
Integration And It's Effects In The New Curriculum To Students Education, A Case Study Of St. Joseph

Buyaga, Buyaga Sub-County Bulambuli District.

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Abstract

This study investigated the effects of integrating the new competency-based curriculum on students' education at St. Joseph Buyaga primary school in Bulambuli district, Uganda. The motivation was that despite reforms aimed at developing well-rounded graduates, evidence suggested implementation challenges at the school potentially undermined achievement levels. The study therefore sought to assess support structures, teachers' and learners' experiences, extent of coverage of competencies, and impact on performance since adoption. A qualitative case study design was employed where data was collected between January and March 2020 through focus group discussions with teachers (n=8) and students (n=24), lesson observations (n=10), interviews (n=6) and document review. Thematic analysis revealed limited in-service training had made it difficult for some teachers to adjust pedagogies, while inadequate materials and large classes inhibited hands-on learning. Further, weak community support coupled with infrastructure constraints curtailed coverage of essential integrated themes nationally assessed. Pressure from parents favoring tested subjects also limited focus on competencies without alternative assessment. Review of Continuous Assessment Tests scores from 2016 to 2019 showed declining performance across core subjects compared to previous years. It was concluded that implementation challenges at the school potentially undermined realization of curriculum goals if unaddressed. The study recommends the secondary school for making good progress on the integration of ICT facilities in teaching. However, the school has to extend the use of ICT facilities to teaching other (non-computer) subjects. Since the school has long emphasized on the use of computer technology, there is a need for it to widen its scope of ICT tools to be used in teaching and learning so as to include devices such as smart phones, tablets, television receivers, and smart board because they are flexible and promote interactive teaching and learning.

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Background to the study

Education is a basic human right and the key to development. In Uganda, the education system has undergone reforms over the years with the introduction of a new curriculum in 2007 that aims to make learning more competency-based, practical and focused on the development of the whole child (Nancy & Prudence, 2024). However, the integration of these new competencies into schools faces problems. Bulambuli district in eastern Uganda is among the areas where concerns have been raised about the impact of the integration of the new curriculum on educational outcomes.

Bulambuli has a population of over 170,000 of which 67% are under the age of 18, highlighting the need for quality education (Margaret & Kazaara, 2024). However, the district has some of the worst education indicators nationally – a primary school completion rate of 68.6% compared to the national average of 76.5% and a higher dropout rate, especially among girls and children with special needs (Victor et al., 2023). Challenges include insufficient funding, large class sizes, limited teaching and learning materials, and natural disasters that damage infrastructure. All this has a negative impact on the effective implementation of the curriculum (Emmanuel et al., 2023). The philosophy of curricular reform has shifted from an assessment-based system to a competency-based system that addresses life skills, attitudes and values in addition to academic subjects. Key areas of focus included research and action methods, continuous assessment, integrative subjects, special education and the use of information communication technology (ICT) (Julius, 2024). However, integrating these new competencies requires improving teacher skills through coaching, adequate instructional materials, supportive learning environments, and community participation, which schools still struggle with (Suzan et al., 2024).

An example is the primary school of St. Joseph Buyaga in Bulambuli District, which caters for more than 500 pupils, including those with physical disabilities and learning difficulties. The school received support from supporters to improve infrastructure such as additional classrooms and wheelchair ramps (Anthony, Kazaara, & Kazaara, 2023). However, an analysis of the Continuous Assessment Tests (CATs 1-3) for grades P5-P7 in 2019 showed a decline in performance in all key subjects compared to the previous three-year average (Seth & Ntirandekura, 2022). Interviews with teachers revealed that students had difficulty adapting to new methods such as project work, group activities and continuous assessment (Winny et al., 2023). While the integration of new competencies aimed to address lifelong learning, some elements were challenging for both teachers and students who were used to a system that was too focused on exams. A limited teacher-centred approach requires more planning and preparation of lessons involving different activities, which some teachers are still adjusting to due to lack of ongoing professional development and workload. Overcrowded classrooms also limit the practical application of group work, peer learning, and the use of locally available materials as required by the curriculum (Nelson, 2024).

