Information and Communication Technology towards Improving Teaching and Learning Process in Selected Hai District Secondary Schools

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ABSTRACT
The purpose of this study was to investigate the usage of ICT towards improving the teaching and learning process in selected secondary schools in Hai District. The study established the extent to which teachers and students are endowed with skills in ICT use in enhancing teaching and learning process. Descriptive survey research design was employed in the study applying primary data drawn from a sample of 128 respondents. The findings revealed that majority of teachers have basic ICT skills or training in ICT, although the ICT knowledge is not necessarily linked to teaching and learning process. Moreover, majority of sampled teachers were confident in word processing, although not confident in other aspects such as creating and designing presentations that could have assisted in improving the teaching and learning process. Although majority of school heads had enough working experience, most of them had not attended in-service training in ICT. On the other hand, most students have demonstrated little experience on the use of computers and other ICT facilities. Furthermore, the findings revealed that majority of the respondents particularly students had little access to computers. The study recommends action from the education authorities to consider providing more pedagogical training to teachers in the area of ICT skills. It is envisaged that the integration of ICT will improve the teaching and learning process in schools. The study also recommends for the action from the education authorities to invest in providing and maintaining maximum and appropriate ICT facilities in schools to enable sustainable use of ICT in the teaching and learning process.

Keywords: *ICT, Improved Teaching and Learning Process, Pedagogical Skills*

INTRODUCTION

The use of ICT in the classroom has opened up new horizons and dramatically increased its use, which makes resources from all over the world available to students and teachers at the click of a button (Wahab, 2018). Teaching is therefore becoming one of the most challenging professions in our society where knowledge is expanding rapidly and modern technologies are demanding teachers to learn how to use technology (Ratheeswari, 2018;Wahab, 2018). The use of ICT has challenged traditional teaching methods, transformed instructional practices, and contributed to the development of new instructional methods (Tezci, 2011). With its prospects, ICT usage has become an important component of educational reform and an integral part of the school curriculum (Papanastasiou & Angeli, 2008).

The 21st century skills require the transformed society that can improve the skilled workforce and have a multiplier effect throughout the school system by enhancing learning and providing students with new sets of skills (Shaibou, 2017). The educational prospects of ICT include enriched learning environments, encouraging flexible knowledge construction in complex learning domains, and catering for individual differences (Sang et al., 2010).

The Tanzania Vision 2025 recognizes the role of education as a strategic change agent for the transformation of the economy to a knowledge economy and identifies the potential of ICT to address most of the development challenges, including those presented by education (URT, 2015). On the same note, the Tanzania national ICT policy of 2003 recognizes that ICT can enhance education opportunities and advocates for the introduction of an e-education system (Mafanga, 2016). The Education Sector Development Plan (ESDP) recognizes the role of computer studies in fostering technological and scientific developments, with the education sector review reiterating the need to expand the use of ICT to improve the quality of education. ICT has the potential to transform the nature of education and the roles of students and teachers in the teaching and learning process (Mafanga, 2016).

Tanzania's government, through the Ministry of Education, Science and Technology (MoEST), has implemented many programs and initiatives that aim at integrating ICTs into the teaching and learning process. The initiatives include the National Programme on ICT for Secondary

Schools, the ICT in teachers' colleges project, implemented from 2005 to 2008 by MoEST in Tanzania with the Government of Sweden through SIDA (URT, 2015). Despite numerous determinations made by the government of Tanzania, including fast development in ICT awareness by teachers and students, most teachers are not using ICT in teaching and learning process and persistently use traditional methods of teaching (Wahab, 2018). This implies that effective usage of ICT for teachers in terms of knowledge and attitudes has not yet been fully explored (Ngeze, 2017). ICT integration into teaching is limited to few specific resources and frequently applied to perform traditional teaching activities (Brun & Hinostroza, 2014). This shortfall in the learning output creates a gap because it is at secondary schooling where returns to student education are highest and it is important to acquire skills and competencies needed to become ideal to respond to social change (Obonyo, 2013).

