

# The Relationship Between ICT use and Teaching and Learning in Government Aided Secondary Schools of Sheema District

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## Abstract

The study assessed the influence of relationship between ICT use and teaching and learning in government aided secondary schools of Sheema District. The study used a cross-sectional research design with both quantitative and qualitative approaches. The study population comprised 12 headteachers, 360 teachers, and 440 students, with a sample size of 268 respondents. Purposive and simple random sampling techniques were used for participant selection. Data were collected through a questionnaire survey for teachers and students and interviews for headteachers. Data analysis involved sorting, coding, and summarizing qualitative data and using Pearson coefficient correlation for quantitative data. The study also found a statistically significant correlation (p-value of 0.001,  $r=0.6$ ) between internet accessibility and ICT use teaching and learning, suggesting that improvements in internet accessibility positively impact the teaching and learning process. In conclusion, students in Sheema District have positive perceptions about internet accessibility, and there is a significant correlation between internet accessibility and ICT use teaching and learning. As recommendations, policy makers should prioritize initiatives that address challenges faced by minority students in terms of internet access, data affordability, and electricity availability at schools.

**Key Words:** Relationship, Between, ICT use, Teaching, Learning, Government Aided Secondary Schools.

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## Introduction

Information communication technologies in teaching and internet accessibility in secondary schools in Uganda has been used both by students and their teachers in the process of exchanging information and gaining knowledge as well as for communication and access to educational information ( Newby, Hite, Hite & Mugimu, 2013). There are other uses such as for conducting digital classes, whereby the teacher and the students are in remote places but are able to conduct lessons in class with the help of these technological tools and services (Busulwa & Bbuye, 2018). The basic components of ICT in teaching and internet

accessibility includes sets of computers (clients) from where users access materials and another computer (server) on which the learning materials and knowledge contents are centrally stored, for collaboration among the students in their learning processes and among the teachers for research, in general.

According to Guma, (2013), online-learning technologies are used to deliver learning instructions to learners who are located in remote areas from a central site using computers, mobile phones, over computer networks, internet connections and other methods of connection at cheaper cost. However, wide

adoption of Information and Communication technologies (ICT) in teaching and learning, internet accessibility is still a challenge and a lot more work has to be done to realize the full potential of ICT in teaching. Therefore the current study assessed internet accessibility and ICT use in teaching and learning in government aided secondary schools of Sheema District.

Teachers and students in secondary schools in Sheema District lack the required skills for designing use of ICT in lessons even there is inappropriate infrastructure to support ICT in teaching and internet accessibility, cost of data is high. For ICT in teaching to be widely adopted, teachers need to be adequately trained in ICT course design and mechanisms put in place to motivate the teachers to teach using ICT, and cost of data must be reduced which majorly reduces the accessibility of internet by both teachers and learners. Use of ICT packages in other administrative units like assessment and evaluation of academic performance, monitoring school fees payments and teachers performances and other internal controls.

Effective use of ICT in teaching by teachers leads to positive outcome as far as development of education sector is concerned (Gerick, Eickelmann & Bos, 2017). For this study ICT in teaching is the access of learning experiences by the use of technology and internet, making the learning experience more convenient to learners (Wanga, Ngumbuke & Oroma, 2012). Despite the fact that ICT is being introduced in teaching and learning, internet connectivity remains a challenge for academic purposes. This is evidenced by poor network connectivity in most areas, high costs of data and lack of reliable power supply in most areas. While information communication technologies in teaching provide opportunities for the ways education is delivered, administered and accessed by learners, assessment practices are often limited in the variety and modes in which they are allocated in the ICT environment. A study by Kansime, (2021) concluded that internet connectivity and power supply were unreliable most especially in schools situated in rural areas. Therefore, the study assessed the influence of internet accessibility and ICT use in teaching and

learning in government aided secondary schools of Sheema District.

### **Purpose of the Study**

To establish the relationship between ICT use and teaching and learning in government aided secondary schools of Sheema District.

### **Literature Review**

The emergence of the internet in education has a tremendous impact on teaching & learning. Properly used information from the Internet represents added value to education (Ryan, Zhang, & Chapman, 2013). ICTs & Internet use provide new ways of communication that simplify social interaction among people & learning, as people can communicate & learn from one another from a distant place, country, & continent through various social networking platforms. Moreover, effective use of the Internet in teaching & learning can bring changes that would lead to not only pedagogical improvement but also save time & space. Metzger & Flanagin (2013) found that there was a stronger relationship between perceived usefulness & usage than perceived ease of use & usage.

Similar results have been obtained by Akomolafe & Adesua (2016) when they evaluated the impact of internet usage among secondary school students in Nigeria. Psychological issues ranging from mood swings to altered behavior, withdrawn attitude, & loneliness have been reported by Singh, Kaur, & Kaur (2013) to be the main effect of using the internet mainly for social networking & mailing. This is because they remain in some sort of virtual world of the net.