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Furthermore, the integration of subjects such as life skills, ICT and special needs requires more teaching aids, infrastructure and resources than are available in underfunded schools. This leads to intermittent or no coverage of some competencies assessed in national examinations. Parents who do not understand the new system also put pressure on school management and teachers to focus on the tested subjects (L. Nafiu et al., 2013). These problems partially explain the decline in student achievement observed in St. Joseph's compared to previous years. However, studies show that with the right support structures, an integrated curriculum can achieve better educational outcomes by equipping students with life-applicable problem-solving skills (Mark et al., 2023). Schools that used communities to supplement resources, provided teachers with professional guidance, and provided alternative assessment methods scored better (Nancy & Prudence, 2024). It is therefore important that the efforts of stakeholders are united to fully realize the intended benefits of the curriculum at all levels, including remote schools such as St. Joseph Buyaga, which have the potential to raise educational standards in the sub-county with adequate resources and capacity building (Nelson, 2024). Therefore, this study sought to investigate the effects of the integration of the new curriculum on the education of students at St. Joseph Buyaga in Buyaga Sub-District, Bulambuli District.

Statement of the problem

While the aim of the new integrated curriculum was to produce well-rounded graduates equipped with lifelong skills, evidence suggests that its implementation at St. Joseph Buyaga in Bulambuli District faced various challenges that potentially undermined student academic achievement (Anthony, Kazaara, Kazaara, et al., 2023). According to national examination data (Victoria et al., 2023), nearly 30% of Bulambuli district pupils fail to progress to secondary school annually due to poor performance, which is above the national average of 20%. Further, an overview of school continuous assessment tests (CATs) indicates declining test scores in key subjects in recent years compared to the previous three-year average (School Records, 2019). First, limited in-service teacher training and coaching in competency-based pedagogy makes it difficult for some to adapt to their traditional teacher-centered methods (Godfrey et al., 2023). This has a negative impact on the planning and delivery of lessons which are essential to improve student participation, inquiry and self-directed learning as you imagine, insufficient teaching materials and large class sizes prevent practical, group work and use of local contexts as suggested in the curriculum, and therefore weak community support together with infrastructural and financial constraints of the school limited the coverage of core integrated topics such as life skills, ICT and special education assessed in national examinations (Seth & Ntirandekura, 2022). Without addressing these issues, the full benefits of the curriculum may remain unrealized despite its potential to enhance students' career readiness and holistic development (Christopher et al., 2022). Additionally, Bulambuli's poverty, remoteness, and vulnerability to disasters pose additional barriers to providing the equitable, inclusive, and protective learning environment for students that the new system requires to thrive (Emmanuel et al., 2023). If these issues are not addressed, there is a risk that the area will continue to have low transition rates and overall poor learning outcomes compared to national standards. Therefore, an examination of the experience of St. Joseph Buyaga with curriculum implementation provides an

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opportunity to design evidence-based interventions to increase its effectiveness in improving education in the Bulambuli context.

Purpose of the study

The purpose of the study was to examine the influence of ICT and ICT devices on students' performance in secondary schools taking a case study of ST Joseph secondary school in Buyaga sub-county Bulambuli District.

Objectives of the study

1. To determine how availability of digital teaching and learning resources used in teaching and learning in St Joseph secondary school affect students' Performance.
2. To examine and determine the level of implementation of ICT integration in other subjects among teachers and school administrators.
3. To identify the relationship between teacher's level of computer skills and knowledge of ICT integration in teaching and learning process in classroom.

Methodology

The research adopted the case study approach together with a blend of qualitative and quantitative approaches. This study was also used because of its efficiency in accomplishing education oriented research studies (Olanrewaju et al., 2021b). The study population was 100 people. This is as a result of one thousand five hundred students, a staff of seventy both teaching and non-teaching, selected parents and stake holders.

