

**EFFECTS OF LANGUAGES IN RELATION TO THE STUDENTS' PERFORMANCE IN  
SCIENCE SUBJECTS IN NYATIKE**

**DIVISION NYATIKE DISTRICT**

**BY**

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## DECLARATION

I, do declare that this research report is my own work and that it has not been presented to any other university for a similar award.

Signed.....

Student

Date.....19/4/2010

## APPROVAL

I certify that Julius Kiano carried out this research under my supervision.

.....

.....

MR. TINDI SEJE

DATE

## **DEDICATION**

From the core of my being, I dedicate this work to my beloved wife Esther Adoyo

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## **HAPTER ONE**

### **1.0 INTRODUCTION**

#### **1.1 Background to the study**

In the United States, the Centre for Minority Education and Research of the University of California carried out one of the most comprehensive longitudinal studies (1981–91) of bilingual education programs to date. The objective of the study was to determine whether teaching Spanish-speaking students (who had limited English proficiency) mostly in English or in combination with Spanish enabled them to catch up to their native English-speaking peers in basic skills (English reading, language arts, and math). Students in 51 schools across five states were sampled.

Okwany (1993) carried out a study to examine the attitudes of Kenyan high-school students toward the national language, Kiswahili. This study was intended to provide useful information for evaluating the Kiswahili-language curriculum. Okwany used a stratified random approach to select the sample of 483 students from three school types in one province in Kenya. The Attitude/Motivation Test Battery (Gardner and Smythe 1981) was adapted to suit the Kenyan context and was administered to the sample. The questionnaire explored seven dimensions of attitudes toward Kiswahili with respect to gender, ethnic background, and school type. Experienced Kiswahili teachers held focus-group interviews to identify factors that might explain these attitudes. In addition, the study explored the effects of making Kiswahili a mandatory subject.

The mother tongue is indeed the primary language of learning, as evidenced by the differences between the level of achievement attained by students in the English-immersion programs and that achieved by students in the late-exit bilingual programs. The latter scored significantly higher in the three basic skills. Early transition to English-only programs does not work. Students do not maintain or develop the linguistic and cognitive skills acquired in the first language. Proficient access to the second



language can occur via second-language- content classes for the remaining 50% of instruction time. Additive bilingual or multilingual programs, coupled with an integrated approach to the curriculum, provide the best results in the acquisition of both knowledge and competencies in the second language (Ramirez 1994).

In a world with trade barriers being broken, with single markets in areas such as Europe growing, and with economic competition rapidly developing on a global scale, competence in languages, in general, is increasingly important. Those who have multi-linguistic capital may, indeed, be in a position to increase their economic capital. It so happens that English has gained a unique status in this context of the liberalization of world trade and the globalization of economy, and it would be foolish not to take advantage of this. The language situation in Mauritius being intimately bound up with the socio-economic realities, success in this society is therefore defined by proficiency in English (and, for that matter, French which is another European language used and taught in schools) in both the oral and the written mode.

There seems to be a consensus in Mauritius on matters of language and education that English should remain a language through which students gain access to different types of academic knowledge. Literacy education for Mauritians in and through the English language is associated with economic advancement and social progress. In a multilingual setting like Mauritius, where French-based Creole, the home language of the majority of the population and the language of inter-ethnic communication, is equated with being powerless and underprivileged, literacy in the official medium (i.e. English) is regarded as a major key to self advancement as well as empowerment.

**.2 Statement of the problem**

Comprehensive education aimed at ensuring that English language in secondary schools is perceived as a prerequisite among students as a way for improving on the students' performance in other languages, studies show that students have not considered English language as an important subject instead they prefer to interpret exams in their mother tongues and this has drastically affected their academic performances at different levels, others are dropping the languages and do not give it serious attention among others, and its against such detrimental circumstances that this investigation is undertaken.

**.3 Purpose of the study**

The overall aim of the study was to establish the relationship between the effects of mother tongue language in relation to English language and the students' performance in science subjects in secondary school in Kenya.

