# International Journal of Social Science and Human Research

# Students' Access to ICT Tools and Implementation of the 'O' Level ICT Curriculum in Government Secondary Schools Mbale District, Uganda

Wamimbi Mbanazo Fred[1], Dr. Matovu Musa[2], Dr Bisaso Ssali Muhammadi[3]

[1]Doctor of philosophy of education, Department of Curriculum and Instruction Faculty of Education, Islamic University in Uganda

[2,3]Supervisors: Associate professor, Department of Curriculum and Instruction Faculty of Education, Islamic University in Uganda

**ABSTRACT:** In the current digital era, ICT use in the classroom is important for giving students opportunities to learn and apply the required skills. Therefore, this study sought to identify the level of ICT tools' accessibility by O' Level students in government secondary schools in Mbale District. A quantitative research design was used to collect the data from a sample of 192 that included school head teachers, teachers and students. Overall, the key challenges found identified in using ICT tools were: lack of access to laptops, printers and computer laboratories, projectors and screen. This poor accessibility was due to; high student-computer ratio, unreliable power supply, lack of trained ICT personnel, lack adequate funding for ICT tool procurement and maintenance, inadequate administrative support, limited time for practice, and unstable and slow internet. The results show that students in the study area were not easily accessing the necessary ICT tools and this had a significant relationship with the implementation of the O' Level ICT curriculum. It is recommended that the responsible education stakeholders enhance increased student access to ICT tools.

**KEYWORDS:** Access, Curriculum Implementation, ICT Tools

## INTRODUCTION

Information and communication technology (ICT) has been the most common ways of promoting socio-economic development, poverty alleviation and improvement of social welfare in any country. This has made many developing countries like Uganda to start investing in ICT driven curriculum. Since independence Uganda has had many policies as regards to the inclusion of ICT in all spheres of life. Educationists and curriculum developers have equally developed and advanced the school curriculum to take care of the immediate and future scientific and technological needs of the society with a view of making graduates of the school system self-reliant, employable and highly productive in the face of increasing levels of unemployment.

The importance of ICT in scientific and technological development of any nation has been widely reported (Webber, 2018). It was because of this importance in national development that Ugandan government made it compulsory that ICT be included in the secondary school curriculum, (MOES, 2013). This was confirmed by Mushemeza (2019) who asserted that a recent development in science education and virtually other fields is the application of Information and Communications Technologies (ICTs) in classroom instruction. ICT is said to be a range of technology for gathering, storing, retrieving, processing, analyzing and transmitting information. It encompasses a wide range of technology like Telephone, Computer, Satellite, Telex, Fax, Radio, Television, Software, Hard ware, Projectors, Video and Bulletin board to mention but a few (Asongo, 2012). Information and communication technology tools are used in working on information and communication processing needs; these include computer hard and software, network and other digital devices such as video, audio, camera and others that convert information (text, sound and motion) into digital form (Ndiwalana & Tusubira, 2012).

Information and Communication Technologies as tools within the school environment entails the use modern instructional facilities for school administration and management, teaching and learning of ICT related skills for enhancing the presentation of classroom work. It also involves the use of ICT for thinking and problem solving, stimulating creativity and imagination, research by teachers and students and as communication tool by teachers and students (Collis & Moonen, 2011; Derbyshire, 2013). In the context of this study, ICTs are regarded as all those resources, both hardware and software that facilitate the implementation of ICT curriculum in teaching and learning of school subjects. These include simulations, projectors and screens, desktop computers/laptops, tablets,

**Students' Access to ICT Tools and Implementation of the 'O' Level ICT Curriculum in Government Secondary Schools Mbale District, Uganda**

printers and UPS, Computer Assisted Instructions (CAI), Microsoft office among others. The accessibility of these resources may enhance the implementation of the curriculum in schools, which has an impact on the quality of teaching and learning.

