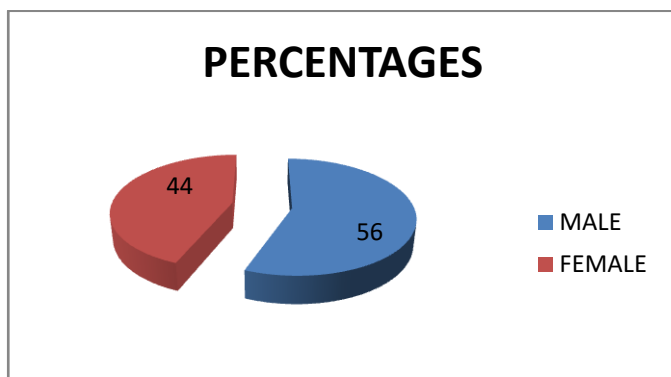Figure 1: Gender of the respondents



Figure 1 shows a disparity between the percentage of male teachers (56%) and female teachers (44%). This shows that in this study, male respondents were more than their female counterparts. This implied that views of male teachers dominated the study and this was taken into consideration during data analysis of other variables.

### 4.1.2 Teachers' Department

The departments in which respondent teachers who participated in this study came from were also investigated.

Table 1: Departments of the respondents

| | | Frequency | Percent | Valid Percent |
|---|---|---|---|---|
| | Technical | 12 | 13.6 | 13.6 |
| | Humanities | 15 | 17.0 | 17.0 |
| | Sciences | 33 | 37.5 | 37.5 |
| | Mathematics | 11 | 12.5 | 12.5 |
| | Languages | 17 | 19.3 | 19.3 |
| | Total | 88 | 100.0 | 100.0 |

Most of the respondents were from sciences (38%), followed by languages (19%), humanities (17%), technical (14%) and lastly mathematics (13%). This shows that views of science teachers dominated the study. This was an advantage to this study since science teachers are likely to have more knowledge on ICT than teachers in other departments. According to Drent and Meelissen (2013), science curriculum contains many topics that need the indulgence of technology among the teachers during instruction. Higher institutions of learning that have embraced this need therefore endeavor to integrate ICT curriculum in the training of their teachers in order to equip them with the prerequisite ICT knowledge that will facilitate better practice and teaching methods in schools. The fact that science teachers dominated in this study could also be as a result that the researcher is a science teacher and knows others science teachers in the district since they meet in various education fields. This factor could have motivated the science teachers to participate in the study.

### 4.1.3 Availability of ICT Infrastructure in Integration of ICT in Resource Planning

Table 2: Availability of ICT Infrastructure

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| | Statistic | Statistic | Statistic | Statistic | Statistic |
| Printers | 88 | 1.00 | 4.00 | 3.3636 | 1.06330 |
| Desktops | 88 | 1.00 | 4.00 | 3.3068 | 1.16814 |
| Phones | 88 | 1.00 | 4.00 | 3.2727 | 1.21037 |
| Television | 88 | 1.00 | 4.00 | 3.0455 | 1.35536 |
| Laptops | 88 | 1.00 | 4.00 | 2.8409 | 1.22133 |
| DVD players | 88 | 1.00 | 4.00 | 2.7955 | 1.39093 |

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Projectors | 88 | 1.00 | 4.00 | 2.6932 | 1.34214 |
| Radios | 88 | 1.00 | 4.00 | 2.6591 | 1.31207 |
| Scanners and cameras | 88 | 1.00 | 4.00 | 2.1932 | 1.32055 |
| Tablets | 88 | 1.00 | 4.00 | 2.0455 | 1.32100 |

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| PowerPoint | 88 | 1.00 | 4.00 | 2.5114 | .93458 |
| Access | 88 | 1.00 | 4.00 | 2.3750 | 1.09662 |
| Office tools | 88 | 1.00 | 4.00 | 2.1932 | 1.07059 |
| QuickBooks | 88 | 1.00 | 4.00 | 1.8295 | .89983 |

As shown in table above, there was no ICT infrastructure that was highly available. Most ICT infrastructures were moderately available and they include printers, desktops, phones, television, laptops, DVD players, projectors and radios, with an average of mean of 3.36, 3.31, 3.27, 3.05, 2.81, 2.80, 2.69 and 2.66 respectively. Scanners, cameras and tablets were seldom available at low level with an average mean of 2.19 and 2.05 respectively.