**.4 Specific objectives**

- To find out how English language influences the students' performance in science subjects in secondary schools in Kenya.
- To identify reasons as to why different students with different mother tongues perform differently in science subjects in secondary schools in Kenya.
- i) To classify the different mother tongues in relation to English language towards the performance in science subjects in secondary schools in Kenya.
- ii) To identify the problems brought about as a result of language barrier in relation to poor performance by students in science subjects in secondary schools in Kenya.

## **.5 Research questions**

- i) How has English language influenced the students' performance in science subjects in secondary schools in Kenya?
- j) What are the reasons as to why different students with different mother tongues perform differently in science subjects in secondary schools in Kenya?
- i) What are the different mother tongues in relation to English language towards the performance in science subjects in secondary schools in Kenya?
- j) What are some of the problems brought about as a result of language barrier in relation to poor performance by students in science subjects in secondary schools in Kenya?

## **.6 The Scope of the study**

### **.6.1 Geographical Scope**

The study was carried out in Nyatike division Nyatike district Nyanza province -Kenya, and reasoning it is nearer and easy to get to the targeted respondents by the researcher in terms of transport.

### **.6.2 Content Scope**

The study lasted for a period of at least two months and focused on the usage of to English language in the teaching process towards performance of science subjects in the school between 2004 and 2007.

## **.7 Significance of the study**

The findings of the study will assist the English teachers in different schools concerned with the teaching in English, researchers and policy makers like, district councillors, District education Officers who take part in an essential role in promotion of education programmes in the district and other parts of the country.

a student of education, I am optimistic that the research findings will to a large extent enhance my career in researching and enable me to have a practical approach in answering language related problems, as the course necessitates.

The study will also be useful to other researchers in the field of education especially teachers and students pursuing bachelors in education specializing in English who would wish to expound on the area of languages to obtain a foundation in the form of literature review like the institute of languages in other universities besides KIU.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **.0 Introduction**

In this chapter, a review of some literature on how English language influences the students' performance in science subjects in secondary schools and elsewhere in the world was made. Specific interest areas on the philosophy and understanding of education and its processes were given. The chapter reviews the works of other scholars who have written about the topic of the study or those who have addressed similar issues as those of the variable that was available in the study.

#### **.1 Review of the related literature**

Social awareness of and efforts spent on foreign language teaching have been clearly increasing in Turkey for years. Along with this awareness and effort, language teaching has undergone many fluctuations and dramatic shifts over the years resulting in more emphasis on the need for all students to become competent language learners (Ayo, 2004).

These fluctuations and shifts in foreign language teaching in Turkey have brought about striking changes which have created several problems as well. One of these problems is related to the selection of schools and their program content. In Turkey, after compulsory elementary school, students study hard to get into state or private secondary schools where they have one year preparatory stage and follow an immersion program. They have to take a central exam to be a student there. These schools use English as the medium for instruction for mathematics, sciences and other academic subjects.

Other secondary schools which also accept students after this central exam teach academic courses in the native language, Turkish, and teach English as a course for four hours a week (Banda, F. 2000).

The politics of English education has thus created a caste system of languages - which is Eurocentric and discriminatory-by relegating home languages to an almost non-existent position in the school curriculum. Moreover, an educational policy which establishes the languages to be used as a medium of education at primary, secondary and university level is a key factor in determining how successful speakers of the lesser used languages are within the education system. While modern social and economic systems require certain kinds of language competence, they simultaneously create conditions which ensure that vast numbers of people will be unable to acquire that competence (Bisong, J. 1995).

With English taking up an important position in the Mauritian educational system, it has become one of the most powerful means of inclusion into or exclusion from further education, employment, or social positions. Ngugi (1986) describes his experiences in Kenya, where English became 'the main determinant of a child's progress up the ladder of formal education'.