As much as ICT is important in education, efforts by government to improve its usage in schools are insufficient as there have been reports of consistent poor performance of students in various school subjects in both internal and external examinations. This poor students' performance in various school subjects has been attributed to many factors such as lack of competent teachers, poor remuneration of teachers, poor supervision of the teachers, lack of use of instructional materials, especially modern instructional materials like ICT, (Audu, 2016). This ugly trend has been a source of worry to many concerned Ugandans; Educationists, Scientists, and Policy makers (Ochu & Haruna, 2014).

The UNEB reports in various school subjects in the previous years have consistently faulted the method of instruction devoid of the use of ICT in the classroom. The report suspected that the poor performance of the students was related to the failure of the school system to fully implement ICT curriculum, especially in method of instruction. Recently, emphasis has shifted from traditional methods of instruction in school to modern methods of instruction driven by ICT. Traditionally students were only engaged in activities that lead to verification of information already established by others. This provides little incentives for further inquiry which is enabled by ICT, (Ugwuoke, 2017).

Similarly, the UNESCO Institute for Statistics (UIS, 2020), the arm of the United Nations charged with collecting global data related to education recently came out with a report that provided some useful data that can help outline the general shape of some of what is happening across the African continent as it concerned the availability and use of educational technologies. The report noted that limited data of ICT education in the continent. Therefore, collecting more and better quality statistics on accessibility of ICT tools in for ICT curriculum implementation in Uganda was a priority in this present study, given the growing role of ICTs in education.

Accessibility refers to the extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of characteristics and capabilities to achieve a specified goal in a specified context of use, (Pelgrum, 2011). Efforts, by various governments at all levels, are being made to provide educational resources such as information and communication resources in public schools for effective classroom instruction. For these resources provided to the schools to be productive and achieve their primary goals, the resources have to be put to use. Often time, these resources are kept in head teachers' offices or more restricted places. When these resources cannot be used by the students and teachers for teaching and learning, respectively, they are considered to be inaccessible. Accessibility can be viewed as the "ability to access" and benefit from something. The concept focuses on enabling access for people with disabilities, or special needs, or enabling access through the use of assistive technology; however, research and development in accessibility bring benefits to everyone. In the context of ICT usage, ICT accessibility is a situation whereby ICT tools can be used by all its intended users, taking into account their differing capabilities. A person's ability to use technology may be impaired due to various physical, sensory, emotional or cognitive disabilities, (Marcelle, 2000). Communication and Technology can affect the delivery of education and enable wider Access to the same. In addition, it may increase flexibility so that learners can access the education regardless of time and geographical barriers. The question is often put whether ICT access can really support and improve learning and the quality of instruction and, additionally, in which way, under which conditions and for what it can be useful in ICT curriculum implementation. Owning to these possible challenges to ICT accessibility, it becomes necessary to determine the extent of accessibility of ICT tools for the ICT curriculum implementation in secondary schools in government aided secondary schools in Mable District.

**Problem Statement**

Effective learning entails efficient use of applicable teaching methods and use of appropriate instructional materials. Application of ICT instructional materials are an important aspect in the teaching in secondary schools as it has been seen to have positive impact in the performance of students in every subject since it has the capacity of increasing and sustaining the interest of the students in the teaching and learning process. However, the persistent poor student performance in government aided secondary school in information and communication technology subject in Uganda, especially in Mbale district, is a threat to the country's economic, social, scientific and technological development MoES (2019),. Ministries of Finance, Planning and Economic Development and of education under standards agency point out factors like monotonous and ineffective methods of instruction that hinder ICT curriculum implementation (Ministry of Finance, Planning and Economic Development., 2020). It is worrisome that in spite of the innumerable benefits of ICT curriculum implementation in subject instruction, there are indications, as shown by various studies, that the consistent poor performance of the students in various school subjects is still on the increase. If this situation continues, it might lead to the production of half-baked school leavers, who might not be able to stand on their own and defend themselves in the ever-advancing world of information and communication technology. There is doubt on whether these ICT tools are accessible for effective ICT curriculum implementation. This doubt extends to the accessibility of these ICT tools in government aided secondary schools in Mbale District for proper implementation of ICT curriculum. Again, there is no sufficient evidence to show the reasons for the suspected discrepancies in ICT curriculum implementation in government aided secondary schools. These unanswered questions are the problem that this study sought to investigate upon.

