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**LEARNING RESOURCES AND SCIENCE PERFORMANCE OF LEARNERS IN
SELECTED PRIMARY SCHOOLS IN BYAKABANDA SUB - COUNTY,
RAKAI DISTRICT, UGANDA.**

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**A RESEARCH REPORT SUBMITTED TO THE COLLEGE OF EDUCATION,
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DECLARATION

I Naggonje Allen, declare that the information so given in this research report has never been presented to any University or College for Academic purposes.

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Signature: .....

Date..... 12th / Mar / 2019.....

APPROVAL

This is to certify that this research work was supervised by me and is now ready for submission to the academic board for consideration and approval.

Sign: _____

MR. LAAKI SAMSON

SUPERVISOR

DATE: _____

DEDICATION

I dedicate my work to my husband, Mr. Namugera Joseph Mary, my daughter Nalusaggi Lydia Talemwa, my brothers Mutaawe Godfrey, my sisters Nakawungu Resty and Nalwanga Teo, and colleagues in the academic struggle. Lastly but not least, My friends Ssekiwunga Ronald and Ssekajugo Gerald for financial support while at KIU. God bless you all. The Glory and honor is returned to my loving Lord Jesus Christ through whose Grace and mercy I am what I am today, Amen.

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LIST OF ACRONYMS AND ABBREVIATIONS

Resources: This refers to materials needed and used to aid learning in teaching/learning process. These materials include picture, photographs, wall charts, interesting, dissecting materials, models, audio- visual for listening and speaking activities, posters, realia (real objects), chemicals and many others.

Improvise: To make something out of the available simple and cheap materials. These can be used as learning aids.

Structured classroom: This refers to the arrangement of a classroom in a special way to foster learning and interactions between science learners.

Appropriate learning resources: This refers to suitable teaching/learning aids in inference to learners' ability and interest. For example: experiments and activities should suit the learners.

Sufficient: This refers availability of adequate and enough materials.

ABSTRACT

The research study was carried out in Byakabanda Sub County in Rakai district. The research was basically based on a topic: "Learning resources and science performance of learners in selected secondary schools in Byakabanda Sub County in Rakai district.

The research was guided by a number of objectives which included the following;- to find out effective ways of improving students' science ability, to establish the impact of learning resources on students' performance in Byakabanda Sub County in Rakai district, to determine solutions to improve on the assessment of science learning and the resources used. The study was to determine the roles of learning resources and science performance on learners' performance as well as to identify appropriate and sufficient learning resources for teaching/learning Learning resources and science performance of learners in selected primary schools.

In identifying the objectives, the research was limited on appropriate learning resources and Learning resources and biology performance of learners in selected primary schools in Byakabanda Sub County in Rakai district and it covered science ability; and sufficient learning resources. In finding the research intentions, Questionnaires were issued out to 200 respondents from which data was obtained on the roles of learning resources and covered science ability. Interviews were held with primary schools pupils, respondents plus the head teachers and class teachers of science on matters of the related topic.

In the analysis of the findings, Teachers' Questionnaires were collected and analyzed so as to obtain data on appropriate and sufficient learning resources available for the teaching of science. Students' Questionnaires were not analyzed but were used to ascertain the sincerity of the teachers in filling the questionnaire. The methods used in scoring the items of the questionnaire were as follows:
In conclusion, the use of inadequate and inappropriate resources is therefore the cause of learners inability in science and poor performance.

CHAPTER ONE

1.0 Introduction

This chapter covers the background of study, scope of the study, the objectives, problem statement and justification of the study as well as research questions among others.

1.1 Background of the Study

Generally students perform poorly in science in Byakabanda Sub County in Rakai district because teachers hardly use appropriate resource materials during teaching.

Byakabanda Sub County in Rakai district is one of the counties that make up Byakabanda Sub County in Rakai district and over the years, Byakabanda Sub County in Rakai district has always performed poorly. Over the same period, some schools in Northern region have always performed best, probably because the teachers effectively and timely make the best use of resource materials.

Most of the blame for the failures, according to a 2009 research by the Makerere University Institute of Social Research, the critical interventions required to ensure a child's success in science subjects in UCE lie with the government and the school and not the parent.

Several reports conducted to ascertain the poor performances have arrived at almost the same conclusions ".....the poor quality of available teachers, lack of scholastic materials as major contributors to poor performance'. Speaking specifically about Uganda, Joyce Khatundi Othieno, the Commissioner Pre-primary and Primary Standards, says the

poor performance is mainly because the teachers do not consider teaching materials as one of the important issues involved in teaching/learning process.

According to Kateeba and Bagoole, pupils fail because the schools lack materials and do not have facilities like the libraries and laboratories where children would explore new things which the teachers may not teach in class. As the policy makers battle the challenge of poor results and how to make USE quality better, Jessiċa Alupo by then the Minister of Education and Sports said there was need for more parental involvement. "Parents should recognize that the children need school materials," she says. She says her ministry plans to work with the local leaders to ensure improvement.

1.2 Statement of the problem

Students perform poorly especially in biology in Byakabanda Sub County in Rakai district. The poor performance in biology can be blamed on lack of resources like chemicals, laboratories and competent teachers. The learners are unable to interpret theory to practicals in Byakabanda Sub County in Rakai district.

The schools lack appropriate and sufficient resources for learning and learn in unstructured classrooms with nowhere to display learning resources. It is in this context therefore that the researcher has come up with a proposal to analyze the impacts of learning resources and biology performance of learners in selected secondary schools in Byakabanda Sub County in Rakai district.