The constructivist learning theory has been identified as the most suitable one for the use of ICT in teaching and learning process (Hung, 2001). Constructivist learning theory is based on educational psychologist Jean Peaget (1896–1980), who was the first theorist who regarded children as builders of their intellectual structures. He posits that learning takes place by learners completing tasks for which support (scaffolding) is initially required. Computer-supported learning environments are those in which computers are used to either maintain a learning environment or used to support the student learner in a Vyotskian sense. These educational theories have further been developed by a number of constructivists (Wilson, 1996; Duffy et al., 1993) in the recent years.

Regarding the application of ICT in a constructivist approach Eid (2014) in his study argued that the use of ICT enables opportunities for learning environments and practices that require interaction among individuals, co-operation with chances to experience learning, and the principles which constructionist supports. Anderson & Kanuka (1999) provide an example of the use of the internet for learning, as learners use the internet and explore it in different ways and in different directions. The integration of ICT into the teaching and learning process has been linked and/or based on constructivist learning paradigms and teaching methods.

There are substantial studies on the integration of ICT in the classroom. In a global context, both developed and developing countries recognize the

value of integrating ICT tools for their economic development. Developed countries like the US, for instance, spend more than US $10 billion annually on educational technology in public schools while Australia spends approximately AUD $8 billion on ICT integrated activities in schools (Albugarn& Ahmed, 2015). Similarly other developing countries like India and Uganda have adopted programs aimed at implementing ICT integrated pedagogies to reinforce the teaching and learning process (Ssewanyana & Busler, 2007). They believe the use of considerable ICT tools acts as sufficient drivers to boost the country's education towards creating economy-based development. Previous research indicates that the sheer presence of ICT does not directly influence teaching, but instead it should be effectively intergraded with teaching content and pedagogies (Earle, 2002). Not only does ICT benefit students, but it also provides a learning platform for teachers by enabling them to take ownership and practice knowledge renewal on their own (Li et al., 2018).

Ngeze (2017) conducted a study and found that the government of Tanzania has invested heavily on ICT in education activities, including provision of ICT training to secondary school teachers and supply of some of the ICT equipment in selected schools. Many programmes have been put in place to help increase access to ICT infrastructure in schools. Despite the efforts made by the Tanzania government in secondary schools, schools do not have enough ICT facilities where as the urban private schools prevail more in ICT use than government schools (Malekani, 2018; Malero et al., 2015,).

Other studies examined various issues particularly students' intention to use ICT as well as their happiness with it. By using Technology Acceptance Model significant relationship was found between computer self-efficacy, computer anxiety, and perceived enjoyment-factors that were all significant in determining perceived utility and usability. The study by Wahab (2018) revealed that students look forward to their computer classes and are quite familiar with search engines like Google. This implies that despite knowing that our students are technology savvy they are taught using traditional methods (Sayaf et al. 2021; Al-Rahmi et al., 2020).

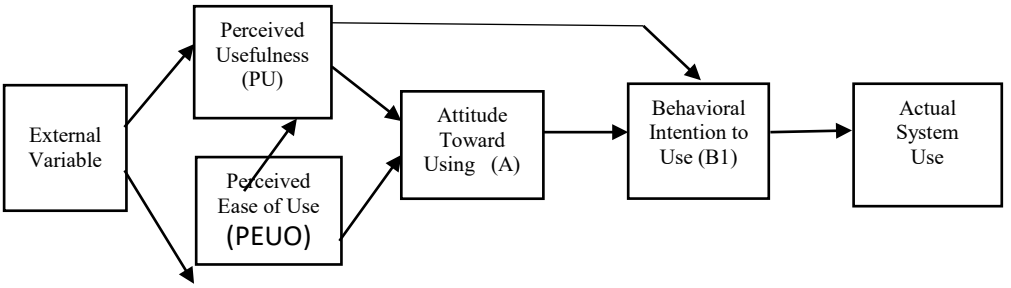
In other African countries the situation is the same where teachers' use of ICT was still confined to basic and traditional activities such as searching

for information and making class presentations (Buabeng, 2019). Also lack of basic understanding among both students and teachers of how equipment functions; lack of mastery of ICT teaching techniques; lack of teachers' training among other issues hinder the use of ICT in teaching and learning process ((Alkahtani, 2017).