**Students' Access to ICT Tools and Implementation of the 'O' Level ICT Curriculum in Government Secondary Schools Mbale District, Uganda**

## Purpose

The purpose of the study was to determine the effect of accessibility of information and communication technology (ICT) tools on the implementation of the ICT curriculum in government-aided secondary schools in Mable District.

## Objectives

The following were the objectives that guided the study

1. To establish the level of accessibility to ICT tools by students in government-aided secondary schools in Mbale District.
2. To identify the factors hindering accessibility of ICT tools by students in government aided secondary schools in Mbale District.
3. To investigate the relationship between students' access to ICT tools and Implementation of the 'O' Level ICT Curriculum in Government-aided secondary schools in Mbale District.

## Research Questions

The study sought for answers to the following questions:

1. What is the level of students' accessibility to ICT tools in government-aided secondary schools in Mable District?
2. What factors hinder the access to ICT tools by students in government aided secondary schools in Mable District?
3. What relationship does students' access to ICT tools have with implementation of the 'O' Level ICT Curriculum in Government-aided secondary schools in Mbale District?

## Hypothesis

The researcher formulated the following research hypothesis to further guide the study. The hypothesis was tested at 0.05 probability level.

$H_{01}$: There is no significant relationship between ICT tools and implementation of ICT curriculum in government aided secondary schools in Mbale District.

## LITERATURE REVIEW

Curriculum is a structured series of intended learning experiences. It embraces purposeful experiences provided and directed by educational institution to achieve pre-determined goals. Ukeje (2011) defined curriculum as the total experiences of the child during the school course. Looking at curriculum in terms of the activities and resources required to achieve educational objectives, Bloom (1956) defined curriculum as a textbook, a complete set of materials and activities or whole school programme. In view of this, the National Policy on Information and Communication (ICT) in Education stipulates among other things, that the government shall establish and sustain a common ICT infrastructure platform for education and encourage the development of National Education (MOE, 2016). The document emphasized, among other things, that for effective implementation of ICT curriculum, the government should support equitable access to ICT resources by ensuring supply of ICT systems for access to software and local content at all educational and other relevant institutions.

Confirming this, Asongo (2012) made it clear that for the ICT curriculum to be implemented in secondary schools the resources and facilities for ICT should be available and accessible in schools and the teachers should be proficient in utilizing them in teaching. Successful integration of ICT in the school system depends largely on the availability, accessibility, competence and the attitude of teachers towards the modern technologies in teaching and learning. Various government publications (NCDC, 2016 and 2018) and different research works (Chattel, 2012, Cheng 2013 and Chiemeke, 2014) claimed that most secondary schools have been provided with enough ICT resources for full implementation of ICT curriculum. On the contrary, Willie & Gert, (2010) and Wilkowska & Ziefle (2010) posited that ICT resources are not adequately provided in schools. The reports also indicate that where the ICT resources are available, they are, by implication a matter of out-of-bounds to the students - that is, not easily accessible. There is no clear evidence to establish the availability and accessibility of ICT tools for ICT curriculum implementation in secondary schools in government aided secondary schools in Mbale District. Therefore, it has become necessary to determine whether ICT tools are accessible in government aided secondary schools in Mbale District for the ICT curriculum implementation.

The implementation of ICT policy in schools requires resources such as computers, printers, multimedia projectors, cameras, scanners and other accessories. Besides, ICT requires up to date hard and software and high speed internet connection (Alimar & Altah, 2014).