1.3 Purpose of the Study

The aim of this study was to examine the extent to which science performance of learners in selected secondary schools in Byakabanda Sub County in Rakai district.

1.4 Research Objectives

The study was guided by the following objectives:

1.4.1 General Objective:

The study was to determine the roles of learning resources and science performance of learners in selected primary schools in Byakabanda Sub County in Rakai district.

1.4.2 Specific Objectives:

1. To find out effective ways of improving students' science.
2. To establish the impact of learning resources on learners' performance in science in selected primary schools in Byakabanda Sub County in Rakai district.
3. To determine solutions to improve on the assessment of science performance of learners and the resources used in selected primary schools in Byakabanda Sub County in Rakai district.

1.5 Research Questions

1. Is there any significant relationship between the resources used and science performance of learners in selected primary schools in Byakabanda Sub County in Rakai district?
2. Is there any impact on learning resources and science performance?
3. What are the solutions to improve on the assessment of science learning and the resources used?

1.6 Scope of the study

1.6.1 Content Scope

The study was limited on appropriate learning resources and biology ability in selected secondary schools in Byakabanda Sub County in Rakai district.

1.6.2 Time scope

The research was intended to be completed by May 2019.

1.6.3 Geographical scope

The area of study covered selected primary schools in Byakabanda Sub County in Rakai district.

1.7 Significance of the Study

The study provided an insight into the root cause of falling standard of secondary schools education in Byakabanda Sub County in Rakai district.

Findings from this study also will help to raise the ability level of primary schools learners in biology as a way of addressing their poor academic achievement. The curriculum planners and all stakeholders in Education will also be sensitized about the indispensable position of science and learning resources in the overall knowledge acquisition process in formal education.

Generally, the study aims at producing individuals who are independent, competent and confident in using and applying science skills. The significance of this study is therefore:

- To benefit all primary schools in and provide stimulating environments and ensure that science learners have well-structured classrooms, adequate resources and activities for learning science so that the pupils can develop their skills to their full potential.
- To develop pupils who are confident in using science and fortify their ability and effective use of science as they go further with their education.

- To improve students' standard of science and develop competence in applying science skills to solve problems in real life as well as improve their general performance at the national examinations level.
- To enable all primary school teachers of science to identify and improvise learning resources for teaching -learning from available local materials and empower them to assess effective learning through workshops and training.
- To inform the ministry of education who will ensure that appropriate and sufficient learning resources for learning science which are beyond the teachers' improvisation are provided by the primary schools' authorities of Byakabanda Sub County in Rakai district. Finally, it will aid science ability and educational achievement of learners in rural primary schools in Byakabanda Sub County in Rakai district.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reveals what other scholars have contributed to the study. It is an effort to analyze how the literature is in line with the objectives and all issues under study. The chapter gave an over view of literature that are related to research problem presented in the previous chapter.

2.1 Concepts, Opinions, Ideas for Authors/Experts

The poor performance of students in science public examinations in recent times can be explained as alack of learning resources in selected primary schools in Byakabanda Sub County in Rakai district.

According to Maleki and Zangani (2007), having difficulties in grasping fully the contents and concepts of the various subjects of the curriculum taught in the target language and science seems to be one of the most serious problems that students face in their particular course of study. This is the same problem with Byakabanda Sub County in Rakai district students whose performance in the various schools subjects at public examinations is nothing to write home about. This might be due to their weaknesses in science, the medium of instruction, which may have negative consequences on their overall academic achievement.

2.2 The Roles of Learning Resources and science performance

New technologies provide learners the opportunity to acquire knowledge in an enjoyable way and allow individualization of the work of the learner. They can work according to their own needs and interests and they can use authentic material, which promote the interest of learners (Peacock 1997) such as magazine

or newspaper extracts, news, announcements. Moreover, it is essential to provide the learners with opportunities to use science for real life situations and for actual communication and to come across scientists' models either in real life (visits, teleconferencing, e-mails) or through the use of new technologies and available resources such as web sites with authentic material.

The National Research Council has warned that the use of achievement tests developed for, Byakabanda Sub County in Rakai district students will not yield valid results for students who are not proficient. As the NRC noted, "if a student is not proficient in science, his/ her performance is likely to be affected by construct-irrelevant variance—that is, her test score is likely to underestimate her knowledge of the subject matter being tested (Huebert & Hauser, 1999, p. 225). We know that consistently low test scores often lead to placement in remedial and low-level instruction that further disadvantages already the disadvantaged learners (Heubert, 2000) and exacerbates existing achievement gaps.

Hence the consequences of such testing can be serious for these students.

Findings from several studies conducted recently show the impact of science factors on the assessment of students (Abedi, 2006a; Abedi, Hofstetter, & Lord 2004; Maihoff, 2002; Kiplinger, Haug, & Abedi, 2000). These findings suggest that unnecessary science complexity may hinder students' ability to express their knowledge of the construct being measured.

Results from these studies question the appropriateness of mainstream assessments for science learners, an issue that has long been debated.

As Maleki and Zangani (2007), mentioned earlier observe, having difficulties in grasping fully the contents and concepts of the various subjects of the curriculum

taught in the target for science seems to be one of the most serious problems that students face in their particular course of study.