Therefore, this study investigated the usage of ICT in teaching and learning process and conceptualized on teachers and students' levels in ICT skills by using the selected secondary schools in Hai district. The researcher justifies Hai district council in Kilimanjaro region as research site since according to Kate Dyer, (2008) the area is considered privileged in terms of access to basic services such as ICT. While ICT has been used in various ways to support teachers, some of the literature points to the fact that little evidence exists supporting the claim that ICT has transformed the education system (Twining & Henry, 2014) therefore a need for further studies.

Conceptual framework

Figure 1: *A conceptual framework for the usage of ict in teaching process*



Source: Technology Acceptance Model (TAM). Adopted from Davis (2003)

The frame work contains external variables that represent social-political factors which define the possible issues that can impact the actual system use in the frame work. On the other hand, the internal variables (two factors PU and PEOU) in the above frame work represents the degrees to which teachers both believe that using a particular technology (that is, ICT use in teaching and learning process in secondary schools) would enhance their job performance. In addition, teachers are more likely to have a positive attitude to use ICT in the classroom and easy-of-use of the

technology (that is, ICT use in teaching and learning process in schools) defined as the degree to which the prospective user (that is, teacher) expect the target system to be free of effort. These are important variables which determine the actual use, (that is, use of ICT in teaching and learning process).

In addition, the internal variables in the above frame work, that is, attitudes towards using (A), represents teachers' positive or negative attitudes about performing the target behaviour (that is, using ICT in teaching and learning process). On the other hand there is Behavioural Intention (B1), which is the degree to which teachers have formulated conscious plans to perform or not to perform some specified future behaviour. The two internal variables (A and B1) in the framework are strongly influenced by the external variables (PU and PEOU). Both external and internal variables in the frame work form the independent variables which determine the dependent variable, actual use of the system in the frame work.

RESEARCH METHODOLOGY

This study used qualitative and quantitative research approaches where as qualitative approach was the main research approach. Kothari (2014) argues that qualitative approach to research is concerned with assessment of attitudes, opinions and behaviour. Such an approach to research generates results either in non-quantitative form or in the forms which are not subjected to rigorous quantitative analysis. Kumar (2011) also argue that when the researcher needs to evaluate the opinions from the participants, there should be the use of qualitative approach because it allows in-depth interviewing to obtain the opinions from the respondents.

The study used descriptive research design which is mostly appropriate for social sciences research and particularly a cross-sectional design that allows the collection of data on more than one case at one point in time. In other words, descriptive survey research design presents an opportunity to fuse both quantitative and qualitative data as a means to reconstruct the "what is" of a topic. Trochim, (2006) states that, a descriptive survey design is a very valuable tool for assessing opinions and trends. The main purpose of a descriptive survey design is to obtain information from a defined set of people so as to generalize the sample results to the population. In the case of this study, descriptive survey design was therefore seen appropriate because of observing the phenomenon in

completely natural environment and the need of integrating the qualitative methods of data collection (Foxand,2007).

Sample size and its distribution

The sample in this study was selected to accept arguments that the target population should have some observable characteristics to which the researcher is intending to generalize (Mugenda, 2010). The sample size involved 8 selected secondary schools out of 43 schools which constituted an approximately 19 percent of the targeted population. A sample size of between 10 and 20 percent of total population is considered to be a representative of the population and it is therefore representative for a descriptive survey study (Gay and Airasian 2003). The researcher therefore expected the 8 schools to provide valid information about usability f ICT towards improving teaching and learning process from the target population.

The sample included four categories of respondents. The first category was the eight (8) heads of schools to represent 43 ordinary level secondary schools' heads in Hai district. The second category of teachers was 8 teachers who were involved in ICT programmes in each of the 8 schools. The third category of respondents was 111 form four students selected randomly from eight sampled schools to get at least 13 students in each school.The students were selected by using simple random sampling technique where the papers containing names of students were folded and picked randomly by the students. Random sampling technique is the one in which each element of the population has an equal and independent chance to be selected by stratified randomization (Probate et al, 2015). The fourth category was one DSEO. A total of 128 respondents from the entire population were involved in this study. Table 1 provides study sample categories.

