

**ICT USAGE AND STUDENTS' ACADEMIC ACHIEVEMENT IN  
PHYSICS IN SELECTED SECONDARY SCHOOLS IN LUZIRA  
NAKAWA DIVISION KAMPALA DISTRICT**

**BY**

**ISWARRA BRIAN**

**BSE/39218/123/DU**

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### APPROVAL

I confirm that the work in this report was carried out by the candidate under my supervision

Sign .....

MR. MUNDU MUSTAFFA

Date.....

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## **ABBREVIATIONS AND ACRONYMS**

ICT	:	Information and Technology
MOE	:	Ministry of Education
G.O.U	:	Government of Uganda
UNEB	:	Uganda National Examinations Board
GAS	:	Government Aided Schools
PSS	:	Private Sponsored Schools
PC	:	Personal Computer
IT	:	Information Technology
IB	:	Interactive Boards
UCE	:	Uganda Certificate of Education
UCC	:	Uganda communication commission
UACE	:	Uganda Advanced Certificate of Education

## **ABSTRACT**

This study was about ICT usage and students' academic achievement in Physics in Luzira Nakawa Division Kampala District Uganda, which was in line of determining the level of ICT usage and its impact on to student's academic achievement in Physics in LuziraNakawa Division Kampala District Uganda.

In this study, different sources of information were used that is to say, other scholars, journals, magazines, periodical articles other research studies and website.

One of the three methods of collecting primary data was survey. The information was gathered from students and teachers by responding the questionnaires as the data collection instrument.

The study found out that there should be quick installation of ICT facilities and staff for higher levels of student's academic achievement in Physics.

The suggested recommendations were, installation of adequate ICT facilities and staff, close monitoring of students, training teachers ICT skill when they are still in universities, and strong rules and regulations towards ICT usage by both teachers and students.



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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0. Overview**

The introductory chapter covers the background problem statement purpose specific objectives research questions hypothesis scope and significance of the study.

#### **1.1. Background of the study**

ICT in Education is a great issue to attentively deal with for the achievement of the general educational objectives . In Uganda today there has been a great improvement in adoption of usage of ICT in the teaching and learning process since the enacted policy of reconstructing the Education system(Kajubi report 1996).

ICT has become one of the fundamental building society. Many counties now regard the mastering of the basic skills and concepts of ICT as a fundamental part of the core Education .

The use of computers and interactive boards in Education is much more a series of failure than success stories. According to Erick, (2001) in general the impact of technology on the way people lie has been minimal. It can be claimed that from the learning perspective the only proof of concept cases of using computers electronic boards and interactive boards in schools and university environments for learning are the small scale experiments which CSCL ( computer supported collaborative learning ) tools such as the classical experiments made with web based social software.(Sharman 2003).

According to Mathura 2001, the piratical theory supporting the use of ICT 2/21 (Government white paper 2001) states that, one of the basic requirements for education in future was to prepare learners for an active and fully participation in a networking information society in which knowledge was the most critical resource for social , political and economic development. The fast development of technology handled to a wide spread use of ICT in Education.

As a result modern information and communication technologies have had great impact on the way students conceive , understand synthesis analyze and comprehend

the concepts that they are being taught for this reason ICT how often affected the Education today.

ICT has been growing in phases and these are;

1. Late 1970's - Early 1980's; programming, drill and practice, Late 1980's-early.

According to ICT advisor Demarcs (2001), and ICT. Rich educational experiences bring benefits. She says that technology is a paramount part of students' everyday lives. She makes sure that the necessary software and hardware is available for students to use, Beside, students who have laptops themselves can bring their machines with them .ICT make every one comfortable by using it.

While also helping them develop their own ICT skills. More than half of the students in groups have a computer or laptop at home as well as access in college so that they can search for information regardless of time and place.

## **1.2. Problem statement**

Focusing, transport and security, it has not been fully integrated in the education sector (Erik 2001). Today the education system is faced with series of changes and reforms. It is good to reflect on matters connected with students' academic achievement in physics and dissemination of physics knowledge and lessons .

After the 2008 MOE report where a new curriculum was approved through the policy of restructuring the education system, IT was introduced as a subsidiary subject at advanced level ( A' level) . This called for numerous teaching strategies which would correspond to accommodation of students' needs and diverse learning methods and one of the strategy involves the use of ICT. ICT is the use of technology in managing , processing information with the use of electronic computer system and software to convert , store protect process transmit and retrieve information.

Physics on its own requires observational and knowledge to solve natural problem. This can only be realized after the establishment of the impact of ICT on the student's academic achievement in physics in Luzira, Nakawa Division Kampala district.

Angaye (2005) noted that the problem of IT illiteracy was a serious one among teachers in the country as it cuts across primary and secondary schools, since they don't have basic computer application skills noted that was a hindrance towards students' academic achievement in physics.

If students and teachers have been exposed to ICT equipment in the teaching process of physics would it bring out an impact in students' academic achievement in physics in Luzira, Nakawa Division Kampala district.

Most of the studies that were conducted in Kampala were general and not giving the difference in the level and usage of ICT to the academic achievement of students in physics in Luzira Nakawa Division Kampala district Uganda.

### **1.3. Purpose of the study**

The purpose of the study was to determine the level of ICT usage and its impact on to student's academic achievement in physics in Luzira Nakawa Kampala district Uganda.

### **1.4. Objectives of the study**

- i. To determine the level of ICT on the quality of students' academic achievement in physics.
- ii. To find out the challenges of using ICT in teaching and learning physics
- iii. To determine the remedies to ICT usage in teaching and learning physics.

### **1.5. Research Questions**

- i) To what extent was ICT being used in secondary schools during the teaching and learning process of physics?
- ii) What were the challenges facing ICT in teaching and learning process of physics.
- iii) What were the remedies to the challenges facing ICT in the teaching and learning process of Physics?

### **1.6. Scope of the study**

#### **Geographical scope**

The study was carried out in few selected secondary schools in Kampala district, Nakawa Division Luzira parish in Uganda. The district is bordered by Wakiso in the West, East, South and North.