This is the same problem with Nigerian science students whose performance in the various schools subjects at public examinations is nothing to write home about. This might be due to their weaknesses in science, the medium of instruction, which may have negative consequences on their overall academic achievement. In the argument of Feast (2002), when students are deficient in biology, it follows that they would not perform well in the various school subjects taught in the target language. Therefore, the overall performance of Nigerian students depends, to a very large extent, on their science proficiency.

Bachman (1990) defines science ability as being able to use scientific facts to explain issues in daily life that consists of several distinct but related constructs in addition to a general construct of scientific proficiency. The relationship between students overall academic achievement in the content areas of their scientific all ability has been examined by scholars.

Butler and Castellon — Wellington (2000) compared students' performance in content areas to concurrent performance on scientifically ability test and found a correlation between the two.

Ulibarri, Maria, Spencer and Rivas (1981) examined the relationship between Hispanic students' performance in scientific tests and their achievement in-scientific and discovered that the language test data were not very useful in predicting achievement in biology.

Bayliss and Raymond (2004) examined the link between academic success and scientific ability and concluded that the relationship between academic achievement and learning resources disappear as students approach native-like ability levels. Limited scientific ability may also make it difficult to benefit fully from the teacher's instructions and to understand assessment questions. This has a direct impact on these students' performance.

2.3 Sufficient and Appropriate Resources

The aim of this chapter therefore, is to help science teachers to study how the use of well-structured, appropriate and sufficient learning resources for science teaching have been advocated for by other scholars, in order to carry out an effective and successful teaching experience.

2.4 Theoretical Framework

Behind any teaching enterprise there always exist some theoretical assumptions also referred to as guiding lines or principles. These principles do work and influence teachers' everyday teaching activity. As Stern (1983: 24-5) puts it. "A language teacher can express his theoretical conviction through classroom activities as much as (or indeed, better than) through the opinions he voices in discussions at professional meetings".

The idea of how to teach science affects not just teaching development, but also its results. There are many circumstances and factors which determine or modify the teaching process, but the use of sufficient and appropriate resources is fundamental in order to achieve the general goal. History shows different trends or model which evince how a variety of choices and options have been followed (Howatt, 1984).

Jean Jacques Rousseau (1772- 1778), developed child- centered education; He believed that the child is the center of the learning process and that its needs and interests at all times must be considered. Rousseau's methods and activities that place the child at the centre of learning process are emphasized globally. One of the ways of meeting the child's needs and interests is by using adequate and appropriate learning resources and well structured activities or environment to foster learning.

Rousseau's one of the principles of teaching says that the environment must have sufficient and suitable learning materials in order to stimulate learning.

John Pestalozzi, like Rousseau believed that the child must be the centre of the education process. Some of his major contributions are; the creation of conducive learning environment and emphasizing practical teaching in science. These require the use of materials and resources where children can see, hear and touch.

Savoury (1958) also added that, a well planned and imaginative use of visual aids in lessons should do much to banish apathy, supplement inadequacy of books as well as arouse students' interest by giving them something practical to see and do, and at the same time helping to train them to think things out themselves. Savoury (1958) suggested a catalogue of useful visual aids that are good for teaching history (as well as other subjects including science) i.e. pictures, diagrams, filmstrips and models. He said that selection of materials which are related to the basic contents of a course or a lesson, helps in depth understanding of such a lesson by the students in that they make the lesson attractive to them, thereby arresting their attention and thus, motivating them to learn. He suggested a catalogue of aids which could be used to teach history or any other subjects. He advocated the use of pictures and experiments which will help learners in

grounding their thoughts and feelings. He said that pictures are used as alternatives to real objects where it is impossible to show students the real objects, and they do serve effectively in tan imagined activities.

Knezewich (1975) also stressed the importance of having appropriate personnel plan and adequate physical facilities to support educational effort.

Maria Montessori (1870- 1952), like Froebel, saw the value of using carefully designed materials or resources to help students learn. Her carefully designed resources helped mentally handicapped students learned so well that they actually outstripped normal students in public examinations.

She emphasized the need to provide a rich and suitable environment in the classroom where the child would be free to move around and work independently. The child's own curiosity and the mastery of the skills is sufficient motivation. This can also apply in creating different biology activity- centers in the rural classrooms where students can work independently developing their manipulative and listening skills, for example conducting experiments, using locally made teaching-learning materials.

Materials, in Richards and Rodgers' view (2001), are of three major types: text-based (e.g. text books), task- based, relalia (here, we are referring to authentic materials, taken from "real life" and brought into the classroom, such as magazines, newspapers, pictures, insects, leaves, charts, or even objects). One of the teacher's roles is to act as a guide during and aforementioned activities and organizer of resources and resource him/herself; researcher and learner; needs analyst in order to cater adequately for students or group process manager. However, the most outstanding function of the instructor is to facilitate and

provide opportunities for communicative interaction between all classroom participants, always, if possible in the target subject.

The learner thus becomes a central and active member in the learning process. She/he must negotiate, interact, and cooperate with other participants and should be an important contributing element to the classroom learning. In other words, teaching becomes learner- centered.

Instructional Methods

In Instructional Methods like learner- centered, the use of materials and other resources are very important in activities. Students get actively involved in using different materials or resources as they learn what is intended for them to learn. This applies in all subjects including science.

Attractive presentation, according to Cunnings worth (1995), is of high importance but "it is of primary importance that visuals should be rooted in the teaching material rather than superimposed on it".