Students who were in the server & profound group of internet addiction were found to have a detrimental effect on their academic performance & mental health rather than the students who use the internet moderately (Yebowaah, 2018). Similarly, results have been obtained by Vigdor, Ladd, & Martinez (2014) in their study that categorized internet users into light, moderate, & intense users respectively. Students that use the internet at school (moderate use) produce

higher grades than those that do not use the internet. Also, students that only use the internet at school (light users) obtained lower grades compared to those that did not use the internet.

A study by Ssekakubo (2016) in Uganda found that there was a significant relationship between ICT use & student learning outcomes. The study found that students who used ICT regularly performed better in subjects such as English & mathematics compared to those who did not use ICT. Another study by Katusiimeh (2018) in Uganda found that the use of ICT in teaching & learning had a significant impact on teacher-student interaction & student-teacher communication. The study found that teachers who used ICT regularly were more likely to engage with students & provide feedback compared to those who did not use ICT.

**Methodology**

This study employed a cross-sectional design using both quantitative and qualitative approaches. The population consisted of 812 individuals, including 12

headteachers, 360 teachers, and 600 A-level students from government-aided secondary schools in Sheema District. A sample of 283 respondents was selected using Yamane's formula. Non-probability sampling was used to select schools, while simple random sampling was employed for teachers and students. Headteachers were selected using purposive sampling. Data was collected through questionnaires and interviews. Qualitative data was analyzed using thematic analysis, while quantitative data was analyzed using SPSS and Pearson product-moment correlation coefficient to determine relationships between variables, providing a comprehensive understanding of the research topic.

**Results**

**The extent of internet access and ICT use for teaching and learning in government aided secondary schools**

**Table 1: Respondents’ responses regarding the extent of internet access and ICT use for teaching and learning in government aided secondary schools of Sheema District**

Items	1 f(%)	2 f(%)	3 f(%)	4 f(%)	5 f(%)	Mean Score
The network for internet is always available	10 (4%)	25 (10%)	40 (16%)	100 (40%)	75 (30%)	3.82
There is enough data for internet	15 (6%)	30 (12%)	50 (20%)	95 (38%)	60 (24%)	3.62
The speed of internet is fast during surfing	20 (8%)	40 (16%)	60 (24%)	85 (34%)	45 (18%)	3.38
I afford the costs of data	30 (12%)	55 (22%)	40 (16%)	85 (34%)	40 (16%)	3.20
The availability of electricity at school	5 (2%)	20 (8%)	30 (12%)	90 (36%)	105 (42%)	4.08
<b>Overall Mean Score</b>						<b>3.62</b>

1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly Agree, F=frequency

Source: Field Data November (2023)

A majority of respondents (40-42%) reported positive experiences with internet accessibility in secondary schools in Sheema District, agreeing that the internet network was always available, data was sufficient, internet speed was fast, data was affordable, and

electricity was accessible. Specifically, 40% reported consistent internet connectivity, 38% had sufficient data, 34% experienced fast internet speeds, 34% could afford data, and 42% had access to electricity. Conversely, a minority (2-12%) faced challenges,

including network unavailability (4%), data insufficiency (6%), slow internet speeds (8%), unaffordable data (12%), and lack of electricity (2%). The overall mean score of 3.62 indicated that students generally had positive perceptions about internet accessibility, highlighting areas of strength and weakness to inform improvements.

In addition, the above findings were consistent with findings from interviews as responses presented below;

One of the respondents said that; “Internet access is a major challenge for our school. We have limited network coverage and slow internet speed, which

makes it difficult for our students to attend digital lessons, digital libraries, online books and complete their assignments on time”. (Headteacher 1). Another respondent noted that; “We have been able to overcome some of the challenges of internet access by investing in solar power (although it is not reliable) and backup generators. This has helped us to ensure that our students have access to the internet even when there are power outages. (Headteacher 2).

**The level of use of ICT in teaching and learning in Secondary schools of Sheema District**

**Table 2: Respondents responses regarding the level of use of ICT in teaching and learning in Secondary schools of Sheema District**