Table 1: Study Respondents from Eight Sampled Schools

S/N	Name of school	Number of school heads	Number of teachers	Number of Form four students (enrolment)	Number of sampled Form four students	Number of DSEO 1
1	Boma	1	1	150	14	
2	Hai	1	1	226	14	
4	Lukani	1	1	63	14	

5	Mailisita	1	1	130	14	
3	Masama girls	1	1	90	13	
6	Nkokashu	1	1	90	14	
7	Roo	1	1	119	14	
8	Uroki	1	1	87	14	
	G total	8	8	955	111	1

Source: Field Researcher, 2021

The researcher employed a random sampling technique to select a sample of 128 teachers and students. The schools were carefully selected to balance both schools with computer used for instructional purposes and those which do not have the computer facilities. The sample in this study was selected to accept arguments that the target population should have some observable characteristics to which the researcher is intending to generalize as argued by Mugenda, (2010).

Data collection methods

The study comprised both primary and secondary sources of information. The researcher reviewed the existing secondary data sources to compliment the primary data. The documents were books, articles, journals, electronic data from various websites, policy documents and research reports all of these were carefully scrutinized and their findings were referred in this study.

Primary data were collected via questionnaires that were used to collect data from the school heads, teachers and students. Questionnaires were preferred because they require little amount of funds and materials as well as time (Meero, 2009) where as anonymity is also possible. In order to explore the availability and potentialities of ICT resources in teaching and learning process data was collected using three sets of questionnaires. The three sets of questionnaires included; heads of schools' questionnaires, teachers' questionnaires as well as students' questionnaires that were administered to the form four students. Form four students were used with assumption that they were relatively literate and therefore can respond well to the questions.

The questionnaires with likert scale and multiple-choice questions were administered to the teachers and students to get their responses about the

usage of ICT towards improving teaching and learning processes. Observation was also usedas a method that assisted to collect real data in a natural setting (Flick, 2017). The researcher observed the ICT infrastructure situation in schools, availability of computer laboratories, access and use of ICT facilities to teachers and students as well as the technical support available to enhance teaching and learning process.On the other hand, the interview was employed to collect data in the study because this data collection tool is considered superior to other tools since individuals are sometimes more eager to talk than to write. In addition, certain types of information may be acquired that respondent might be unwilling to put into writing, the researcher can also describe and clarify more clearly the purpose of research and the desired information as well as the probability to seek same information in several ways in order to check the truthfulness of the responses (Best and Kahn, 2014).Therefore, the interviews were adopted to help the researcher to gather relevant information from the DEO and teachers about their experience on the usability of ICT towards improving teaching and learning process. In view of the four objectives of the study, the interview guides for the school heads, teachers and students were organized.

FINDINGS AND DISCUSSION

Demographic information of the respondents

Findings in table 2 indicate that 76 (55.9%) of the respondents were females, while 52 (51.1%) of the respondents were males. The data revealed that majority (%) of respondents were females. Also, results in table 1 indicate that majority of the school heads and teachers (56.3%) were within the age range of between 35-45 years. Few school heads and teachers (25%) were in the age of 45 and above years and few teachers (18.5%) were in the age of between 25-35 years. The findings of the study imply that teachers and school heads differ in their age groups. This is a critical aspect of ICT use, as the youngest group of teachers have increased their self-evaluated ICT use more than the oldest group.

Also, in finding out the administrative experience of the school heads, school heads were asked to rate their own administrative experience as ICT coordinators by years in their current schools. The researcher grouped school heads into three administrative experience groups. The results show (12.5%) has served for 1-2 years while (87.5%) have served for more than 5 years. These findings imply that majority of the school heads had enough experience to help the study get relevant responses due

to their rich working experience. Further, the time that school heads had in a current school was considered important for the heads of school's engagement in planning and implementation of ICT integration in their respective schools. On the same note, teachers with more experience (62.5%) are more effective than less experienced teachers (12.5%). Moreover, the findings of the study in table 2 revealed that majority of the school heads, and teachers, 87.3% are first degree graduates and a few, 12.7% post-graduate, and therefore they have vast experience to plan and organize the use of ICT in teaching and learning process.

In addition, the findings in table 2 revealed that majority of teachers (62.5%) had experience on computers for more than 5 years, while 12.5%, 12.5%, and 12.5% of the teachers had experience of less than 1 year, 1-2 years, and 3-5 years respectively. This implies that teachers in schools under study have potential experience to use ICT in teaching and learning process since they have taught for more than a year.