Audio material is very important as well, mainly for reading practice and listening comprehension activities. Visual aids "supply the extra linguistic context that helps the acquirer to understand and thereby to acquire" (Krashen and Terell 1983:55), as they help in comprehension and encourage development of skills.

2.4 Effective ways of improving students' science performance

According to Plato (427- 347 BC), the teacher's role is to make the learning environment appropriate to stimulate the learners. This is relevant because a well structured classroom/ laboratory plays an important part in teaching and learning science.

Fredrick Froebel (1782- 1852) recognized that children are naturally creative rather than receptive and that self- activity is one of the most important ways in which a child learns. He emphasized on early childhood education. One of his contributions is that children learn through play where the teacher's role is seen as that of a guide and provider of suitable environment and play things or resources. This can be done by being resourceful and creative on the side of the teacher.

Froebel's theory states that the teacher provides resources for learning, lays them for the child to choose and explore. She has to make each item both interesting and educative, which is difficult in practice. Most important of all, he has to be able to match the performance with appropriate learning resources.

Maria Montessori (1870- 1952), like Froebel, saw the value of using carefully designed materials or resources to help children learn. Her carefully designed resources helped mentally handicapped children learned so well that they actually outstripped normal children in public examinations. She emphasized the need to provide a rich and suitable environment in the classroom where the child would be free to move around and work independently. The child's own curiosity and the mastery of the skills is sufficient motivation.

2.5 The Impact of Sufficient and Appropriate Resources on Academic Performance in science

Balo (1971) commented that "Audio-visual materials, as integral part of teaching-learning situations help to bring about permanent and meaningful experience. The impact of appropriate and sufficient learning resources could be seen in Maria Montessori (1870- 1952) ideas mentioned before, in which her carefully designed resources helped mentally handicapped children learned so well that they actually outstripped normal children in public examinations.

Wales (1975) was of the opinion that the use of instructional resources would make discovered facts glued firmly to the memory of students.

Fagbamiye (1977) noted that schools with stable facilities in terms of buildings, books and equipment attract experienced and qualified teachers than those poor schools which have difficulty in attracting experienced and qualified staff. Numerous investigations have also been carried out to find the effects of instructional resources on students' academic achievement. Eminent scholars have also contributed immensely to report the effect of one variable on the other. Consequently, there have been many reports from these studies which had served as useful guides to the present one.

Momoh (1980) carried out a research on the effects of instructional resources on students' performances in WASC examination in Kwara State. He correlated material resources with academic achievements of students in ten subjects. Information was collected from the subject teachers in relation to the resources employed in teaching in five schools. The achievements of students in WASC examinations for the past five years were related to the resources available for teaching each of the subjects. He concluded that material resources have a significant effect on students' achievement in each of the subjects.

In the same manner, Moronlola (1982) carried out a research in Ilorin local government of Kwara State. She also used questionnaires to tap information on the material resources available for the teaching of ten subjects in ten primary schools. She collected WASC examination results for the past five years and related these to students' achievements in each of the ten subjects and to the amount of resources available for the teaching of the subjects. She also reported a

significant effect of material resources on the academic achievements of students in each of the subjects.

2.7 Solutions to improve on the Assessment of science Learning and the Resources

The challenges of biology acquisition, such as experimentation in which students are not quite proficient and working with measurement tools that are ill-equipped to assess their skills and abilities, have much more impact on students' academic performance than is acknowledged by many researchers and educational practitioners. Fairness demands equal educational opportunities for all students including ethnic minorities, students with disabilities, low-income students, and science learners. However, these sub-groups of students have historically lagged behind their mainstream peers on test scores due, in part, to factors that may not be closely related to their academic achievement but do influence their performance outcomes.

Science learners are more likely to be taught by teachers without appropriate teaching credentials and with little classroom experience than other students (Rumberger & G'andara, 2004). A recent study of 4800 teachers of science students in California responding to a survey about the challenges they faced in teaching science in their classrooms found large percentages of these teachers expressing the concern that they were not prepared to teach these students (G'andara et al., 2003).

On human resources, various educators for example, Ukeje (1970) and Fafunwa (1969) have written extensively on the prime importance of teachers to the educational development of any nation, be it simple, complex, developed or developing. From the writings of these educators, one can infer that whatever

facilities are available, whatever content is taught, whichever environment the school is situated and whatever kind of students are given to teach, the important and vital role of the teacher cannot be over-emphasized. Assuming that necessary facilities are adequately provided for, the environment is conducive to learning, the curriculum satisfies the needs of the students and the students themselves have interest in learning, learning cannot take place without the presence of the teacher.

Fafunwa (1979) in his paper "The purpose of teacher education" commented on the importance of teachers when he said: "The demand for more and better schools, the need to relate curriculum to the needs of the child and the environment, the crying needs of the child and his other instructional materials, the desirability of training in vocational and technical skills, and indeed the overall problem of preparing the future citizens of Africa who will be fully oriented to their environment cannot be fully accomplished without the aid of competent teachers" (page 36 — 37).

It should be the aim of anybody involved in designing programs to promote enjoyable learning, through a pleasant atmosphere and interesting material, in order to promote motivation. How can this be achieved?