These features are key in the implementation of the ICT curriculum but are not readily accessible to students in most public schools. In relation to this, Al-Shboul, & Al-Labadi (2017) noted that lack of funds to acquire the necessary hardware and software is one of the reasons why some students do not use technology in the learning experiences. Laaria (2013) also asserts that the greatest contribution of ICT in the learning setting is transformation of the learning environment into one that is student-centred. Among the study findings by Dzidonu (2013) indicated that students showed higher attendance, motivation and academic accomplishment as a result of accessibility to ICT tools. This creates better ways of teaching and learning as underpinned by constructivist theories of

**Students' Access to ICT Tools and Implementation of the 'O' Level ICT Curriculum in Government Secondary Schools Mbale District, Uganda**

learning and constitute a shift from teacher-centred pedagogy which is undesirable because it is characterised by memorization and rote-learning to one the is student-centred-characterised by more student involvement in the learning process (Aktaruzzaman, Rashedul & CheKum, 2011).

According to the Kenya National ICT in Education strategy (MoE, 2006), majority of the secondary schools had some computer equipment, however, due to the high cost of such, this consists of one computer in the office of the head teacher. Very few secondary schools have sufficient ICT tools for teachers and students. Even those having computers, the student-computer ratio is 150:1 (Farrel, 2007). Research findings based on schools in Nakuru County indicate that it is due to financial constraints that most schools did not have sufficient infrastructure to fully integrate ICT in their programmes (Nyaga, 2014). Farrel (2007) argues that students are not able to master ICT skills due to lack of access to ICt infrastructure and tools. Dzidonu (2010) also reported that very few African schools and colleges provide free access to internet for their teachers and students. However, without adequate access to internet and improved bandwidth and wide spread access, most schools may never implement the ICT curriculum. While many studies show that the high cost of ICT tools is a barrier to ICT curriculum implementation (Twinomujuni, 2011), other have a different positions and consider cost of infrastructure as a less important factor. According to Farrel (2007), some schools with ICT infrastructure have acquired it through initiatives supported by parents, the government, NGOs or other development agencies and the private and private sector, though it may not be the case in all schools. Relying on support from parents and other development agencies in the provision of ICT tools may leave many schools under equipped with the ICT tools. To contribute to the closure of this gap, this study investigated the relationship between students access to ICT tools and implementation of the O' level ICT curriculum in government aided secondary schools in Mable District.

In the study by Njoroge Ngugi Francis, et al (2017) to establish the extent to which the cost of ICT tools affected the ICT curriculum implementation in public secondary schools in Naivasha Sub-county, it was found out that, almost all the schools under the study were connected to the national electricity grid. However, most of the schools under the study were connected to the national electricity grid. Most of the respondents agreed that the cost of installing internet in schools was high (mean=3.39). Most of the respondents further agreed that investing in ICT infrastructure was an additional cost on the existing strained school budget (mean=3.31) and maintaining up to date software and programs for electronic activities in schools was too expensive to sustain.

This implied that the high cost of infrastructure had hindered the implementation of the ICT curriculum in the schools under study. This observation motivated the researcher to investigate whether as similar state of affairs existed in the area under study and also establish whether access to ICT tools had any influence on the implementation of the O' Level curriculum in government-aided secondary schools in the study area.

**METHODS**

**Design and Sampling**

The study adopted a descriptive survey research design. According to Engwa and Ozofor (2015), descriptive survey research design involves samples of different sub-groups of a population to look at similarities or differences between them at any particular time. Hence this design was considered fitting for this study since the study sought the differences in accessibility of ICT tools and ICT implementation from students. The study was conducted in government aided secondary schools in Mbale District. It consists of four government aided secondary schools in Mbale District. The study population comprised of 'O' Level students from government aided secondary schools in Mable District and the target population of the study was 205 and this comprised of head teachers, teachers and students of four government aided secondary schools (Mbale District Education Office, 2021). The researcher has sampled 192 respondents who included; 4 head teachers, 37 teachers and 151 students.