Table 2: Respondents' profile

Characteristics	Profile	Frequency	Percent (%)
Gender	Male	52	51.1
	Female	76	55.9
	Total	**128**	**100**
Age of teachers	Below 30 years	3	18.5
	35 – 45 years	9	56.5
	45 above	4	25
	Total	**16**	**100**
School heads working experience	Less than 1 year	0	0
	1- 2 years	1	12.5
	3 -5 years	0	0
	Over 5 years	7	87.5
	Total	**8**	**100**
Teachers' qualifications	Diploma	0	0
	First degree	13	87.3
	Master	3	12.7
	Total	16	**100**
Teachers' working experience	Less than 1 year	1	12.5
	1 -2 years	1	12.5
	3 -5 years	1	12.5
	Over 5 years	5	62.5
	Total	**8**	**100**
Teachers' computer training	Yes	16	100
	No	0	0
	Total	**16**	**100**
Teachers' computer experience	Less than 1 year	1	12.5
	1 -2 years	1	12.5
	3 -5 years	1	12.5
	5 and above years	5	62.5
	Total	**8**	**100**

Source: Field Data (2021)

Teachers' computer possession

Teachers were asked to indicate their computer possession. The findings are shown in table 3.

Table 3: Teachers' computer possession

Computer Possession	Frequency	Percentages
Yes, a desktop computer	-	-
Yes, a laptop computer	8	50
Yes, both of them	4	25
No	4	25
Total	**16**	**100**

Source: Field Data (2021)

The findings in table 3 revealed that 8 out of 16 sampled teachers (50%) owned laptop computers. Few teachers owned both laptop and desktop computers (25%), while few of them (25%) did not possess any computer. The findings imply that majority of teachers owned either a laptop or desktop computer that could have assisted them in facilitating teaching and learning process in the classroom. However, the observation revealed that although teachers had availability of laptops, the application of these facilities in teaching and learning process was very minimal. When asked during the interview teachers revealed that they had limited skills and knowledge of using ICT facilities during the teaching and learning process particularly using computers and accessing materials from computers. Related findings were also reported in previous studies that, the success of educational innovations depended largely on the skills and knowledge of teachers (Pelgrum, 2001).

The study findings imply that, most teachers have some ICT facilities such as laptops but lack skills and knowledge in creating and designing computer-based lesson presentation. In addition the interview revealed that lack of technical support on ICT use is a major challenge that hinders the ICT use in teaching and learning process. The respondents reported the lack of technical support in preparation and presenting ICT lessons and ICT pedagogical skills. The similar study by Pelgrum (2001) found that in the view of primary and secondary school teachers, one of the top barriers to ICT integration in education is lack of technical support. It is envisaged that without good technical supports in the classroom teachers cannot be expected to overcome the barriers preventing them from using ICT in teaching and learning process.

Teachers' knowledge, skills and experience in the use of ict

The school heads and other selected ordinary teachers were also asked to indicate the core theme of the training that they had attended. The findings are summarized in table 4.

Table 4: ICT training core themes

Training Core Theme	School Heads		Teachers	
	Frequency	Percent	Frequency	Percent
Basic computer literacy, not necessarily linked to teaching	5	63	4	50
Use of ICT hardware and software linked to teaching and learning	1	12	2	25
Use of ICT for improving pedagogy and classroom management	2	25	2	25
Total	**8**	**100**	**8**	**100**

Source: Field Data (2021)

The findings in table 4 indicate that majority of teachers (50%) and school heads (63%) had attended courses or training in ICT whose core theme was basic computer literacy that was not necessarily linked to teaching and learning process. Few school heads, (12%) and teachers, (25%) had attended training on the use of ICT hardware and software linked to teaching and learning process, while 25% of heads of schools and 25% of ordinary teachers had attended training on the use of ICT for improving pedagogy and classroom management training.

The findings of the interview also revealed that all interviewed teachers and school heads attended courses or training in ICT whose core theme was basic computer literacy. In addition, it was observed that limited ICT facilities hinder the use of ICT in teaching and learning process. During the interview, teachers also indicated that they have basic computer literacy but it was difficult to apply the skills in teaching and learning process due to among other issues lack of technical support. The findings concur with studies conducted by Keengwe et al. (2008) and Ertmer (2014) who confirmed that effective use of ICT would require the availability of equipment, supplies of computers and their proper maintenance, including other accessories.