Firstly, by providing learners with a variety of activities and a variety of material and sources, including new technologies and fun activities, relevant to their age and interests (Brown 1981) which can lead to an upsurge interest in the language classroom and to better results. Specimens are an important tool for every science teacher, as they make the lesson easier, understandable and interesting. Books and other material need to be designed with the objective of facilitating and exploiting learner interactions with and through materials" (Breen et.al. 1979: 9)

and keeping the needs of the learners in mind. Visual material such as pictures in the books, charts, slides and any other material should be available to the teacher.

Education, according to Coombs (1970) consists of two components. He classified these two components into inputs and outputs. According to him, inputs consist of human and material resources and outputs are the goals and outcomes of the educational process. Both the inputs and outputs form a dynamic organic whole and if he wants to investigate and assess the educational system in order to improve its performance, effects of one component on the other must be examined. Instructional sources which are educational inputs are of vital importance to the teaching of any subject in the school curriculum.

In enumerating the factors that could be responsible for varying intra-and inter-school/academic achievement, Coombs (1970), listed four important factors including the acute scarcity of instructional resources which he said constrained educational systems from responding more fully to new demands. He claimed that, in order to do their part in meeting the crisis in education, educational systems will need real resources that money can buy, they will need a fuller share of the nations' manpower, not merely to carry on the present work of education, but to raise its quality, efficiency and productivity. They will need buildings, equipments and more learning materials. Suitable textbooks, qualified teachers, libraries which are adequate should also be provided for schools.

Scarcity of these according to Coombs (1970), will constraint educational system from responding more fully to new demands. In order to raise the quality of education, its efficiency and productivity, better learning materials are needed.

Froebel's theory (1782- 1852) mentioned earlier, states that the teacher provides resources for learning. The teacher's role is seen as that of a guide and provider of suitable environment and learning resources. This can be done by being resourceful and creative on the side of the teach

CHAPTER THREE

METHODOLOGY

3.0 Introduction.

This chapter explains the methods that the researcher used to select the geographical areas from which research was carried out and methods of selection of respondents. The chapter also explains the methods which were used in the selection and analysis process.

3.1 Research design.

The study was designed using a survey research design which is descriptive, exploratory and analytical research whereby all the study findings were explained and described in details.

3.2 Population study.

The study was carried out in Byakabanda Sub County in Rakai district. This is because Byakabanda Sub County in Rakai district is the area mostly affected by poor performance at PLE.

3.3 Sample frame work.

The research considered the sample size of 200 respondents in Byakabanda Sub County in Rakai district.

Table 1 Sample size:

Categories of respondents	Number of sample respondents
Head teachers	04
Class teachers of Science	10
students	186
Total	200

3.3.1 Sampling techniques

Through the use of a convenient sampling technique, a total of 200 respondents were selected for this study including 4 who were head teachers, 10 class teachers of science and 186 students. The convenient sampling technique was used because it was cheap.

3.3.2 Sampling procedure.

In this process or carrying out the research, the researcher visited the district education office of schools under study and then was given a go ahead to access information from the area of study.

3.4 Research instruments

One of the instruments was a questionnaire designed to tap information on instructional resources that were available in each of the schools for the teaching and learning of biology. The questionnaire was designed for the Head teachers, science teachers and students. It was a 20 item questionnaire. Ten (10) of the items are designed to tap information on materials for the teaching of science. The other ten (10) items were designed to tap information on library facilities and classroom structures demanding the respondents to answer Yes or No.

The students' questionnaire was comprising of (20) items on textbooks, visuals and audio-visual aids and library facilities that were in the teachers/head teachers questionnaires. The questionnaire had two sections.

3.2.2. Research interview

This method was also commonly used for gathering primary data. Interviewing could be very flexible, when the interviewer had the freedom to formulate questions as they come to mind around the issue that was being investigated

(unstructured interview), and on the other hand it could be inflexible, when the investigator was to keep strictly to the questions decided before (structured interview).

3.4.1. Questionnaires

Questionnaires were issued out to 200 respondents from which data was obtained on the roles of learning resources and science ability, effective ways of improving learners' science ability and resources and the impact of appropriate resources and performance of learners in Byakabanda Sub-County in Rakai district. These questionnaires were issued out to both female and male students and also to, the head teachers and teachers of biology in and within the Byakabanda Sub County in Rakai district.

3.4.2 Interviews.

Interviews were held with student respondents plus the head teachers and teachers of science on matters of the related topic. In this method, oral interviews were held with the respondents to collect the information needed. The need for an interactive interview for this case deemed authentic to enhance rapport between the researcher and the respondent(s).

3.4.3 Observation

This research instrument was used to get a better understanding of the problems under which the study was carried out. This was done by going direct to the schools/classrooms where science lessons and learning takes place.

3.5 Sources of data collection

Information was obtained from the field by the use of primary data as well as secondary data.

3.5.1 Primary data

Data was from the respondents of the four schools of Byakabanda Sub County in Rakai district. Using a sample survey for easy analysis of data. Direct interviews were also conducted as well as questions for listening and speaking.

3.5.2 Secondary data.

For the case of secondary data, information was obtained from text books and the internet for the period under study and then data required was collected from them.

3.6 Data processing.

Qualitative data system was involved in three sets of activities including editing, coding, and frequency tabulations. The process of editing was done by looking through each field of responses from interview guides and focus group discussion ascertaining that every applicable question as an answer and elimination of all errors accurately and uniformed completeness was used or done.

3.7 Data analysis.

Under this process, the researcher proceeded with the coding process on the various responses given to the particular questions. Those that lacked coding frames, she then established how many times each alternative response category was given using tally marks which later were presented in frequency tabulations rendering it ready for interpretation. In addition, questions and field notes were included in the data.