**Data Collection and Analysis**

The instrument used for data collection was a five-point likert scale structured questionnaire. The structured questionnaire was constructed by the researcher. The instrument has two sections. Section one covered the demographic information of the respondents while the other sections covered the questionnaire items for each of the respective research questions. The instruments were validated by two specialists from in curriculum affairs from Islamic University in Uganda. An estimate of 0.78 reliability coefficient of the instrument was determined with Cronbach alpha. The researcher visited the various sampled schools to give the questionnaire to the respondents. Mean rating was used to answered research questions with mean of 3.0 as the bench mark while the hypotheses were tested with t-test statistic at 0.05 probability level.

Analysis of data was done using descriptive and inferential statistics with the help of Statistical Package for Social Sciences (SPSS) 22.0 for Windows. Descriptive statistical analysis involved the use of mean and percentages, while a Pearson Product Moment Correlation analysis was run to establish the relationship between students' accessibility to ICT tools and implementation of the O'Level ICT curriculum. Qualitative data from the interviews was transcribed whereby content analysis was done to support the narrative reporting of responses on key aspects of the study. Ethically, researchers assured the respondents of the confidentiality. The researcher endeavored to cite every source referred to so as to avoid plagiarism of any kind.

**Students' Access to ICT Tools and Implementation of the 'O' Level ICT Curriculum in Government Secondary Schools Mbale District, Uganda**

## RESULTS
This section provides the statistical and inferential presentation of the key findings of the study that have been arranged according to the objectives of the study.

**Research Objective 1: Level of accessibility to ICT tools by students in government aided secondary schools in Mbale District.**

The study sought to establish students' level of access to ICT tools in government-aided secondary schools in Mbale district.

**Table 1: Responses on Student Accessibility of ICT Tools**

| S/no | Statement | SD (%) | D (%) | N (%) | A (%) | SA (%) | Mean |
|------|-----------|--------|-------|-------|-------|--------|------|
| 1 | Students have easy access to school computer tables/chairs | 44(22.9) | 80(41.7) | 8(4.2) | 48(25.0) | 12(6.3) | 2.50 |
| 2 | The students have the freedom to use the school computer laboratory | 28(14.6) | 76(39.6) | 8(4.2) | 48(25.0) | 32(16.7) | 2.89 |
| 3 | Students have easy access to school desktop computers | 8(4.2) | 56(29.2) | - | 104(54.2) | 24(12.5) | 3.42 |
| 4 | The school has enough laptops that enable each student to learn using it | 32(17.4) | 96(52.2) | 8(4.3) | 44(23.9) | 4(2.2) | 2.41 |
| 5 | The school has enough phone tablets that each student can access | 36(18.8) | 128(66.7) | 4(2.1) | 24(12.8) | - | 2.71 |
| 6 | The school has un-interrupted power supply (UPS) | 36(18.8) | 88(45.8) | 4(2.1) | 40(20.8) | 24(12.8) | 2.71 |
| 7 | Students have easy access to printers | 44(22.9) | 80(41.7) | 8(4.2) | 48(25.0) | 12(6.3) | 2.50 |
| 8 | Each student has access to photocopiers | 16(8.3) | 64(33.3) | 4(2.1) | 76(39.6) | 32(16.7) | 3.23 |
| 9 | The school has availed free internet access to students | 28(14.6) | 76(39.6) | 8(4.2) | 48(25.0) | 32(16.7) | 2.89 |
| 11 | The school has a 5kva Generator or 5kva inverter and accessories | 64(38.3) | 80(41.7) | 8(4.2) | 28(14.6) | 12(6.3) | 2.50 |
| 12 | Students can access software such as CAI, Microsoft office, CorelDraw and Antivirus | 24(12.5) | 36(18.8) | 8(4.2) | 72(37.5) | 52(27.1) | 3.48 |
| 13 | The school has air conditioner and fan | 32(17.4) | 96(52.2) | 8(4.3) | 44(23.9) | 4(2.2) | 2.41 |
| 14 | Students have access to the school projector and screen | 28(14.6) | 76(39.6) | 8(4.2) | 48(25.0) | 32(16.7) | 2.89 |
| | **Overall mean** | | | | | | **2.61** |