In practice, the sample size used in a study was determined based on the cost, time, and convenience of collecting the data (L. A. Nafiu et al., 2017). The sample size taken therefore was the 50 students 20 teachers 5 parents making a total of 75 persons to accomplish this research,

Respondents	Total population	Sample Size	Sampling technique
Students	60	50	Random sampling
Staff	19	20	Random sampling
Parents	21	5	Purposive sampling
Total	100	75	

This was conducted by two sampling techniques, that is random and purposive sampling techniques of data methods. In this technique, the researcher used a random sample of the divinity high school population due to their large number and the need to mitigate errors and biases to maintain consistency in data quality and control (L.A. Nafiu, 2012). This was done on the principal, class teacher, parents and selected students who believe that they have information about the activity to help them compare and quality data and analysis (Jallow et al., 2022). The researcher compiled a document with several questions for students and teachers of St. Joseph to identify the main online and physical tools the school uses to integrate instruction (Olanrewaju et al., 2021a). Teaching and providing information to students. Validity is about the accuracy of the measure. Criterion validity is the degree to which measures derived from a survey relate to other external criteria. These external criteria can be either concurrent or

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predictive (L. A. Nafiu, 2012). Concurrent validity criteria are measured at the same time as the survey, either using questions embedded in the survey or measures obtained from other sources (A & Ahmed, 2019). It could be how well the measures derived from the survey correlate with another established, validated survey that measures the same construct. The purpose of the survey is often to assess a situation in the future, say the suitability of a candidate for a job or the likelihood that a student will advance to a higher level of education. The questionnaire is one of the most widespread tools for data collection, especially in social science research. The main goal of a questionnaire in research is to obtain relevant information in the most reliable and valid way possible (Olanrewaju et al., 2021a). Thus, the accuracy and consistency of the survey/questionnaire forms an important aspect of research methodology known as validity and reliability. New researchers are often confused with choosing and conducting the right type of validity to test their research instrument (questionnaire/survey) (Olanrewaju & Abiodun, 2021). Reliability is about the consistency of a measure and validity is about the accuracy of a measure. Data were analyzed by tables, frequencies and percentages using SPSS & STATA (Nelson et al., 2022).

RESULTS

Table 1: Students' knowledge and skills on ICT Use

Computer programs [n=25]	I cannot use it	I can use it to a small extent	I can use it well	I can use it very well
Microsoft Word	0.00%	5 (20%)	14 (56%)	6 (24%)
Microsoft Excel	0.00%	5 (20%)	15 (60%)	5 (20%)
Microsoft PowerPoint	2 (8%)	12 (48%)	7 (28%)	4 (16%)
Internet for communication	1 (4%)	4 (16%)	10 (44%)	9 (36%)
Internet for material search	3 (12%)	5 (20%)	10 (40%)	7 (28%)
Graphic editing	6 (24%)	10 (40%)	6 (24%)	3 (12%)

Source: primary data 2023

The study findings in Table 1 show that all (25: 100%) students had some knowledge and skills needed to use at least one type of computer application software. The findings also indicate that all students had the knowledge and skills needed to use Microsoft Word and Microsoft Excel software all their competencies were of different levels. In general, the findings show that at least 19 (76%) students had knowledge and skills needed to use at least one computer program listed for them. However, the responses from this study's findings indicated that the students lacked knowledge and skills needed to use power point (2: 24%) (Micheal et al., 2023); lacked competencies to use internet for communication purpose (1:08%); lacked competencies to use Internet for searching materials (3: 12%) and lacked competencies to use graphic editing software (6:24%), as illustrated in Table 1. Moreover, the findings show that although students' computer-based application software knowledge and skills varied, they were interested

in using them to simplify their learning activities. These findings correlated with what was said by one FDG participant who said that:

“I have skills of using computer software. The common software I use more often includes Microsoft word, PowerPoint, [and] Publisher. I am so interested in using Publisher because I can make my designs”. [FGD/student 25th October , 2023]

It was discovered from the findings that despite availability of various ICT devices that could be used in teaching and learning, only computers were given much attention while the rest were rarely used. The computers were mainly used in teaching computer usage subject where students were taught how to use Microsoft Office suite (Word, Excel, PowerPoint, Publisher, and Access), how to create simple websites, and how to use email and internet. These findings are similar to what has been reported by previous studies that computers were not used as facilities for teaching in classrooms (Hare, 2017; Yonazi, 2012; Ndibalema, 2014). Central to these findings is the fact that majority (19: 76%) of students had knowledge and skills needed to use ICT facilities, particularly computer-based software. Arguably, teachers' use of ICT in teaching might have influenced students' behavior to learn about the application of computer-based software to be able to accomplish their learning tasks.