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND DISCUSSIONS

4.0 Introduction

This chapter covers the presentation of the findings according to the dependent variables of the study. (specific objectives) that is, effective ways of improving biology performance and competence, the impact of learning resources on science ability and performance and solutions to improve learning resources and science ability of learners

4.1 Demographic characteristics of respondents

Tables 4.1 shows demographic characteristics of the 200 respondents who participated in the study

Sex	No. of respondents	% of respondents
Male	120	60
Female	80	40
Total	200	100

Source: field research findings

According to the study findings in table 4.1, out of the two hundred respondents, majority of the respondents were males taking the percentage of 60% and females were the minority covering a percentage of 40% out of the total respondents. Respondents of both sexes were randomly interviewed. The study findings showed that the sample was dominated by males because many parents consider educating male first than educating female.

Table 4.2 Demographic characteristics of the respondents by age

Age group	Frequency	Percentage (%)
17 and below	186	94
30 - 39	10	5
40 - 49	4	1
Total	200	100

Source: Field research findings (2012)

According to the study findings in table 4.1, 186 out of 200 (94%) of the respondents were in age group of 17 years and below. Whereas other groups of age range 30-39 was 10 (5%), 40-49 years were 4 (1%) and thus the study covered a good number of students most especially secondary school students who were a center focus.

Table 4.3: Distribution of the respondents by qualification

Qualification	No. of respondents	Respondents percentage
students	186	94%
Headteachers	4	1%
Diploma holders	8	4%
Graduates teachers	2	1.0%
Total	200	100%

Source: Field resource findings (2012)

According to the study findings reflected in table 4.3, 186 of the respondents were students making a percentage of 94.0% out of the total population interviewed, 2 which is 1.0% were head teachers, while 8 (4%) were diploma holders and finally

graduate teachers were 2 (1.0%) implying that the sample of respondents was dominated by students and people with diploma qualification.

4.2 The Roles of Learning Resources and biology Ability

The first instrument (questionnaire) was administered to the subjects personally by the researcher and their response rate was high. Out of the 14 questionnaires administered to the biology teachers and head teachers, all the 14 were returned and all were found useable for the study. Out of the 186 biology students used for the study, 100 were given questionnaires to respond to. All the 100 questionnaires administered on science students were returned. Among the roles suggested by the respondents, they reflected the following in the table below.

Table 4.4. The Roles of Learning Resources and biology ability

No.	Roles of appropriate resources to learners	Frequency	Percentage
1.	Motivate learners	55	27.5%
2.	Build confidence and self esteem	30	15%
3.	Cater for individual differences and support weak learners	05	2.5%
4.	Interest learners and make learning funs	45	22.5%
5.	Increase on skills and helps in problem solving	10	5%
6.	Increase comprehension skills in reading and understanding spoken language.	35	17.5%
7.	It helps in improving practical skills as well as increase learners' involvement and participation.	20	10%
	Total	200	100%

Source: Field resource findings (2012)

In the table above, respondents were asked a question on the roles of learning resources and science ability on learners. The findings showed that the majority of the respondents were insisting on the point of motivating learners as the major role on the learner. This constituted 55 % of the total respondents, followed by respondents who suggested that interest learners and make learning funs is also a role, taking a percentage of 45% out of the total respondents. While others suggested that, Build confidence and self esteem, Cater for individual differences and support weak learners Increase on skills and helps in problem solving as well as Increase comprehension skills in reading and understanding science they also suggested that learning resources can helps in improving practical skills as well as increase learners' involvement and participation constituting to 50 % of the total respondents.

4.3 Impacts of learning resources and academic performance in science

Here the questionnaires were set in accordance to the questions relating to the learning resources and the academic performance in science. Then the respondents were interviewed about the impacts of learning resources on the academic performance. Their responses are presented in the table 4.5 below:

Table 4.5: Impacts of learning resources and academic performance.

No.	Impacts of learning resources on academic performance	Frequencies	Percentages
1.	It supports students with learning difficulties.	30	15%
2.	Develop independence in students	35	17.5%
3.	It increases students performance	55	27.5%
4.	It encourages teachers	1	0.5%
5.	They help students to master the skills	40	20%
6.	It improves learners manipulative skills	39	19.5%
	Total	200	100%

In the table above, it was reviewed that majority of the respondents were suggesting that learning resources have an impact on children's performance taking a percentage of 27.5 (%) and the minority who covered the rest of the percentage over the total number of the respondents, suggested that learning resources support children with learning difficulties, develop independence in children, help children to master the skills, improve learner manipulative skills, as the major impacts of learning resources and the academic performance in science.

4.4 Solutions to improve on the Assessment of science Learning and the Resources

No.	Solutions to Improve on the Assessment of science Learning and the Resources	Frequencies	Percentages
1.	Good relationship between learners and teachers	30	15%
2.	Multi-sensory approach	35	17.5%
3.	Assessment and provision of effective learning	55	27.5%
4.	Intelligence must be distributed	25	12.5%
5.	Assessment of the levels science and progress of learners.	55	27.5%
6.	Shifting your learning paradigm	20	10%
7.	Physical activity	30	15%
	Total	200	100%

In the table above, it is illustrated that the majority of the respondents, from the question which was asked about the solution to the improve the learning ability,

the results showed that 30% of the population sample were giving reason about defining science, 55 % who were the majority stated that learning requires taking a short break for one to acquire the reasonable feedback from the quests. This was done after carrying out science Achievement Test which was administered on a number of respondents especially science students and it was supervised by the researcher with the help of the science teacher in each school. Two schools did the test in a day for a period of one hour (1 hour) in each school.