**Source:** Primary Data 2023

Table 1 shows that most of the students in the study area hardly accessed ICT tools to enable them learn effectively. For instance, while some respondents claimed that students had easy access to school computer tables/chairs, desktop computers, laptops, phone tablets, printers, photocopiers, internet access, air conditioners, fans, software and 5kva generators, majority had no access to such facilities. On the whole, the overall mean response of 2.61 for the responses implied that ICT tools were not readily accessible to students in most schools in the study area.

**Research Objective 2: Factors hindering accessibility of ICT tools by students in government aided secondary schools in Mbale District.**

**Students' Access to ICT Tools and Implementation of the 'O' Level ICT Curriculum in Government Secondary Schools Mbale District, Uganda**

**Table 2: Responses on Factors Hindering Accessibility of ICT Tools**

| S/n | Statement | SD (%) | D (%) | N (%) | A (%) | SA (%) | Mean |
|-----|-----------|--------|-------|-------|-------|--------|------|
| 1 | There is a high student-computer ratio | 8(4.2) | 56(29.2) | - | 104(54.2) | 24(12.5) | 3.42 |
| 2 | There is unreliable power supply | - | - | 8(4.2) | 164(85.4) | 20(10.4) | 4.06 |
| 3 | There is lack of trained ICT personnel | 4(2.1) | 48(25.0) | 4(2.1) | 92(47.9) | 44(22.9) | 3.65 |
| 4 | There is too much restriction on ICT tool access | 32(17.4) | 96(52.2) | 8(4.3) | 44(23.9) | 4(2.2) | 2.41 |
| 5 | There is lack of political will to promote ICT use | 36(18.8) | 128(66.7) | 4(2.1) | 24(12.8) | - | 2.71 |
| 6 | There is inadequate funding for ICT tool procurement and maintenance | 4(2.1) | 48(25.0) | 4(2.1) | 92(47.9) | 44(22.9) | 3.65 |
| 7 | There is lack of functional computer laboratory | 44(22.9) | 80(41.7) | 8(4.2) | 48(25.0) | 12(6.3) | 2.50 |
| 8 | There is inadequate administrative support | 16(8.3) | 64(33.3) | 4(2.1) | 76(39.6) | 32(16.7) | 3.23 |
| 9 | There are computer virus threats | 28(14.6) | 76(39.6) | 8(4.2) | 48(25.0) | 32(16.7) | 2.89 |
| 11 | There is computer accessory theft s | 64(38.3) | 80(41.7) | 8(4.2) | 28(14.6) | 12(6.3) | 2.50 |
| 12 | There is limited time for practice | 24(12.5) | 36(18.8) | 8(4.2) | 72(37.5) | 52(27.1) | 3.48 |
| 13 | There are unstable and slow internet | 12(6.3) | 60(31.3) | 8(4.2) | 76(39.6) | 36(18.8) | 3.39 |
| 14 | There is shortage of teaching staff | 28(14.6) | 76(39.6) | 8(4.2) | 48(25.0) | 32(16.7) | 2.89 |
| | **Overall mean** | | | | | | **3.13** |

**Source:** Primary Data 2023

Table 2 shows that respondents have differing opinions as regards the factors hindering accessibility of ICT tools by students in government aided secondary schools in Mbale District but majority agreed that the mentioned threats were present in their school. For instance; high student-computer ratio, unreliable power supply, lack of trained ICT personnel, lack adequate funding for ICT tool procurement and maintenance, inadequate administrative support, limited time for practice, and unstable and slow internet had majority of the respondents agreeing, with only a few that had a significant number of respondents disagreeing with the statements. Generally, most of the respondents had a common opinion as regards the factors hindering students' accessibility to ICT tools in government aided secondary schools in Mbale District. This was indicated by their respective total average mean of 3.13.