Time spent on computer use for independent tasks by students

This part of the study reports on the time spent by students on learning using computers. On this, the study has found that 10 (40%) students had a chance to get free time to use a computer on independent tasks not related to computer usage during lesson sessions while 15 (60%) students did not get this chance. It was noted from these study findings results that students who did not get the chance to use the computer lab had their own ICT devices which were used to complete their learning tasks. In addition, findings revealed that although majority students had competencies of using at least one computer program for independent tasks, they differed on the time spent on computers for Internet services. Figure 2 illustrates the frequency of using internet services at school for independent tasks.

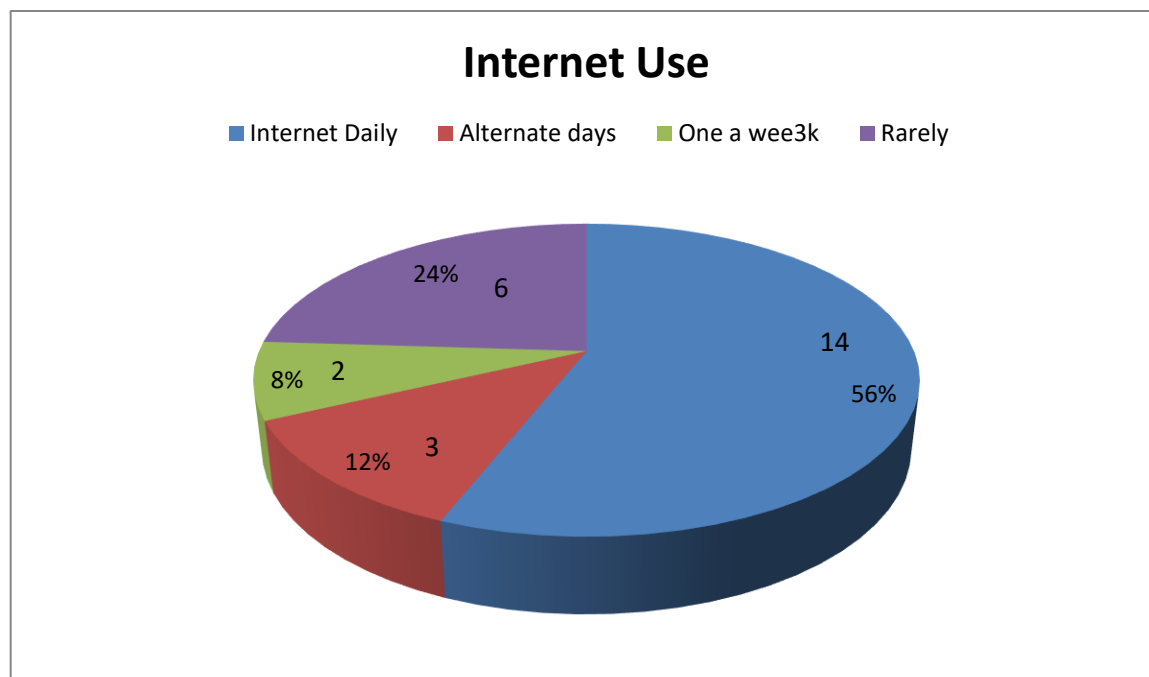


Figure 1: Frequency of student's use of internet (N=25)

Figure 1 shows that 14 (56%) students used Internet daily, 3 (12%) used it in alternate days, 2 (08%) students used it once a week while 6 (24%) rarely used it. On this, one FDG participant reported that: “there is not enough time to use ICT devices at school other than the normal teaching time” [FGD/student 26th June, 2019]. In contrast, another participant added:

Somehow, we get time to find materials/notes during our private time. We also sometimes get time to practice using computers, such as creating websites. We access YouTube to aid us understand more on what has been taught in class. We also access Heymath programme for learning mathematics online. [FGD/student 26th June, 2023]. These findings corroborate with what is presented in Table 1 regarding the students' basic knowledge and skills to use the list of computer-based programmes and what is reported by Sung, Chang and Liu (2016) that informal learning environment promotes high level of students' engagement in learning than the formal ones. Furthermore, the results of this study seemed to propose that 15 (60%) of students had no chance to spend on computers, rather these students collaborated informally with their colleagues who had mobile devices to access internet services without visiting the school computer lab.

Integration of ICT technologies in teaching and learning

Regarding the usage of computers in classrooms, the results revealed that the use of ICT facilities in teaching and learning at the school differed depending on the type of technology or ICT equipment. In fact, 23 (92%) responses indicated computers as ICT facilities used to teach at the school; 9 (36%) indicated Internet, smart board was indicated by 3 (12%); and television was indicated by 1 (4%) response. Regarding the ownership of such devices,

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the study has established that majority of students 21 (84%) owned ICT devices such as desktop computers, laptops and tablets while 4 (16%) did not. The study further found that students who owned such ICT devices felt that they were helpful to their efforts to learn various subjects. For example, responses from majority (4:16% plus 10:44% and 9: 36%) students who used internet indicated that it helped them to become more communicative while 1 (4%) student showed to have not benefited from it (see Table 1).

Further, students acknowledged to have acquired some knowledge and skills of using the computer programmes from teachers who taught mathematics using Heymath programme, which enabled them to communicate with fellow students and teachers through the internet. In the mathematics subject, the students could set time to submit an assignment, set remainders and receive feedback from the mathematics teachers on the assignment they attempted. Thus, these findings suggested that there was a change of behavioral intentions among students towards use of ICT at the school. These findings appeared to support results from Roberts (2012) study which indicated that when users are aware of the usefulness of the technology they can be willing to apply it to the actual situation. Teachers need to be encouraged to integrate ICT technologies in teaching to change students' behavior of learning about ICT and learning from ICT resources.

The key thing in these findings is that when teachers use ICT facilities to aid teaching and learning in classroom environment, students are likely to be influenced into developing behavioral intentions to use the facilities in their learning. This change in behavior may increase chances of students learning how to use the facilities for other uses. For example, the study reports the findings that 18 (72%) students who became skillful in ICT were able to obtain good grades in tests and examinations while 7(28%) lacked the skills and knowledge needed to use the technologies did not benefit. In addition results reflected in Table 1 indicated different responses of some students who appeared to miss competencies needed to use internet services, PowerPoint and graphic programs. Commentators in literature have indicated that perceived ease of use tends to influence the use of technology because difficulties faced in using a technology are likely to negatively affect one's behavioral intention to use it and later affect the actual use and acceptance of the technology itself. Thus, the students that lack the skills and knowledge needed to use ICTs will find using technologies complicated hence developing unwillingness to use them. As such, the students need enough time and support to learn about the technology.

Students' perceptions of ICT use in new curriculum

This part reports the study's findings on respondents' perception of the usage of ICTs in teaching and learning. To start with, results on the school's tolerance of students' possession of ICT facilities at school. On this, the results show that 19 (76%) students said they were not allowed to use own devices while only 6 (25%) said they were allowed to do so. This can be attributed to the fact that school rules do not allow students to bring such devices to school. In a way, such school rules work against desired to integrate ICTs in teaching and learning. The findings show that students had different levels of satisfaction with the accessibility of ICT facilities used to support their learning. The findings show that 13 (52 %) respondents the ICTs' accessibility pretty good; 10 (40%) considered it

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very good; and only 2 (8%) said their accessibility was moderately good. It can therefore be argued from these findings that majority (52% plus 10%) of respondents were satisfied with the accessibility of ICT facilities for facilitating learning. The findings corroborate those obtained through FDGs where one participant had this to explain regarding rules guiding access to ICTs:

“I feel the rules are fair enough, because they restrict students to go in the computer laboratory with food and drinks. This is important for protecting computers and other devices from being damaged by water, juice”. Another student commented:

“I think the rules are good, because they restrict students not to misuse computers in the absence of teachers. This helps to control their usage and ensure their protection”.