#### **Content scope**

This study was concerned with student's academic achievement in physics towards the use of ICT in selected secondary schools in Kampala Nakawa Luzira in Uganda. The study was also aiming at determining the extent to which ICT was being used in

secondary schools and its implication to the academic achievement of students in physics.

This research was based on the Bertalanflys theory (1998) which is also called system theory. According to this theory, a system comprises of three things, these are elements attribute and interrelationships . Therefore a system is a set of things that affect one another with an environment and forms a larger pattern that is different from any of the parts Rodman (1992).

### **Time scope**

The research study was carried out between the periods of 9<sup>th</sup> July to 31<sup>st</sup> August 2015.

### **1.7. Significance of the study**

It was anticipated that this study was to help different people in the entire community, schools and government authorities.

- The teachers will know which type of ICT equipment to be used in the teaching and learning process of physics and also be aware of awaiting challenges that may arise.
- The learners were be encouraged to use the internet sources, Interactive boards for academic purposes only
- The government through its policy makers was guided on how ICT can be implemented in teaching physics and critically assesses the impact that come with the inclusion of ICT in the teaching syllabus of physics.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0. Overview**

In this chapter, the study focused on the review and a short analysis of the related literature in the area of students' academic achievement in physics and its impact with ICT usage in secondary schools. This chapter is concerned with theoretical review of the related literature in accordance with the objectives of the study.

#### **2.1. Theoretical Perspective**

This research was based on the Bertalanflys theory (1998) which is also called system theory. According to this theory, a system comprises of three things, these are elements attribute and interrelationships . Therefore a system is a set of things that affect one another with an environment and forms a larger pattern that is different from any of the parts Rodman (1992).

Based on the research of software and information industry association 2000, students who used educational technology in schools are more successful because they are more active in learning and increasing self-esteem . ICT then enhances and extends the possibilities of learning across the curriculum. Thus , ICT proves more opportunities to show their hard work to audiences or teachers as well as it is within 24hours.

#### **2.2. Conceptual review**

ICT deals with use of computers , electronic boards , interactive boards speakers , projectors and software to store , protect convert process and transmit information securely . Information communication technology or ICT is used in education at all levels from the school site to district levels. ICT has allowed for a more accurate tracking, transportation, storage of information and it is continuing to evolve. Therefore ICT has become a paramount and necessary part of education report USA.

In this study the independent variable information communication and technology, the dependent variable was students' academic achievement in physics.

Extraneous variables are;

1. **Students attitude towards ICT** , that is how students appreciate the integration /usage of ICT in teaching and learning physics .

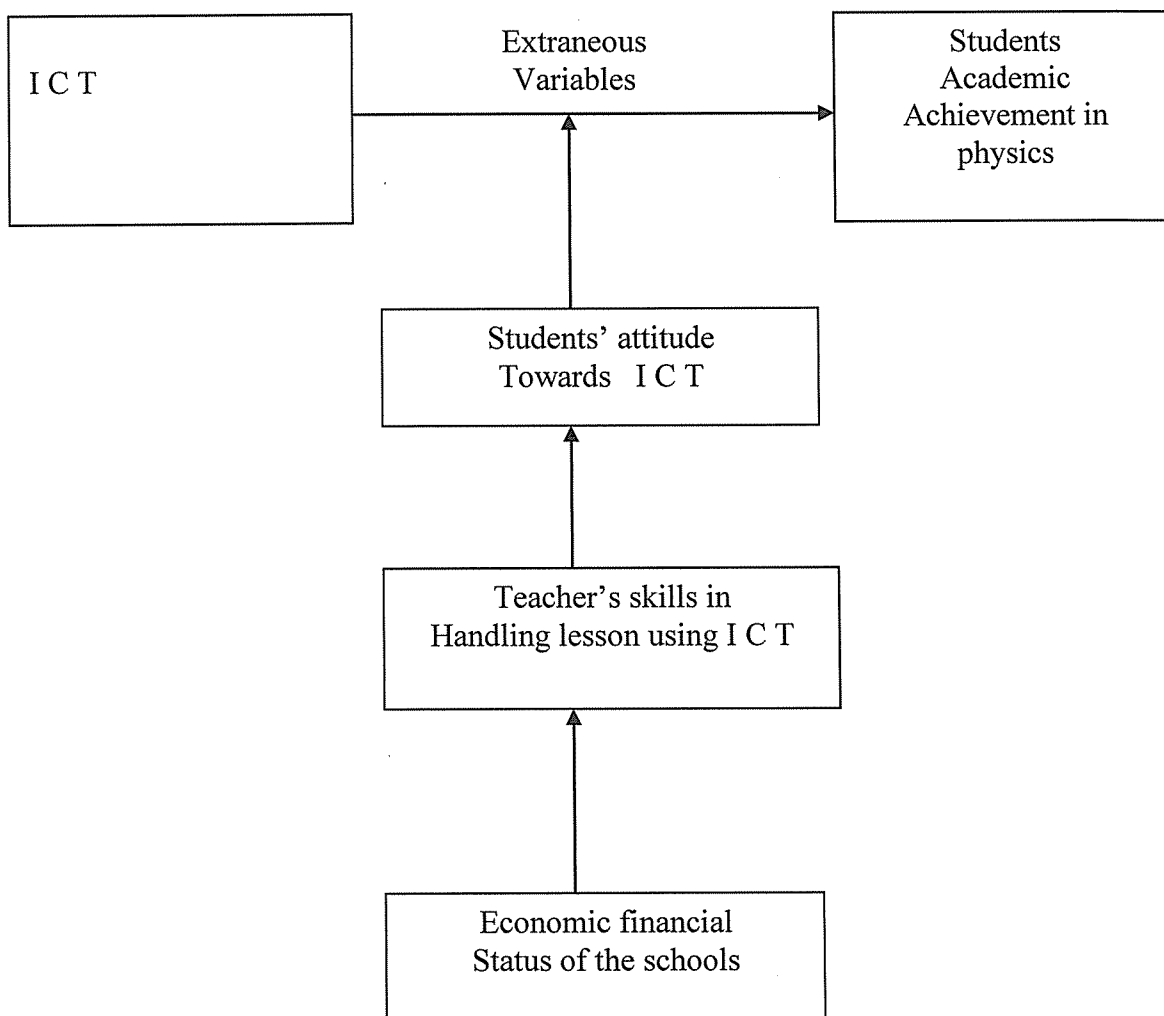
2. **Teacher qualification** ,Teachers skills in handling physics lessons using ICT equipment that is how good or bad and in how many different ways could they use ICT to serve a common purpose.
3. **Economic factor** ,Economic status of the school, that is how able is the school to install and maintain ICT equipment in good conditions and at the same time feed s students and employee good teachers together with provision of necessary materials in physics as a subject for better grades.