The observation schedule revealed that most teachers find difficult to get time to prepare ICT based lesson because they have heavy weight of daily time table class periods. The challenge is supported by Ihmeideh, (2009) who reported lack of time as one of the biggest constraints to the integration of ICT in the teaching learning situation. On the other side the DSEO was asked to indicate whether teachers in his respective district have ICT regular in-service training to equip them with skills on how ICT can be applied to enhance teaching and learning process. The response indicated that there is no organized in-service teachers' ICT training within Hai district ordinary secondary schools. The school heads and teachers were also asked to indicate the core theme of the course or training that they had attended. The findings are summarized in the table 5

Table 5: ICT training core theme

	School heads		Teachers	
Training Core Theme	**Frequency**	**Percentage**	**Frequency**	**Percent**
Basic computer literacy, not necessarily linked to teaching	5	63	4	50
Use of ICT hardware and software linked to teaching and learning	1	12	2	25
Use of ICT for improving pedagogy and classroom management	2	25	2	25
Total	**8**	**100**	**8**	**100**

Source: Field Data (2021)

The findings in table 5 indicate that majority of the respondents (50% of teachers) had attended course or training in ICT whose core theme was basic computer literacy not necessarily linked to teaching and learning process. A few school heads,13% and teachers, 25% had attended use of ICT hardware and software linked to teaching and learning while 25% heads of schools and 25% teachers have attended use of ICT for improving pedagogy and classroom management training.

Teachers interview responses revealed that all eight (100%) of the interviewed teachers, stated to have basic skills in ICT use but three teachers responded that they had very limited basic skills in ICT obtained from their pre-service teacher training. The findings from interview further revealed that only three teachers out of eight teachers responded to

have skills in ICT lesson presentation and two of them were observed by the researcher while teaching through laptop and projectors in the classroom.

Examples of the feelings shown by some of the teachers about their skills in ICT use in teaching and learning process are presented in the utterance below:

> *I have little basic skills in computer but particularly the use of ICT in teaching and learning process. In addition we are facing the challenge of insufficient available computers as compared to number of teachers in school* (Teacher respondent 03).

Another teacher respondent had this to comment

> *I have no skills in computer use. I can neither open a computer nor access material in computer but I can access teaching materials through a smart phone. I also think that teachers' skills in ICT use should be improved* (Teacher respondent 07).

These findings reveal that majority of school heads and teachers are computer literate. However, their training typically concentrated on the knowledge about ICT and not its use in teaching and learning process and hence lack of understanding and competence about how to readily use ICT skills in teaching and learning process. The findings concur with Obonyo, (2015) who suggested that more teachers are becoming computer literate to meet the demands of the 21st century. The findings provide strong indication that the use of ICT in improving teaching and learning process has not been fully contained by secondary school teachers. The trend is likely to influence teachers' pedagogical approaches in teaching and learning process as well as students' attainments.

Teachers in-service training in ICT

Teachers were also asked to indicate their status of ICT in-service training. The findings in table 4 revealed that 75% of school heads have not attended in-service training in ICT, while only 25% of them attended in-service training in ICT.

Table 6: Teachers' in-service training in ICT

Teachers in-service training	Frequency	Percentage (%)
Yes	2	25
No	6	75

Total	**8**	**100**

Source: Field Data (2021)

The findings in table 6 imply that although majority of the teachers had enough working experience (more than 5 years); most of them had not attended in-service training in ICT. Therefore, regardless of some of the teachers to be competent in some basic ICT applications such as Microsoft word processor and excel, they were seen to have limited skills in creating and designing computer-based presentations. Moreover, the interview schedule revealed that most of the teachers had ICT training via their own initiative. The findings from the interview indicated that teachers are taking their personal initiative to acquire ICT skills and knowledge although they are not able to apply the acquired skills due to insufficient ICT facilities among other reasons.

The observation findings have shown that few teachers were confident in creating and designing presentation using ICT facilities while majority of teachers were not confident because they did not attend in-service training. The challenge is not common in the sampled secondary schools of this study alone. The previous study by Morgan (1996) contended that integrating technology in the curriculum requires knowledge in the subject areas, an understanding on how students learn and a level of technical expertise. The study findings imply that the respondents' limited knowledge and skills hinder schools' expectations to use ICT in teaching and learning process.