As shown in table 4 above, most respondents were not highly trained in ICT. The level of training on Microsoft word, emails, Google search and excel was moderate with mean average of 3.22, 3.15, 3.30 and 2.73 respectively. Training in power point, access, office tools and quick books showed a low level training with mean average of 2.51, 2.38, 2.19 and 1.83 respectively. The sum mean average for all the variables was 2.66 implying a moderate level of training. This indicates that, in average, teachers in Mashuuru district were moderately trained in ICT use.

Table 3: Coefficient of Determination – R2 Combined

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .474[a] | .224 | .215 | 6.43449 |

a. Predictors: (Constant), Availability of resources

The regression model's adjusted R-squared was 0.224 as indicated in table 4.5 below. The model therefore explains (22.4%) of resource planning as influenced by availability of resources as an independent variable. This therefore translates to the ten independent variables (Projectors, desktops, printers, tablets, phones, laptops, radios, television, DVD players, scanners and cameras) which explain (22.4%) of the factors influencing integration of ICT in resource planning in schools. The remaining (77.6%) is explained by other factors. This implies that school managers have tried to install ICT infrastructure in schools and the most common once being printers, desktops, phones, television, laptops, DVD players, projectors and radios.

*4.2. Influence of Training on Integration of ICT in Resource Planning*

The second objective of the study sought to establish the level of training of personnel in integration of ICT in resource planning in schools. First, the study established the level of training of teachers on various ICT

Table 4: Level of training of the teachers

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| | Statistic | Statistic | Statistic | Statistic | Statistic |
| Google search | 88 | 1.0 | 4.0 | 3.307 | .8074 |
| Microsoft word | 88 | 1.00 | 4.00 | 3.2159 | .86368 |
| Emails | 88 | 1.00 | 4.00 | 3.1477 | .90388 |
| Excel | 88 | 1.00 | 4.00 | 2.7273 | .95565 |

Table 5: Coefficient of Determination – R2 Combined

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .381[a] | .145 | .135 | 7.38776 |

a. Predictors: (Constant), Level of training

The regression model's adjusted R-squared was 0.145 as indicated in table 4.7 above. The model therefore explains (14.5%) of resource planning is influenced by level of training as an independent variable. This therefore translates to the eight independent variables (power point, excel, Microsoft word, access, QuickBooks, office tools, emails, Google search) which explain (14.5%) of the training factors influencing integration of ICT in resource planning in schools. Therefore, the remaining (63.1%) is explained by other factors.

## V. CONCLUSION AND RECOMMENDATION

*5.1 Conclusion*

Based on the study findings, the study concluded that many schools in Mashuuru district had quite considerable enough ICT infrastructure that can necessitate the utilization of the same in resource planning in schools. Quite a good number of teachers were also trained in ICT and this is attributed to the fact that most of the teachers were young. They had the prerequisite skills needed in the use of ICT in schools. This is why possibly the analysis showed a great influence of ICT infrastructure and training on ICT interaction in resource planning in schools.

*5.2 Recommendation*

Based on the findings, the study recommended the following:

i. Since some schools were having inadequate ICT infrastructure, school principals in liaise with educational officials and the government should endeavor to provide adequate ICT infrastructure in all the schools.

ii.  There is need for schools principals to support teachers for profession growth studies in the line of ICT. Teachers should also make effort to acquire ICT skills so that they can employ the same in resource planning.

iii. Moreover, there is need for the Ministry of Education to develop ICT content since there is still the challenge of inadequate content especially in regard to resource planning and curriculum development.

iv.  There is need to carry out further research to establish other factors influencing ICT integration in resource planning in secondary schools.

## ACKNOWLEDGEMENT

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