The findings imply that students were aware of benefits of having computer laboratory rules. Regarding how the usage of ICTs in teaching and learning was perceived, the study shows that students had a positive feeling towards it. In fact, the findings indicate that while 14 (56%) respondents showed that they had very good feelings about the usage of the tools, 11(44%) said that they had a pretty good feeling about it. Therefore, it can be said that students are willing to use ICTs. However, while the school administration appeared to allow the use of ICT facilities for teaching and learning, it abides by government directives of prohibiting students from owning such technology at schools. One would doubt why the school, particularly some teachers are reluctant to report to the school administration or apply the government directives to students who violated it? The school context seem to provide chances for students to have access to personal and ICT facilities while the country norms are not in favor of the strategy. The findings reflect previous studies that have reported on the need for positive student’s awareness and mind set towards the use of ICT to motivate student learning environment (Yonazi, 2012).

With regard to the student’s motivation to use ICT facilities, the findings show that a majority (18, 72%) of students was satisfied with ICT integration in teaching and learning activities except for a few (7, 28%). Likewise, the students were more motivated to use some forms of ICT tools including smart phones, laptops computer and computer applications than they were to use tablets, iPads, Internet, and smart boards in learning. Figure 3 illustrates the least to the most liked ICT facilities for teaching and learning purpose.

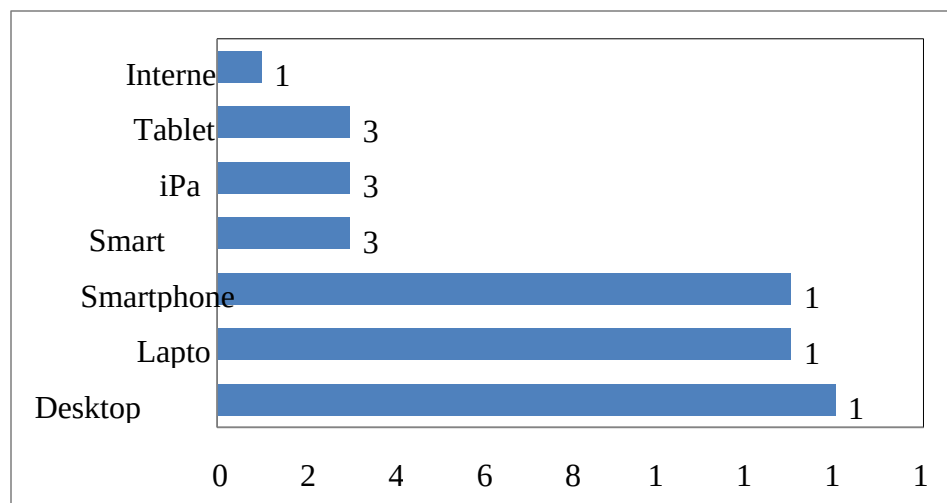


Figure 2: ICT facilities for teaching and learning

Findings on Figure 2 indicate that students were very motivated to use desktop computers (14), laptops (13) and Smartphones (13) for learning purposes than they were for Smart board, iPads, and tablets. However, the study results suggested that apart from setting rules, which help to control improper use of computers, and ICT technologies, students had a feeling that they could get chances to learn many computer applications to improve their literacy level. The positive feeling of students have reported about ICT integration in teaching and learning are an indication that the facilities are likely to positively contribute to academic performance at the school as Lari (2014) noted, students' positive attitude towards using technology in learning English language resulted in enhanced performances. Moreover, evidence on Technology Acceptance Model reveals that effective ICT integration in teaching promotes active learning and high performance (Ghavifekr & Rosdy, 2015).