### Conceptual Frame work

Figure 1 summarizes the relationship between the independent variables which is ICT and dependent variable which is students' academic achievement in physics and other extraneous variables.

#### Independent Variable

#### Dependent Variable





### **2.3. The Extent of use of ICT in the Education Sector**

According to Daniels (1999) ICT have become within a very short time , one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the score of education, alongside reading , writing and numeracy.

Technologies have changed the way people live work and learn. The use of technology in Education is one of the main challenges for education policy makers. Traditional methods of education can't meet today's learner's needs. New technologies provide opportunities including the ability to tailor learning to the individual (Alstyle 1997).

The influence that IT can have a teaching and the implementation of IT and ICT in the teaching and learning process for example regardless of discipline, however the advantage is that students and teachers are not limited by time and place ( Fattah 2004)

The growth of IT and ICT has had a profound influence on Educational institutions at all levels . Today, students can pursue scientific, educational and research goals using the internet. This entrance of IT and ICT into the learning process hassled to review of educational programs and teaching methods . Schools have reviewed heir curricular in light of the interests of society and the market. Continued reviews and need to meet future needs (Davis 1997).

Existing literature and personal experience indicate that many Ugandan schools lack a framework for receiving computers and utilizing them for student learning. This is emphasized by the information highlighting the lag in ICT adoption for Uganda and the future role it will play in development (Bon, 2007).

Uganda needs workers trained in ICT and the schools need to embrace computing and ICT skills as a necessary component of an education that prepares students for the real world (Newby et al., 2012)

Hawkins in( 2004) in Ten lessons of ICT and Education for developing countries notes that while as many ministries of Education have made a commitment to computerize

schools ,few have developed coherent strategies to fully integrate ICT as a pedagogical tool in the classroom

Information and Communication Technologies (ICT) have had a quiet beginning in education, but have become an essential component in preparing today's students for roles in the future workplace (Buabeng-Andoh, 2012). Initial excitement over the prospect of acquiring computers and other new technologies in the classroom led to significant spending in the education sector in the 1980's and 1990's.

Early opponents like Larry Cuban made predictions about computer use in schools, proposing that for all of the hype and expense dedicated to computers, they were difficult to operate and master, slow, prone to breaking, and generally incompatible with the requirements of teaching (Becker & Ravitz, 2001). These predictions of the 1980s and 90s may look silly today with the integration of ICT resources into everyday life, but through the 1980's and 90's

Cuban's statements held up in many respects. Large computer laboratories in schools were and are infrequently used. Teachers who prefer teacher-centered activities refrain from using computers in the classroom and computers aren't a great fit for every subject. Conversely, there now are more technologies like projectors, Smart Boards and document cameras have been developed specifically computing power in some watches than in 1980s computers, and software has been adapted for the classroom which allows for exploration teaching (Becker & Ravitz, 2001); the internet has become an essential tool for communication and transmission of knowledge; and interactive for use in the classroom.

Another argument was that technology adoption wouldn't occur because of a lack of teacher comfort and knowledge of computers and software. Again this argument was once accurate, but as computers have become more integrated with everyday life and teachers are trained earlier in the uses of technology in their field, the issue has diminished. Even after heavy investment and high expectations, not every dream has

been realized, and most came after a considerable lag in time of introduction of resources and training (Becker & Ravitz, 2001).

Cuban's predictions shouldn't be dismissed, just because his predictions didn't were surpassed through the expansion of computers into components of everyday life. We can also use his predictions to assess areas where they are being used in the classroom and appreciate progress that has been made. When teachers have adequate technical expertise, adequate classroom access and a teaching philosophy supportive of their use, computers are a great fit in the classroom.

Teachers, who are professionally active, providing leadership with their teaching peers, are the most active computer users of all (Becker & Ravitz, 2001).

Cuban's skepticism and the subsequent successes over the issues he raised can offer a useful perspective into how ICT adoption in Uganda can occur.

Adoption and usage of ICT by developing countries has followed a pattern similar to that of developed countries (Ssewanyana & Busler, 2007). In 1980s America computers were limited in their abilities and had little learning-specific material.

Teachers of Uganda today understand the potential of computers better now that programs and lessons have already been developed for schools. There is less of an unknown quality about computers as there was in 1980s America. Conversely there are very few personal computers in Ugandan homes, whereas a home computer was more frequent in 1980s America.

Adoption by the private sector happens quicker than in the public sector, creating a significant delay in personnel to fill positions in the workforce.

Government and Non- Government Organizations (NGOs) have invested heavily in ICT in the education sector only for adoption to lag behind the private sector and its needs of a computer literate workforce (Blaak, Openjuru, & Zeelen, 2013; Buabeng- Andoh,

2012). ICT is considered a key factor behind sustainable development (Bon, 2007), creating even more pressure for resources

, trained professionals, and adoption in schools. Evaluating the issues in the slow adoption of ICT in schools can be explored through the critiques raised by Cuban. The pressure of ICT integration falls on three components of the education system:

The governmental Ministries overseeing education and technology, the schools and their administration, and the teachers who will be integrating ICT. Recently, the outlook for schools has changed, as a joint initiative by the Ministry of Education and Sports (MOES) and the Uganda Communication Commission (UCC) have started providing computer labs for secondary and tertiary institutions. This has been coupled with the inclusion of Computer Studies as a required paper for the Advanced Level leaving exams (UACE). These steps come as the country recognizes just how important ICT is in daily lives. The effect of ICT on the bridging the technology gap (Buabeng-Andoh, 2012), a role schools are best able to handle. New computers are distributed throughout the country to both urban; and rural schools. These efforts relieve some of the pressure on NGOs supporting schools. While NGOs are helpful and offer a good base, they need long term external funding to sustain their initiatives (Loving, 2007).