Students access to computers

Students were asked to indicate if they have access to computers in learning process. The findings are analyzed in table 5.

Table 7: Students' access to computer

Students Access to Computer	Frequency	Percentage (%)
Yes	46	41.4
No	65	58.6
Total	**111**	**100**

Source: Field Data (2021)

The findings in table 7 show that 65 students (58.6%) had no access to computers, while 46 students, (41.4%) had access to computers. These findings reveal that majority of the sampled students had no access to

computers. It was envisaged that it is necessary for students to have ICT knowledge as they can apply the knowledge to facilitate their learning process.

However, the impact of ICT on education has just begun to be felt as teachers have started to take their own initiative to acquire ICT knowledge and skills in the teaching and learning processes. The internet brings information, data, images, and even computer software into the classroom from places otherwise impossible to reach, and it does this almost instantly. Access to these resources through the internet can facilitate meaningful learning individually as well as through collaborative learning arrangements (Wahab, 2018).

The findings from the observation schedule revealed that some of the sampled schools have access to the ICT facilities such as computers, internet, CD and DVDs particularly at their offices. However, these facilities were not integrated in teaching and learning process. The results concur with previous study by Keengwe and Onchwari (2008) who confirmed that effective use of ICT would require the availability of equipment, supplies of computers and their proper maintenance including other accessories. Further, few teachers were observed to own privately some ICT facilities in schools in their initiative effort to use ICT in enhancing the teaching and learning process.The implication of this study findings shows that most schools have insufficient ICT facilities that hinder the integration of ICT in teaching and learning process.

Using computers to do assignments

Students were asked to indicate the use of computers to do assignments. The results are indicated in table 8.

Table 8: Using computers to do assignments

	Frequency	Percent (%)
Very unconfident	14	12.6
Not confident	38	34.2
Unsure	15	13.5
Confident	27	24.3
Very confident	17	15.3
Total	**111**	**100**

Source: Field Data (2021)

Findings in table 8 show that 38 respondents (34.2%) were not confident in using computers to do assignments, while 27 respondents (24.3%) were confident. Also, 15.3% of the respondents were very confident in using the computer to do their assignment, while 12.6% of the respondents were very unconfident and only 13.5% of the respondents were very unsure about using the computers to do their assignment. Therefore, the findings of this study imply that majority of the respondents were not confident in using computers to do assignments. The study reflects the results by Ngeze (2017), which revealed that most of the surveyed secondary schools' (77.0%) possess either a laptop or a Smartphone or both. This implies that they are ready to use such tools in the teaching and learning process if they are directed on how best they can be used.

On the other side, the findings revealed that most students possess some skills in ICT including the ability to do assignments by using a computer and access materials from a computer. Related findings were also reported in previous studies that integrating technology into the curriculum requires knowledge in the subject areas, an understanding of how students learn as well as their level of technical expertise (Morgan, 1996).Students have positive attitudes towards integrating ICTs in learning process as well as enhancing students- teacher interaction. The study findings imply that students are willing and have positive perceptions towards using computers in doing their assignments although they are facing some challenges including insufficient ICT facilities to be used in learning process.

Searching of information on the internet

Students were also asked to indicate whether they were using computers to search information from the internet. The findings are indicated in table 9.

Table 9: Searching of information from the internet

	Frequency	Percent (%)
Very unconfident	13	11.7
Not confident	20	18
Unsure	19	17.1
Confident	19	17.1
Very confident	40	36
Total	**111**	**100**

Source: Field Data (2021)

Findings in table 9 show that 18% of the respondents were not confident in searching for information on the internet, while 17.1% of the respondents were confident. Also, 40 respondents (36%) were very confident in searching information on the internet, while 13 respondents (11.7%) were very unconfident and only 19 respondents (17.1%) were very unsure about searching for information on the internet. The findings revealed that majority of the respondents were very confident in searching information on the internet.