**Research Objective 2: Relationship between students' access to ICT tools and implementation of O' Level ICT curriculum in government-aided secondary schools in Mable District.**

| S/n | Statement | SD (%) | D (%) | N (%) | A (%) | SA (%) | Mean |
|-----|-----------|--------|-------|-------|-------|--------|------|
| 1 | Students' access to ICT tools has made teaching of easier | 19 (9.8) | 118 (60.8) | 2(1.0) | 37(19.1) | 16(8.1) | 2.55 |
| 2 | Students' access to ICT tools has made it easier for them to learn ICT | 19(9.8) | 113(58.3) | 8(4.1) | 35(18.0) | 17(8.8) | 2.57 |
| 3 | Students' access to ICT tools has facilitated the completion of the ICT syllabus | 17(8.8) | 116(59.8) | 8(4.1) | 36(18.6) | 15(7.7) | 2.56 |
| | **Overall mean** | | | | | | **2.56** |

**Source:** Primary Data 2023

As regards the relationship between students' access to ICT tools and implementation of O' Level ICT curriculum in government-aided secondary schools in the study area, majority of the responses were indicating that there was a strong relationship between students; access to ICT tools and the implementation of the O' Level ICT curriculum. For instance majority of the responses showed

that limited students' access to ICT tools made teaching and learning difficult and the ICT syllabus could not be effectively completed as a result of limited ICT tools. This has also been indicted by the overall mean of 2,56.

The earlier hypothesis set was that there is no statistically significant relationship between ICT tools and implementation of the O' Level ICT curriculum in government-aided secondary schools in Mable district. The t-test 2.7 is greater than t-table value of 1.96 at set probability level of 0.05. This implies that students in most government aided secondary schools in the study area never had adequate access to ICT tools. Therefore, the $H_1$ was rejected and the conclusion drawn that there is significant effect of students' accessibility to ICT tools on implementation of 'O' Level curriculum in government-aided secondary schools in Mbale District.

**DISCUSSION**

Based on the data presented and analyzed, it can be observed, as shown in table 1, that majority of the students in government aided secondary schools in Mbale District had limited access to ICT tools for ICT curriculum implementation. This was confirmed by the hypothesis testing in table 3, where the t-test obtained value of 3.3 is greater than the t-table of 1.96 at 0.05 set probability level. This rejected the hypothesis that there is no significant relationship between student access to ICT tools and O' Level curriculum implementation in the study area. Therefore, the conclusion was that majority of the students in government aided secondary schools in Mbale District had limited access to ICT tools. This finding is in consonance with the findings of Inibehe and Dankaro (2012) that ICT tools were not only unavailable for teacher educators' instructional development but also that students could not access the available ICT tools for instructional development purposes. This poor accessibility of ICT tools accounts for the reason students fail to take on ICT as a subject and perform well during final level examinations and other life areas that demand the use of ICT.

Furthermore, table 2 showed that several factors are common to the students as to the hindrances to the accessibility of Information and Communication Technology (ICT) tools for ICT curriculum implementation. Among the leading factors common to the students include: lack of steady electricity supply, lack of trained personnel, lack of functional laboratory, and poor administrative support. These factors are the same with the factors discovered by Nomsa (2013) in a study of challenges faced by schools when introducing ICT in developing countries. According to the study, the major factors include: high student-computer ratio, unreliable power supply, lack of trained ICT personnel, lack adequate funding for ICT tool procurement and maintenance, inadequate administrative support, limited time for practice, and unstable and slow internet. In view of these limitations in ICT tools, there will be lack of sufficient computer experience for the students (Rosen & Weil, 2015).