## **2.4. The challenges facing ICT Usage and the remedies**

The expansion of public services and the development of sustainable infrastructure are the key to challenges of the e-school projects in Africa.

Basic infrastructures are critical for successful implementation of the usage of ICT facilities in the teaching learning process of physics (World Bank 2006). Technical and basic infrastructure coupled with sustaining schemes make up structures that can empower or constrain the application of ICT in secondary schools in Luzira Nakawa Division Kampala Uganda and Africa at large. Infrastructure requirements are costly and involve various stakeholders, particularly the school administrators and government of African states.

There are a number of challenges concerning access to the use of ICT in secondary schools in Luzira Nakawa Division Kampala Uganda in the teaching learning process of physics.

Among others include unstable financial status of schools, frequent power shut downs, lack of enough skilled ICT staff, outdated ICT facilities, Ignorance and Insecurity in some of the places where these schools are located.(Kamoga G 2007)

The Uganda government and school administrations need to commit themselves to innovative power stabilization projects in all schools.

This can be made more innovative with the application of solar energy. (Gunga and Ricketts 2006) cost is also an important factor that guides the adoption and growth of ICT in Uganda.

A small number of schools have direct access to high speed connectivity through intimate service providers; generally there is limited penetration of the national physical telecommunication infrastructure for low income earners.

Most of developing countries are constrained by resource scarcity. Even where the importance of ICT is recognized, allocation for the development of ICTs is often inadequate. (G.Markon 2013)

Mugenda (2006) said that one of the greatest challenges in ICT usage in Education is to balancing Educational goals and entertainment amongst students and economic amongst the administrators of the schools.

Management of ICTs in schools is another factor that needs to be put in to consideration, this involves two levels, strategies level which include reviewing and putting in place the most appropriate ways of exploiting existing ICTs, sourcing and using new ICT that needed in schools and the operational level which involves providing high quality reliable ICT services to the school through capacity building (training) development, delivery of ICT projects, implementation, application and monitoring the usage and effectiveness of systems. Administrative support is hence critical to the success of the two levels.(Mugenda 2006)

In this connection the researcher wanted to know if the available ICT facilities were fully utilized by ensuring that the computers were available for use by the students.

The researcher establishes that if students were given equal chances to use ICTs and if the utilization was an academic benefit. The researcher was also interested to know if the availability of ICTs to students could be a hindrance to student's participation in other important activities like games because of being pre-occupied with ICTs such as computers ( Wells and Wells 2007).

Teachers are understaffed resulting in a class size higher than 60 students more than the ministry intends.

Bigger classes proved to be a high challenge to teachers while trying to integrate ICTs in the teaching learning process of Physics.

Quality and capability of computer available in Uganda also limits their use in schools. Many computers are slow and difficult to use because most were donated used computers from United States and Great Britain (well and wells 2007).

A common complaint from teachers is lack of enough resources and funding any no-lecture based activity (Johnson-Pynn and Johnson 2005).

This decision by the administration affects using computers in lessons but could also indicate lack of comfort with current resources and the connection between resources content and the curriculum.

As it adopts ICT in education, Uganda faces the same challenges as most developing Economies – poorly developed ICT infrastructure, high bandwidth costs, an unreliable Supply of electricity, and a general lack of resources to meet a broad spectrum of needs.

However, with the rapid emergence of wireless network capacity and the ubiquitous growth of mobile phones, the context of the infrastructures changing. A national ICT policy is in place and an education sector ICT policy is before Cabinet. The Ministry of Education and Sports is taking steps to co-ordinate ICT development and has allocated resources (by Glen Farrell June 2007).

The results of numerous studies reveal that ICT can both negatively and positively impact on the general academic achievement in a school.

According to the academic research (Rodman 1992) it is regularly highlighted that there is a link between experience of using new technology and attitudes towards it, for example, found a strong correlation between ICT, while other studies have found a similar significant. Based on the relationship between undergraduate's experiences and both cognitive and affective studies attitudes (Schumacher et al 1992).

The introduction of ICT into schools has had an impact on teachers in terms of their overall work load, that includes planning lesson preparation as well as on the ways in which these are coordinated within the school and wider educational context. The availability of ICT capacity itself has sufficiently enhanced learning and teaching. Teachers have to be confident in their own ICT capacity and understand the potential benefits of using ICT in education area (Schumacher et al 1992) research of internet training is provided in some of the colleges in Europe as well as to make students to learn to become more independent in their work. Therefore ICT is provided for the students to have quick and easy ways in doing research and information to the earlier. For example for our assignment in the previously use have to go the library to collect or gather information. It is not only a waste of our time but also there is a limit to the information we can get and now, ICT is saving our time doing the work and there is no limit to the information (Rodman 1992).

## CHAPTER THREE

### METHODOLOGY

#### 3.0. Overview

This chapter covers the following : Research design , research population , sample size , sample procedure , data collection , research instrument validity and reliability of the instrument , data analysis and ethical consideration.

#### 3.1. Research design

This study was used as a descriptive design in a particular descriptive correlation design with the reason that the researcher was interested in finding out the impact of ICT usage and students' academic achievement in physics in selected secondary schools in Luzira , Nakawa Division Kampala district.

#### 3.2. Research population

The population of this study was 180 students in total from 3 secondary schools in Luzira , Nakawa Division Kampala district; students shall be from S.1 to S.6 . Each school shall averagely provide 60students. The students was referred as respondents because they exactly know how often computers and other ICT equipment such as interactive boards were being used in teaching physics in selected secondary schools in Luzira Nakawa Division Kampala district.

#### 3.3. Sample size

In this study, the students population of theselected 3schools.

Table 1. 180 students were sampled from schools as shown in the table.