Teachers' questionnaires were collected and analyzed so as to obtain data on appropriate and sufficient learning resources available for the teaching of science. Students' questionnaires were not analyzed but were used to ascertain the sincerity of the teachers in filling the questionnaire. The methods used in scoring the items of the questionnaire were as follows:

Appropriate and Sufficient Learning Resources

On learning resources, a check-list of textbooks and other appropriate resources recommended for the teaching and learning of science by the ministry of education was prepared. The researcher believes that some of the listed textbooks are good as teachers' references. So also, visual and audio-visual materials that are thought necessary for the effective teaching of science were listed.

The scale ranged from mostly used on one end to absolutely not available on the other. It was assumed that resources that are mostly used contribute most to the teaching and understanding of science. Those materials that are rarely used have better effect on understanding of science than those that are not used at all. It is also assumed that materials that are available in the schools can be made use of when occasion calls for it, so, they are then better than those materials that are not available at all in the school.

Resources that are not available in the schools have no contribution whatsoever to the teaching and learning of science. For this reason, 3 points was awarded to resources mostly used; 2 points was awarded to those rarely used; 1 point was awarded to materials not available. On library resources, respondents were requested to answer Yes or No. 'Yes' was scored 1 point each and 'No' was scored zero.

Results

In order to test hypothesis which states that there is a relationship in the scores, on the test of science, of students in schools with appropriate and adequate supply of learning resources and the scores of students in schools with inadequate supply of appropriate learning resources, data collected were analyzed.

Table 5: The Differences in the Students' Academic Achievements in a test of science between Schools with Adequate and appropriate Resources and Schools with inadequate Learning Resources.

Group	No. subjects	Mean-scores	Difference	t- value
1. With adequate and appropriate learning resource on science.	100	44.72	6.92	3.99**
2. With inadequate learning resources on science.	100	37.80		

The calculated t-value was 3.99 and was significant at ($p < .01$). The table thus - revealed that schools having adequate and appropriate learning resources obtained a mean score which was significantly greater than that of the schools without adequate material resources. In other words, the table revealed that there are statistical significant differences in the scores, on the test of science of

students in schools with adequate learning resources and the scores of students in schools with inadequate resources on science. This proved that appropriate and sufficient learning resources play a big role in science ability and performance of learners.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0. Introduction

This chapter covers the summary, conclusion and recommendations of the study findings revealed in chapter four.

5.1 Summary of the findings

5.1.1 The role of learning resources on the academic performance

According to the study findings reflected that the respondents were students and teachers out of the total population interviewed, some teachers had diplomas others had attained bachelors who were very limited, implying that the sample of respondents was dominated by science students and teachers with diploma qualification.

Respondents were asked a question on the roles of learning resources and science ability on learners. The findings showed that the majority of the respondents were insisting on the point of motivating learners as the major role on the learner, Followed by respondents who suggested that interest learners and make learning funs is also a role While others suggested that;- Build confidence and self esteem, Cater for individual differences and support weak learners. Increase on skills and helps in problem solving. They also suggested that learning resources can helps in improving practical skills as well as increase learners' involvement and participation.

5.1.2 The impacts of learning resources on academic performance

It was also reviewed that majority of the respondents were suggesting that learning resources have an impact on children's performance taking a percentage of 27.5 (%) and the minority who covered the rest of the percentage over the total number of the respondents, suggested that learning resources support students with learning difficulties, develop independence in students, help children to master the skills, improve learner science proficiency, as the major impacts of learning resources and the academic performance in science.

5.1.3 Solutions and ways of improving the learning resources

It is illustrated that the majority of the respondents, from the question which was asked about the solution to the improve the learning ability, the results showed that 30% of the population sample were giving reason about defining science, 55% who were the majority stated that learning requires taking a short break for one to acquire the reasonable feedback from the quests. This was done after carrying out a science Achievement Test which was administered on a number of respondents especially science students and it was supervised by the researcher with the help of the science teacher in each school. Two schools did the test in a day for a period of one hour (1 hour) in each school.

Teachers' questionnaires were collected and analyzed so as to obtain data on appropriate and sufficient learning resources available for the teaching of science. Students' questionnaires were not analyzed but were used to ascertain the sincerity of the teachers in filling the questionnaire.

5.1.4. Results from Cambridge Exams (ESOL)

The results got from the ESOL test, both oral and written showed low science proficiency in all areas. This was illustrated by the results as was indicated that out of 20 as total score for each area of 30 %.

5.2 Conclusions

Before you begin trying to ameliorate the problem it's important that you understand the magnitude of the problem. You need to measure its scope, how ineffective have you become, how much more effective do you want to be and so forth. Posing questions such as these will enable you to understand the depth of the given circumstances. There are numerous ways of quantifying your effectiveness. A simple way of doing this is by starting out the day by defining how much work or how much studies you need to have done by the end of the day. Once you've made a list of all the tasks that need to be done, you can then at the end of the day look back and see how much was actually finished.

Learning always does not end but it depends how much efforts you invest in the learning process. With this therefore, science teachers as well as children must practice speaking with other people as much as possible. If possible they should try to practice in authentic speaking situations. Maybe joining a club or organization, one can also practice science about a particular topic, or write question cards and practice answering them.