The findings indicate that although some of the students were confident in using technology to search for learning materials, the success of educational innovations depends largely on the skills and knowledge of both students and teachers. The study findings imply that most students have some basic potential skills in ICT usage but lack skills in searching information from the internet. Also, the study findings imply that most students have limited computer knowledge and skills or are computer illiterate. Moreover, there is a computer competency gap between teachers and students where the findings show that most of the teachers in the study possess more ICT skills as opposed to students. In addition, computer supported infrastructure is a barrier in usage of ICT in teaching and learning process. This study matches with Obonyo, (2013) who argued that the use of ICT in education is lagging behind expectation and desire in most of the secondary schools where only a fraction of computer laboratories was furnished with basic ICT infrastructure necessary for teaching and learning process. The implication of this study shows that limited ICT infrastructures hinder the ICT usage in teaching and learning process in sampled schools.

CONCLUSION

The study clearly indicates that there is a gap between teachers and students experience, knowledge and skills in ICT usage in teaching and learning process. This shows that while teachers are making their own initiative to acquire ICT skills and knowledge, little has been devoted to engage students in ICT. Even though, the study findings imply that regardless of numerous advantages of using ICT, teachers have insufficiency competency to implement ICT in their teaching and learning process. The findings signify limited use of computer and poor ICT use coordination in schools. Although the study findings show that most of the teachers have demonstrated proficiency in basic ICT applications such

as Microsoft Word, Excel, and others, however, teachers have insufficient competence in designing computer-based lesson presentations, thus being unable to integrate their limited ICT technological knowledge with pedagogical content. Teachers, therefore, require appropriate training for the full integration of ICT in teaching and learning process. On the part of the students, most students have limited skills and knowledge in using ICT in various classroom activities such as doing assignments by using computers and basic computer applications like Microsoft Word processor and the like.

It is envisaged that computer use enhances efficient teaching and learning process that can improve the students' performance, ICT enhances students - teacher interaction, computer use improves creativity and it provides opportunities to teachers to obtain teaching resources. Despite various challenges, teachers and students indicated to have positive attitudes in ICT use to enhance teaching and learning process in schools. The main implication of this study is that though most teachers have positive attitudes towards ICT integration and have basic ICT skills, little weight have been invested to fully integrate ICT in teaching and learning process and therefore, traditional paradigm of teaching delivery is applied in schools. ICT usage in teaching and learning process is crucial to improve students' performance and to enhance education technological transformation particularly in the 21st century**.** In line with the study findings, the following conclusions can be made; teachers and students require appropriate training for fully integration of ICT in the teaching and learning process. Schools should be provided with more ICT infrastructures, computer laboratories, technical assistance and coordination to successfully use of ICT in teaching and learning process. In order to ensure that ICT is extensively applied in teaching and learning process in secondary schools, the study therefore concludes that the ministry of education in Tanzania should facilitate the training as well as the provision of ICT facilities in schools.

RECOMMENDATIONS

The study recommends action from the education authorities to consider providing more training to teachers in ICT pedagogical skills in order to enable ICT integration to improve teaching and learning process in schools. The study further recommends the policy makers and planners to consider investment in ICT use in teaching and learning in secondary schools. The study also recommends action from the education authorities

to seriously invest in providing and maintaining maximum and appropriate ICTs facilities in schools to enable fully ICT use in teaching and learning contents and more encouragement to schools, students and teachers to own some ICT facilities such as laptops or desk tops and other ICT gargets to enhance more access to ICT facilities. Moreover, students should be equipped with ICT skills and knowledge in order to be involved practically in using ICT to support their learning activities such as doing assignments and searching for learning resources from the internet. The tradition method of teaching and learning is substituted with ICT usage paradigm delivery. Study findings suggest that teachers need to be supported in their effort to integrate ICT in the teaching and learning practices. It is moreover recommended that teachers should particularly be supported with technical support to encourage successful usage of ICT in teaching and learning process. Students should be equipped with ICT skills and practically involved in using ICT in learning activities such as doing assignments and searching the learning materials from internet.

The study recommends the following related areas for further research: The study was merely carried in Hai district secondary schools involving narrow sample, the researcher therefore recommends that comparable study can be done in other parts of Tanzania with large samples for generalization purposes to adequately disclose the status of ICT usage in teaching and learning and the underlying challenges affecting them. Further research should also be designed to investigate skills, experiences and perceptions of teachers and students on ICT usage in teaching and learning process. This can only be possible if teachers will be trained to change their teaching delivery from traditional teaching to ICT based teaching delivery.

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