School	Target Population	Sample Size
A	70	68
B	60	58
C	50	49
<b>Total</b>	<b>180</b>	<b>177</b>



### **3.4. Sampling procedure**

Positive and simple random sampling was used to pick the schools for the study. All schools were chosen from Luzira parish, Nakawa division, Kampala district.

Simple random sampling was then be used to pick respondents from each school.

This was done due to the fact that students' academic achievement in physics is an issue of concern in all types of selected secondary schools.

### **3.5. Research instrument**

#### **Questionnaires**

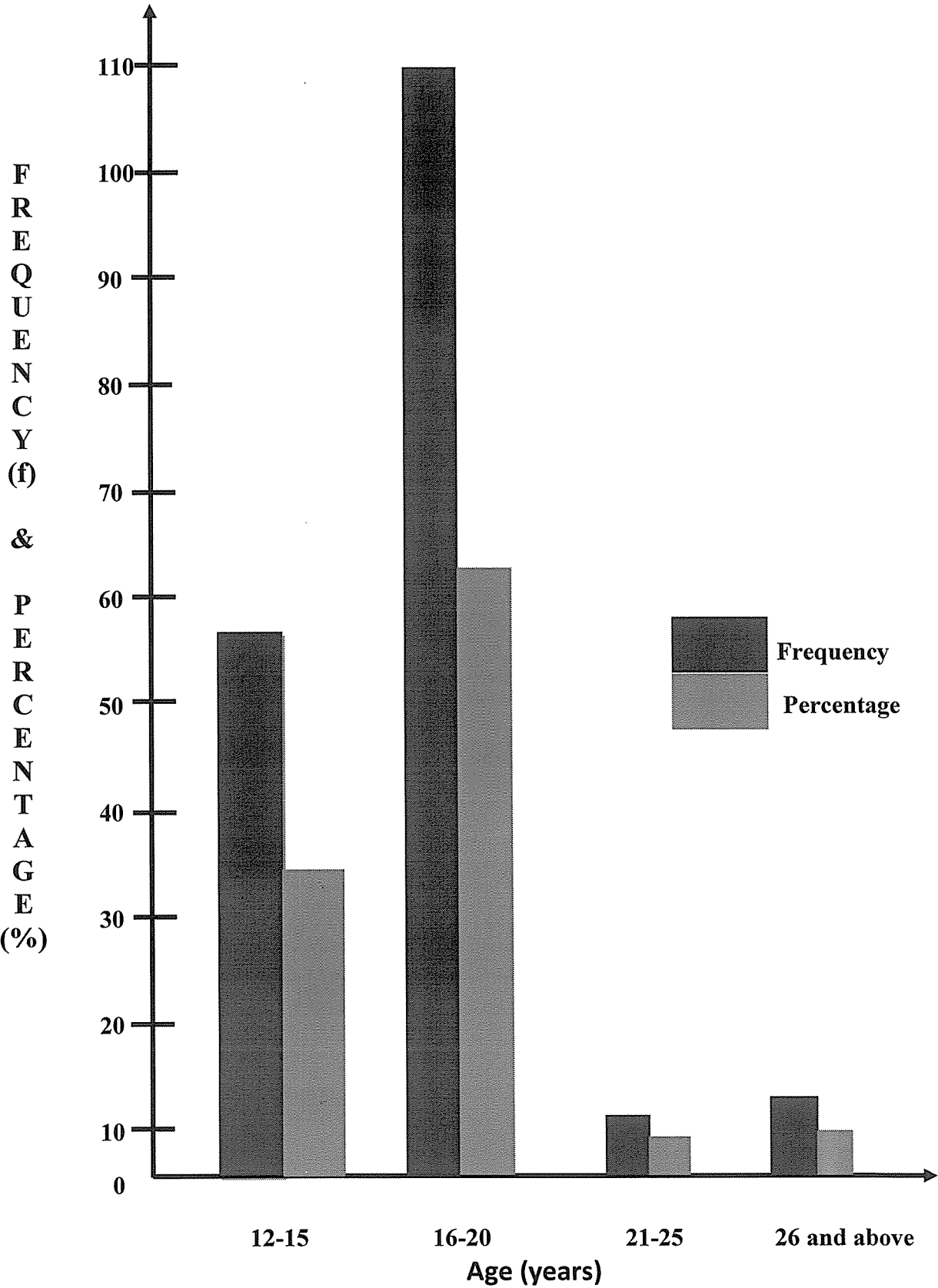
The researcher collected primary data from the participants, using self-administered questionnaires to the students, teachers and administrators, with both open ended and closed ended questions.

The questionnaire mainly comprised of three sections aimed at achieving the objectives of the study. Each section had three items.

### **3.6. Validity and reliability of the instrument**

Validity of a research instrument was referred to as the measurement of the degree to which a research instrument was used to measure an attribute that it was specifically designed for whereas reliability was referred to as the measures of the degree to which a research instrument yields consistent results or data after repeated trial (Mugenda 1999) In order to improve on the reliability of the research instrument, the researcher with the help of his supervisor critically assessed the consistency of the responses on the pilot questionnaire to make judgment on their reliability. Split half technique of reliability testing as employed. This means the pilot questionnaires was divided into two equivalent halves and then a correlation co-efficient for the two halves calculated using spearman's correlation coefficient.