Discussions

Integration of ICT technologies in teaching and learning

Regarding the usage of computers in classrooms, the results revealed that the use of ICT facilities in teaching and learning at the school differed depending on the type of technology or ICT equipment. In fact, 23 (92%) responses indicated computers as ICT facilities used to teach at the school; 9 (36%) indicated Internet, smart board was indicated by 3 (12%); and television was indicated by 1 (4%) response. Regarding the ownership of such devices, the study has established that majority of students 21 (84%) owned ICT devices such as desktop computers, laptops and tablets while 4 (16%) did not. The study further found that students who owned such ICT devices felt that they were helpful to their efforts to learn various subjects. For example, responses from majority (4:16% plus 10:44% and 9: 36%) students who used internet indicated that it helped them to become more communicative while 1 (4%) student showed to have not benefited from it.

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Students' knowledge and skills on ICT Use

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Conclusion

The findings from this study suggest that the ICT facilities were inadequate including laptops for teachers, projectors, tablets PC devices for pupils, as well as other enabling installations. There is a need to provide computers to teachers so that they can easily access materials and prepare for technology integration. This will help to familiarize the teachers with computer hardware and software hence reducing the need for computer technicians in schools.

Secondly, the researcher noted that although most of the teachers had basic computer literacy there was a challenge in technology integration due to inadequate pedagogical knowledge on integration. Teachers implementing the new curriculum should be involved in frequent PD programs and training that goes beyond basic computer literacy to technology integration in various subjects. In circumstances where the shortage of devices is inevitable, teachers

should be trained on how to encourage collaboration among learners through the sharing of the technology devices and working on tasks as a team.

The results further indicated that teachers have a high attitude towards the use of ICT regardless of gender and the numerous challenges that they face. To encourage the younger teachers to use technology and to train their older colleagues on integration in teaching, the government should consider giving incentives. A reward such as official recognition or sponsorship for further ICT in education training could act as a good motivator to younger teachers.

The findings from this study suggest that the ICT facilities were inadequate including laptops for teachers, projectors, tablets PC devices for pupils, as well as other enabling installations. There is a need to provide computers to teachers so that they can easily access materials and prepare for technology integration. This will help to familiarize the teachers with computer hardware and software hence reducing the need for computer technicians in schools. Secondly, the researcher noted that although most of the teachers had basic computer literacy there was a challenge in technology integration due to inadequate pedagogical knowledge on integration. Teachers implementing the new curriculum should be involved in frequent PD programs and training that goes beyond basic computer literacy to technology integration in various subjects. In circumstances where the shortage of devices is inevitable, teachers should be trained on how to encourage collaboration among learners through the sharing of the technology devices and working on tasks as a team.

Based on the findings of this study, it can be concluded that the environment for integrating ICTs in teaching and learning is good at the school. This is so considering that students' perception and practices regarding this are good, the students are satisfied with the accessibility of ICTs and some students own ICT. On the other side, aspects such as lack of free time to use computers outside formal classroom learning session, prohibition of owning personal ICT tools at school and usage of computers in teaching only computer related subjects appear to be the barriers towards fully integrating the usage of these tools to enhance teaching and learning. In all, the school's efforts to integrate ICT has the most important resource in place; the students' positive attitude towards the whole thing. As explained by Technology Acceptance Model, people's attitude and their limited knowledge of the technology itself lead to fear of technology without any justifiable reasons - technophobia.

Recommendations

Based on the results, it is also found of great importance for the school's administration to soften the rules that restrict ICT use so as to allow students to use their personal ICT devices for learning.

Despite the presence of the ICT policy in Uganda, there are some government directives and people's mind sets that limit students' use of ICT devices in secondary schools. The, policy planners and curriculum developers in the ministry of education, researchers and private organizations with interest in students' use of ICT should promote ICT literacy in secondary schools intending to use it as a tool for teaching and learning so as to transform the

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existing mind set and unfriendly regulations. Further, the researchers recommend that the present study, which was confined to one secondary school in Bulambuli district, should be replicated on a bigger scale to produce results that can be generalized.

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