**CONCLUSION**

Based on the findings of this study, it can be concluded that the students there were many factors hindering the smooth implementation of the O' Level ICT. These included; high student-computer ratio, unreliable power supply, lack of trained ICT personnel, lack adequate funding for ICT tool procurement and maintenance, inadequate administrative support, limited time for practice, and unstable and slow internet. the study also established that there was poor student accessibility of ICT tools in government-aided secondary schools in Mbale District as seen in their limited access to school computer tables/chairs, desktop computers, laptops, phone tablets, printers, photocopiers, internet access, air conditioners, fans, software and 5kva generators.

**RECOMMENDATIONS**

The following recommendations were made basing on the objectives of the study.
1. The curriculum planners should ensure that the essential ICT tools are procured and students should be given easy access to such tools.
2. The school administration to always ensure that appropriate systems are put in place to ensure accessibility of ICT tools students, while ensuring that such tools are safe from vandalism, theft and abuse.

**REFERENCES**
1) Asongo, A. A. (2012). An assessment of resources for effective teaching and learning of computer science in secondary schools in Kwande Local Government Area of Benue State. Federal University of Agriculture Makurdi, Nigeria.
2) Audu, J. A. (2016). Effect of discovery teaching method on secondary students' interest and achievement in chemistry in Otukpo Local Government Area of Benue State. Federal University of Agriculture, Makurdi, Nigeria.
3) Bloom, B. S. (1956). Taxonomy of educational objectives: the classification of educational goals. London: Longman.

4) Cheng, Y. (2013). The effects of web-based instruction on Chinese students, learning outcomes. Dissertation Abstracts International 62 (2) 43 – 51

5) Collis, B. & Moonen, J. (2011). Flexible learning in a digital world: experiences and expectations. London: Kogan page.

6) Engwa, A. G. & Ozofor, N. (2015). Fundamentals of Research Methodology: A holistic guide for research completion, management, validation and ethics. USA: Nova Science publishers, Inc.

7) Ikemelu, C. R. (2015). Towards effective application of ICT education for classroom curriculum delivery: science teacher perspective. STAN Conference Proceeding. Pp.230 -238.

8) Inibehe, W. J. & Dankaro, J. T. (2012). ICT Resource utilization, availability and accessibility by teacher educators for instructional development in college of education Katsina-Ala. New Media and Mass Communication 43 (21), 20 – 32

9) Ministry of Finance, Planning and Economic Development. (2020). Harnessing digital innovations under the COVID-19 pandemic: A case of Uganda's ICT sector, BMAU Briefing Paper (7/20).

10) MoES (2019), Education and Sports Sector Annual Performance Report (2009/10)

11) Mushemeza, E., D. (2019). Decentralization in Uganda Trends, Achievements, Challenges and Proposals for Consolidation, Kampala. ACODE Policy Research Paper Series No.93.

12) Ndiwalana, A., & Tusubira, F., F. (2012). Understanding what is happening in ICT in Uganda: A supply- and demand side analysis of the ICT sector. Evidence for ICT Policy Action, Policy Paper 8, Research ICT Africa.

13) Ochu, A. N. O. & Hurana, P.F. (2014). Challenges and prospects of creativity in a basic science classroom: The Perception of the Basic Science Teachers. Brit. J. Educ., Soc. and Behav. Sci. 5(2): 237-243.

14) Pelgrum, W. J. (2011). Obstacles to the integration of ICT in education: results from a worldwide educational assessment. Computers & Education, 37, (2), 163-178.

15) Rosen, L. D. & Weil, M. M. (2015). Computer Availability, Computer Experience, and Technophobia among Public School Teachers, computers in Human Behaviour, 11(1), 9-31.

16) Ugwuoke, J. (2017). Availability and usability of chemistry laboratory facilities for teaching organic chemistry in senior. ESUT.

17) UNESCO. (2010). ICT in Education programme. Bangkok, Thailand: UNESCO

18) Webber, S. (2018, January 04). Information Science in 2003: A Critique. Retrieved from journals.sagepub.com: http://journals.sagepub.com/doi/pdf/10.1177/016555150 30294007