Figure 4.2: Represents Age Bracket of Respondents



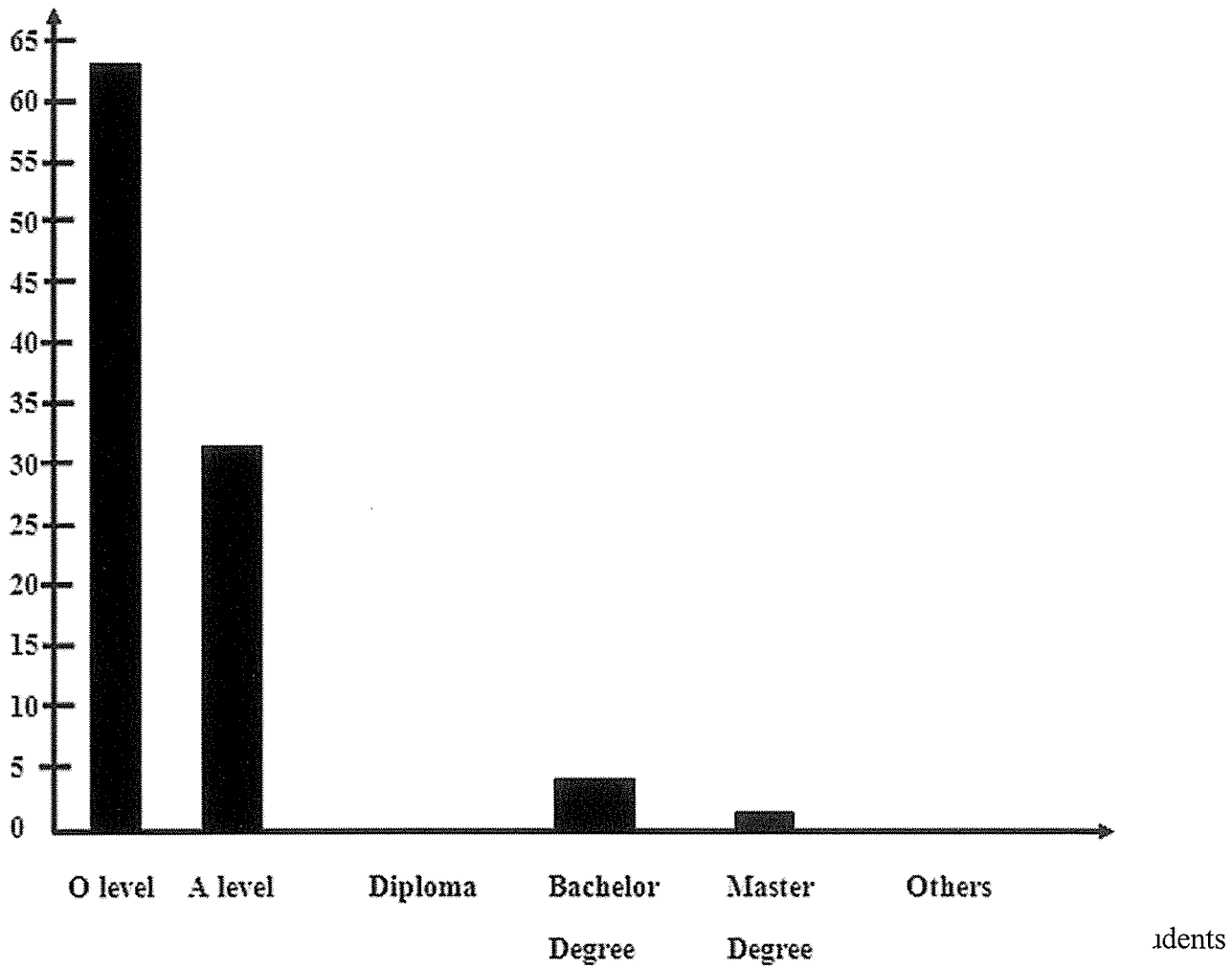
**Table 4.3: Level of Education of the respondents**

<b>Level of Education</b>	<b>Frequency (f)</b>	<b>Percentage (%)</b>
O level	114	63.3
A level	55	30.6
Diploma	00	00
Bachelor's degree	8	04.4
Master's degree	3	01.7
Other	00	00
<b>TOTAL</b>	<b>180</b>	<b>100</b>

The table above revealed that 63.3% were in O level, 30.6% of the respondents were in A level, 4.4% of the respondents were Bachelor's degree holders, 1.7% of the respondent were master's degree holders.

The data was further represented in a Bar graph for as shown below.

**Figure 4.3: Respondents level of Education**



academic achievement in Physics in some few selected secondary schools in LuziraNakawa Kampala district.

The respondents were asked to tell the major ICT indicators that could affect student's academic achievement in Physics.

**Table 4.4: Major indicator**

<b>Indicator</b>	<b>Frequency (f)</b>	<b>Percentage (%)</b>
Computer labs	180	100
Intimate connection	160	88.9
Interactive boards	70	38.9
Projectors	120	66.7
Personal computer	110	61.1

From the table above, 100% respondents affirmed that computer laboratories were available, 88.9% said that Intimate connection is also major ICT indicator, 38.9% maintained that interactive boards are good indicators of ICT, 66.7% said that projectors are also more used full in the world of ICT, 61.1% said that personal computers is also one of the major ICT indicators

### 4.3 ICT USAGE

The main objective of the study was to determine the level of ICT usage and its impact on quality of student's academic achievement in Physics in some few selected secondary schools in Luzira Nakawa Division Kampala district.

**Table 4.5: Major ICT indicators**

Description	ICT Usage	Frequency	F <sub>x</sub> (x=1-4)	Mean
Very low	<ul style="list-style-type: none"> <li>• Computerize lessons</li> <li>• Intimate connection</li> <li>• Interactive boards</li> <li>• Personal computer</li> <li>• Projectors</li> </ul>	10 110 110 116 133  <b>479</b>	10 110 110 116 133  <b>479</b>	<b>1</b>
Low	<ul style="list-style-type: none"> <li>• Computerize lessons</li> <li>• Intimate connection</li> <li>• Interactive boards</li> <li>• Personal computer</li> <li>• Projectors</li> </ul>	60 28 0 34 38  <b>160</b>	120 56 0 68 76  <b>320</b>	<b>2</b>
High	<ul style="list-style-type: none"> <li>• Computerize lessons</li> <li>• Intimate connection</li> <li>• Interactive boards</li> <li>• Personal computer</li> <li>• Projectors</li> </ul>	91 32 0 24 9  <b>156</b>	273 96 0 72 27  <b>468</b>	<b>3</b>
Very high	<ul style="list-style-type: none"> <li>• Computerize lessons</li> <li>• Intimate connection</li> <li>• Interactive boards</li> <li>• Personal computer</li> <li>• Projectors</li> </ul>	19 10 70 6 0  <b>105</b>	76 40 280 24 0  <b>420</b>	<b>4</b>

$$\text{Average of means} = \frac{1+2+3+4}{4} = \frac{10}{4} = 2.5$$

This shows that the level of ICT Usage in the teaching and learning process of Physic in Luzira Nakawa Division Kampala District is still low.