Items	1 f(%)	2 f(%)	3 f(%)	4 f(%)	5 f(%)	Mean Score
ICT enables teachers and students to be more creative and imaginative during teaching and learning	10 (4%)	25 (10%)	35 (14%)	110 (44%)	70 (28%)	3.82
The use of ICT helps teachers and students find related knowledge and information for teaching and learning	15 (6%)	30 (12%)	45 (18%)	65 (26%)	95 (38%)	3.78
The use of ICT encourages teachers to communicate more with their learners	20 (8%)	40 (16%)	55 (22%)	80 (32%)	55 (22%)	3.44
The use of ICT increases teachers and students' confidence to participate actively in the class	30 (12%)	40 (16%)	50 (20%)	60 (24%)	70 (28%)	3.40
Students learn more effectively with the use of ICT and teachers teach more effectively	25 (10%)	35 (14%)	45 (18%)	55 (22%)	90 (36%)	3.60
The use of ICT helps to broaden student and teachers' knowledge paradigm	10 (4%)	20 (8%)	30 (12%)	100 (40%)	90 (36%)	3.96
The use of ICT helps to improve student and teachers' ability specifically in teaching, reading, and writing	15 (6%)	25 (10%)	35 (14%)	80 (32%)	95 (38%)	3.86
Students are more behaved and under control with the use of ICT when teachers are teaching	20 (8%)	30 (12%)	40 (16%)	70 (28%)	90 (36%)	3.72
The use of ICT enables students to express their ideas and thoughts better with their teachers	25 (10%)	35 (14%)	45 (18%)	70 (28%)	75 (30%)	3.54
The use of ICT promotes active and engaging lessons for students and teachers' best teaching and learning experience	15 (6%)	20 (8%)	30 (12%)	100 (40%)	85 (34%)	3.88
<b>Overall mean score</b>						<b>3.70</b>

1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly Agree, F=frequency

Source: Field Data November (2023)

A significant majority of respondents (28-44%) agreed that ICT enhances creativity, knowledge acquisition, communication, engagement, and teaching effectiveness in secondary schools in Sheema District. Specifically, ICT was seen to stimulate creative thinking (44%), facilitate knowledge acquisition (38%), foster teacher-student communication (32%), promote classroom engagement (28%), and improve teaching and learning effectiveness (36%). Additionally, ICT was perceived to broaden knowledge paradigms (36%), improve educational skills (38%), and enhance student behavior (36%). Only a small minority (4-12%) disagreed with these statements. The overall mean score of 3.70 indicated positive perceptions about ICT's impact on education. These findings suggest that ICT integration has a significant positive impact on teaching and learning outcomes, highlighting its potential to transform education in Sheema District's secondary schools.

Additionally from interviews different arguments were revealed concerning the level of effectiveness in

the use of ICT in teaching and learning in government aided secondary schools of Sheema District as presented in responses below; One of the respondents mentioned that “We have seen a significant improvement in the effectiveness of teaching and learning since we started using ICT. Our students are more engaged and motivated, and their insight in learning has improved”. (Headteacher 1). One respondent noted that “The effectiveness of ICT in teaching and learning depends on the level of training and support that teachers receive. We have invested in training programs and workshops to ensure that our teachers are equipped with the necessary skills to use ICT effectively (Headteacher 2).

**The relationship between Internet accessibility and ICT use in teaching and Learning in Secondary schools**

**Table 3: Pearson coefficient correlation for Internet accessibility and ICT use in teaching and Learning in Government aided secondary schools of Sheema District**

Correlations			
		Internet Accessibility	Teaching and Learning
Internet Accessibility	Pearson Correlation	1	0.60**
	Sig. (2-tailed)		0.001
	N	250	250
Teaching and Learning	Pearson Correlation	0.06**	1
	Sig. (2-tailed)	0.001	
	N	250	250

\*\* . Correlation is significant at the 0.05 level (2-tailed).

Source: Field Data November (2023)

The study revealed a significant positive correlation (r=0.60, p=0.001) between internet accessibility and ICT use in teaching and learning in Government-aided secondary schools in Sheema District. This moderate positive relationship indicates that as internet accessibility increases, teaching and learning tend to improve. The correlation was significant at the 0.05

level, confirming the reliability of the relationship. These findings suggest that enhancing internet accessibility can positively impact ICT integration in education, ultimately improving teaching and learning outcomes.

## Discussion

The study found a statistically significant correlation ( $p=0.001$ ) between internet accessibility and ICT use in teaching and learning in secondary schools. This aligns with existing literature, which highlights the internet's positive impact on education. Studies by Ryan et al. (2013), UNESCO (2013), and Metzger & Flanagin (2013) show that internet use enhances information retrieval, individualized learning, and collaborative activities. Additionally, Vigdor et al. (2014) found that moderate internet use is associated with higher grades. These findings support the notion that internet accessibility improves teaching and learning outcomes, reinforcing the importance of internet utilization in education.

## Conclusion

There was a statistically significant correlation between internet accessibility and ICT use in teaching and learning in secondary schools, reinforcing the reliability of the relationship. The positive correlation ( $r = 0.60^{**}$ ) suggests that as internet accessibility improves, there is a corresponding improvement in the teaching and learning process in the secondary schools studied. Therefore, policy makers should prioritize initiatives that address challenges faced by minority students in terms of internet access, data affordability, and electricity availability at schools.

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