5.5 Recommendations

5.5.1 To the administration

The outcome of the analyzed data showed that adequate supply of material resources greatly influenced students' academic performance in. On the basis of the findings of this study, it is recommended that one way is to increase the

provision of adequate and appropriate learning resources for the teaching of the subject.

Another way to improve the achievements of students in science is to provide more qualified teachers in the primary schools to teach the subject.

Bearing in mind the importance of learning resources to teaching and learning, adequate instructional aid should be provided for the teaching science in order to increase students' performance in the subject. Both material or learning resources and achievement are intimately related.

5.5.2 To the teachers

Teachers can be frustrated without adequate supply of resources needed to teach their subjects. It is therefore highly essential to provide adequate and relevant materials for the teaching and learning not only of science but of all other subjects in the primary school curriculum.

Science teachers are advised to always attend workshops, seminars, vocational courses to make them be abreast of the current development in the subject.

There is also the need for teachers of science to be creative and resourceful. Learning resources that are very costly to purchase can be improvised. Provision should be made to establish and equip library in every school. There should also be provision for the training of the students in the use of library.

5.5.3 To the parents

Parents should be encouraged to buy recommended textbooks on English for their wards to supplement teachers' notes. The Ministry of Education and NGOs' should establish or if it has been established should make functional, centre for the provision of locally developed teaching aids and its function should include the

evaluation and recommendations on specific and relevant instructional and learning resources.

The kind of learning that matters is that which increases your capacity for effective action. This usually involves accumulating specialized knowledge, skills, and as much self-confidence as it takes to believe in your effectiveness. One highly effective way to accumulate specialized knowledge is to find a problem and solve it. Technology is changing things so rapidly in business, that it is creating an amazing quantity of opportunities to solve new problems. Choose your problems wisely. Each time you solve a problem, it will increase your capacity for effective action in that area. This new capacity will attract opportunities to apply it to new and larger problems of the kind. In this way, the problems you choose to solve can be destiny shaping. It is not the title of the position you hold, it is the nature of the problems you learn how to solve that will determine your success in this rapidly morphing business world.

5.5.4 To students

Students must find friends to study and speak with. Learning science together can be very encouraging.

Choose listening and reading materials that relate to what you are interested in. Being interested in the subject will make learning more enjoyable - thus more effective. Relate science to practical usage. You should practice what you are learning by employing it actively. Be patient with yourself. Remember learning is a process.

Use the Internet. The Internet is the most exciting, unlimited science resource that anyone could imagine and it is right at your finger tips.

Students should develop skills so that they are able to talk about different topics. Try and learn new issues that are useful in different contexts. Using a thesaurus is a good way to develop your skills.

To improve your science skills, students must find partners to practice science with. It is advisable to find someone at the same level as you, but has different skills. That way you will be forced to learn science.

5.6 Area of future researchers

The researcher intends to carry out further findings related to the same topic as well as learners' attitude towards the subject.

APPENDICES

APPENDIX I: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Tick the most appropriate alternative.

(A) Sex-----Male Female-----

(B) Age 17 and below _____

30-39 years-----

40-49 years-----

(C) Qualification of respondents

Diploma-----

Degree -----

APPENDIX II: QUESTIONNAIRES FOR RESPONDENTS:

Tick the most appropriate alternative.

(A) What are the roles of learning resources and science abilities?

1. Motivates the learners -----
2. Build confidence and self esteem -----
3. Cater for individual differences and support weak learners -----
4. Interests learners and make learning fun-----
5. Increase on skills and help in problem solving-----
6. Increase comprehension skills in understanding science-----
7. It helps in improving practical skills as well as increase learners involvement and participation-----

(B) What is the impact of learning resources on academic performance?

1. It supports children with learning difficulties-----
2. Develops independence in students-----
3. It increases student's performance-----
4. It encourages teachers-----
5. Help teachers to master skills-----
6. It improves learner's science proficiency.

(c) What are the solutions to improve on the assessment of science learning?

- 1 .Good relationship between learners and teachers-----
- 2 .Multi-sensory approaches-----.....
- 3 .Assessment and provision of effective learning-----.....
- 4 .Intelligence is distributed-----.....
- 5 .For assessment of the levels of science and progress of learners-----
- 6 .For shifting your learning paradigm-----.....
- 7 .For physical activity-----.....

APPENDIX III: ESTIMATED RESEARCH BUDGET

This is the estimate cost and expenses that the researcher met during the course of research study.

Items	Quantity	Unit cost	Amount
Stationary			240,000=
Ream of ruled paper	2	12,000	24,000=
Pencils	5	500	2500=
Box files	5	900	4,500=
Note books	1	4,500	4,000=
Transport	4	1,000	90,000=
Preparing questionnaires interview guide	Lump sum	Lump sum	20,000=
Editing data, printing and binding		100,000	100,000=
Air time		50,000	20,000=
Umbrella	1	5,000	5,000=
Motivation and refreshment			60,000=
Miscellaneous		50,000	50,000=
Total			389,500=

APPENDIX IV
TIME FRAME

Activities	Duration (months) year 2018 / 2019					
	Dec	Dec	Jan	Feb	March	April
A pilot study						
Study analysis						
Proposal design						
Proposal development						
Submission of proposal for approval						
Final report writing and submission						