Table 4.6: Showing students' academic achievements in physics on average in the years 2011, 2012, 2013.

Score	Schools	Percentage
D1 & D2	A	36
	B	25
	C	28
C3 & C4	A	53
	B	44
	C	41
C5 & C6	A	11
	B	23
	C	27
P7 & P8	A	00
	B	5
	C	5
F9	A	00
	B	3
	C	4

Figure 4.6: Represents academic achievement of learners in their final examinations on average in the year 2011, 2012, and 2013.

School A being the target with almost 75% of ICT equipment and usage, its students popularly pass physics with division (1 and 2), credits (3 and 4) and credits (5 and 6). Other schools where ICT is not yet fully installed still register failures in physics.

**Figure 4.6: Showing student's academic achievement in Physics in the years 2011, 2012 and 2013 on average.**

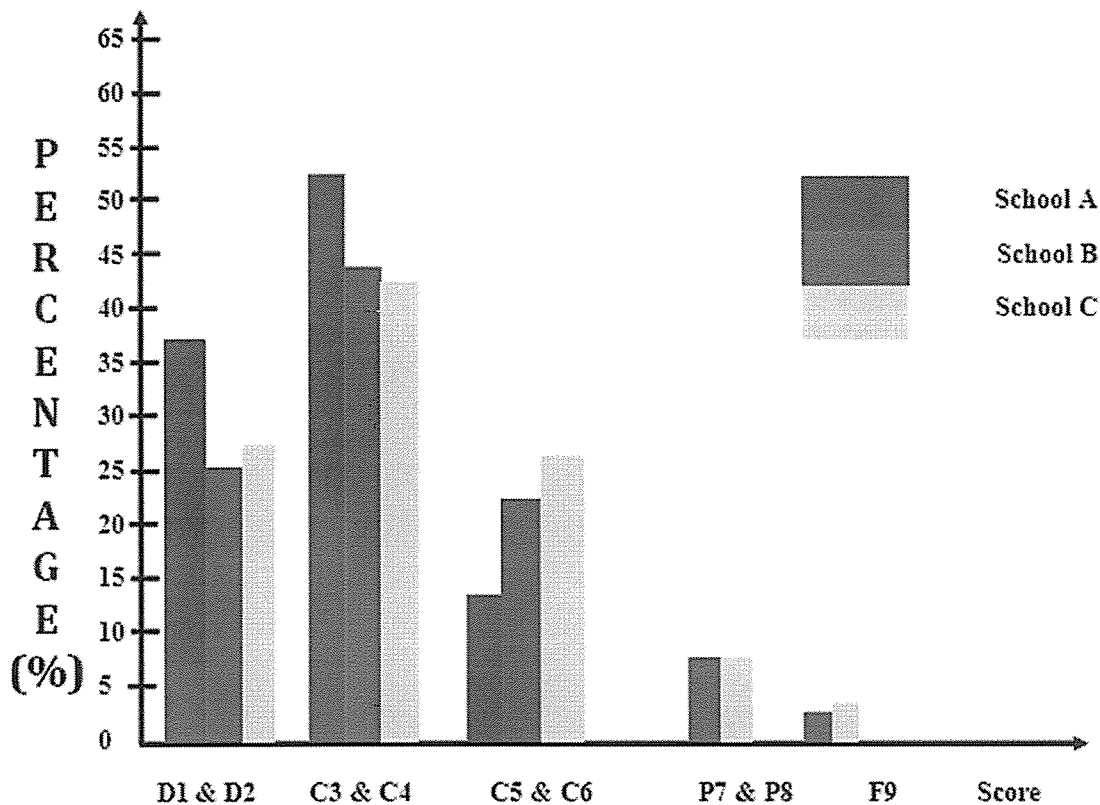


Figure 4.6: Represents academic achievement of learners in their UNEB/ UCE on average in the year 2011, 2012 and 2013.

School A being the target with almost 70% of ICT facilities and usage, its students popularly passed Physics division (D1 & D2), Credits (C4 & C5) and Credit (C5 & C6), while schools B and C where ICT is still demanding in some areas, register passes (P7 & P8) and also failure (F9).

In summary school A registered 36% of distinctions 1 and 2, 53% of Credits 3 and 4 and 11% of its students scored Credits 5 and 6.

School B had 25% of students scoring distinction 1 and 2, 44% scored Credit 3 and 4, 23% scored credits 5 and 6, 5% scored passes 7 and 8 and 3% scored a failure F9. School C had



28% of its students scoring distinctions 1 and 2, 41% scored Credits 3 and 4, 27% scored Credits 5 and 6, 5% scored Passes 7 and 8 and 4% scored F9.

### **Challenges that are facing ICT Usage in the teaching and learning process in Physics.**

During the study, some of the responses on the Question 'Identify the challenges that are faced with ICT Development and usage in teaching physics' were;

1. Inadequate ICT facilities, most of the respondents responded that some ICT facilities are not adequate compared to the number of students in the schools. Furthermore, some of the facilities like projectors and interactive boards are not in existence in some of the schools hence making it challenge towards ICT Usage in the teaching and learning process of Physics.
2. Inadequate skills it was also mentioned that some of the teachers are not skillful enough to integrate ICT in their Physics lessons hence creating a need for special training for teachers if ICT is to be fully integrated in the Physics teaching and learning process.
3. Improper programming for using ICT facilities in schools which have for example some students tend to spend most of their time on computers at the expense of other lessons and other students who would also like to use the same computers hence making accessibility to such ICT facilities difficult.
4. In addition to that some of educative programmers such as excel were not found on most of the computers hence leading to students to go for non-educative programs such as games and entertainment.
5. Quality and capability of computer available in Uganda also limits their use in schools. This is because the computers which are available are old and out fashioned most of which are donations from USA and Britain as cited by one of the respondents in one So of the secondary schools in Luzira Nakawa Division Kampala Uganda.
6. A common complaint from teachers was lack of enough resources and funding any no-lecture based activity. This made it very hard for teachers to plan and organize Physics lessons using ICT facilities for example computers and projector.

## **CHAPTER FIVE**

### **5.0 OVERVIEW**

This chapter reports on the major findings of ICT Usage and student's academic achievement in Physics in Luzira Nakawa Division Kampala district. It relates to each of the three objectives of the study.

### **5.1 Discussion**

The summary of the findings was presented in accordance with research objectives.

The first objective was to determine the level of ICT on the quality of student's academic achievement in Physics.

It was found out that the level of ICT is low from table 4.5 and the quality of students' academic achievement in Physics is still low that is evidenced in figure 4.6. However there is a high student academic achievement in Physics in school A which has 70% of ICT facilities.

The second objective of the study was to find out the challenges of using ICT in teaching and learning Physics. It was found out that there is inadequacy of ICT facilities where by facilities like projectors and interactive boards were found not to be in existence in the two schools. Also there is irresponsible use of ICT facilities by students like vandalisation of interactive board and computers, lack of educative programmers and non-proper programming for using ICT facilities.

The third objective was to determine the remedies to ICT Usage in teaching and learning Physics.

The remedies were government intervention in installing and maintaining ICT facilities which correspond to the number of students and teachers in schools, school administrations should ensure availability of ICT staff to ensure that ICT facilities are utilized for only useful academic purposes.

## **5.2 CONCLUSIONS**

The conclusions of the study were presented in accordance with the research questions.

Firstly, the findings showed that ICT level and usage have a strong impact on the quality of student's academic achievement in Physics from figure 4.6 on comparing school A with the rest.

Secondly, ICT Usage in the teaching learning process in LuziraNakawa Division Kampala is still faced with changes in installation, training, incorporation and maintenance.

Thirdly, the challenges which face ICT in the teaching and learning process of Physics, students and teachers fostered some remedies such as creation of ICT staff, strong rules and punishment on irresponsible use of ICT, orientation to both for teachers and students on how to use ICT facilities.

## **5.3 RECOMMENDATIONS**

In a view of various factors that emerged from this study, the researcher made the following recommendations.

1. The use of ICT by students should be closely monitored so that students only engage in useful academic material to positively enhance their performance.
2. School should equip CTpersonnel's with skills at the time when they are in universities/ colleges. This can be ensured by the lecturers encouraging typed presentation, presentation of projects and research using power point and introduction of interactive boards which have proved to be one of the most efficient ICT facilities when it comes to information display and communication.
3. Students should be advised on responsible use of ICT facilities in order to ensure that there is no addiction to the use of ICT facilities for example computers at the expense of engaging in other important activities like research in other subjects.
4. There is need for schools with ICT facilities to equip the ICT withskills as this will ensure that facilities are in good working conditions and properly utilized.

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## **APPENDICES**

### **APPENDIX A: QUESTIONNAIRES**

#### **APPENDIX 1**

#### **RESEARCH INSTRUMENTS**

##### **A1 LETTER TO THE RESPONDENTS**

I am a student from Kampala International University pursuing Bachelor of Science with Education. I am conducting a study entitled “ICT Usage and student’s academic achievement in Physics in LuziraNakawa Kampala district”.

In view of this study, you are kindly requested to answer this questionnaire for the purpose of that particular study. I was so much grateful if you return the questionnaire as soon as possible. Please be assured that the data you provide was used for academic purpose only and was treated with utmost confidentiality. Tick in the box and fill in the blank space.

**Yours faithfully**

.....

**ISWARRA BRIAN**

**SECTION 1.**

**Profile of the student**

Date received .....

1. Gender

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>

2. Age

12-15	<input type="checkbox"/>
16-20	<input type="checkbox"/>
21-25	<input type="checkbox"/>
26 and above	

3. Class of the respondents

S.1	<input type="checkbox"/>	S.4	<input type="checkbox"/>
S.2	<input type="checkbox"/>	S.5	<input type="checkbox"/>
S.3	<input type="checkbox"/>	S.6	<input type="checkbox"/>

# **QUESTIONNAIRES TO DETERMINE THE LEVEL OF ICT USAGE AND ITS IMPACT ON THE STUDENTS ACADEMIC ACHIEVEMENT PATTERNS IN PHYSICS IN LUZIRA NAKAWA KAMPALA DISTRICT UGANDA.**

**(For Students)**

**Direction 1:** Please use a tick for your rating in the space provided for your best option of choice in terms of ICT usage and students' academic achievement in physics in Luzira Nakawa, Division Kampala District.

## **Scoring Scale**

<b>Legend</b>	<b>Rating</b>	<b>Description</b>
Strongly agree	4	Very high
Agree	3	High
Disagree	2	Low
Strongly disagree	1	Very Low

<b>INDICATORS OF I C T</b>	<b>RATING</b>			
1. Your school has computer laboratories	4	3	2	1
2. They are well equipped with functioning computers				
3. All computers are connected to internet				
4. Your class rooms have projectors				
5. Your class rooms have electronic boards				
6. Your classrooms have interactive boards				
7. Teachers and students have their PC				



## INDICATORS TO DETERMINE STUDENTS ACADEMIC ACHIEVEMENT

Students pass UCE and UACE Exams with;

### STUDENTS ACADEMIC YEAR AND RATING

6)	2011-2012					2012-2013					2013 - 2014				
	D1&D2	C3&4	C3&6	P7&8	F9	D1&D2	C3&C4	C5&C6	P7&P8	F9	D1&D2	C3&C4	C5&C6	P7&P8	F9
0															

1. Is the use of ICT better than all other teaching methods used in Physics

YES

NO

2. What could be the advantage of using ICT in teaching physics

(1-4)

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.....

.....

3. Identify the challenges that are faced with ICT Development and usage in teaching physics

(1-4)

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4. Suggest possible ways under which these challenges can be curbed down.

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