Studies of Polzenhagen, F. and Michael U. C 2004 reveal that, in general, the students had a positive integrative attitude toward Kiswahili (that is, desire to belong to a given linguistic group), irrespective of the type of school attended, ethnic background, or gender. The study also revealed that this attitude was related to factors both external and internal to the classroom environment. It was concluded that the three most revealing dimensions of the students' general attitude toward Kiswahili, out of the seven dimensions considered, were a desire to learn the language, perceived parental influence, and degree of motivation.

n Kenya, however, this level of mobilization and careful planning was absent (Okombo 1996). The policy environment was not managed, and as a result, the 1976 catchment-area policy is being de facto replaced by a policy formulated by the Ominde Commission of 1964. English is increasingly becoming the LoI throughout the education system; Kiswahili has consolidated its status as a compulsory subject; and mother tongues have lost ground as LoIs (Bamgbose 1991).

Although Kiswahili is supposed to be the LoI for training primary-school teachers, most of the materials used at the teachers' colleges are in English (Msanjila 1990). More serious still is the problem that the trainers of the primary-school teachers (that is, the tutors in the teachers' colleges) are trained in English at the University of Dar es Salaam, although they are supposed to train the teacher trainees to teach in Kiswahili (Roy-Campbell 1992).

Differences in students' attitudes were associated with school type and ethnic group. Students in private commercial schools consistently exhibited more positive attitudes toward Kiswahili, followed by those in public schools and those in private schools for the elite. Although all students exhibited positive attitudes toward Kiswahili, those whose home languages were in the Bantu language group invariably showed more positive attitudes than the others. The study also determined that making Kiswahili compulsory not only heightened the motivation for learning it but also enhanced its general status.

According to Rubagumya (1993), secondary-school students admit that they understand their teachers better when teaching is carried out in Kiswahili, but the majority of these students still think that English should be maintained as the LoI. Roy-Campbell (1992) also noted that many students resist the change of LoI from English to Kiswahili because they assume that English is the best medium for

science and technology, even though Kiswahili is the de facto medium of instruction in many schools. Such an anomaly, argued Roy-Campbell, can be seen as an indication of where the locus of power is perceived to be in society.

The cognitive and academic performance of the students in the project schools was better than that of their counterparts in the mainstream schools. Pupils educated in Yoruba (the mother tongue) throughout the 6 years of primary education were no less proficient in English than pupils educated in English during the last 3 years. The gains that children reportedly made when instructed in their mother tongue fell into various categories-cultural, affective, cognitive, socio psychological, pedagogic, etc. (Akinnaso 1993).

It is, however, necessary to note Akinnaso's (1993) remarks regarding these results. The following words put the cautionary message most clearly: the results of the [Ife] project were compounded by a combination of several non-linguistic factors, including curricular changes; the use of new course materials; the use of experienced teachers for whom additional training was also provided; changes in classroom practices; and greater attention than usual (especially in English Education) to experimental classes.

The studies by Krashen and Biber (1987), Rosenthal (1996) and Spurlin (1995) support the results by Cummins (1981a; 1982) and state that students who have not developed their CALP could be at a disadvantage in studying academic subjects and science in particular because this course requires an in-depth understanding of concepts acquired by reading textbooks, participating in dialogue and debate, and responding to questions in tests. Once again, stressing the difference between CALP and BICS, educational and linguistic theorists (Cummins, 1981a; Krashen, 1982 and Krashen, Long and Scarcella, 1979) explain that foreign language students may become quite proficient in the grammar,



vocabulary and sentence structure of the English language, but may lack the necessary cognitive academic language proficiency to learn the subject matter in science courses.

A study by Johnstone and Selepeng (2001) backs up the claims by Cummins (1981b, 1982; Spurlin, 1995; Krashen, 1982). Johnstone and Selepeng (2001) state that students struggling to learn science in a second language lose at least 20 percent of their capacity to reason and understand in the process. This study has implications for countries which teach their students through the medium of a foreign language rather than in native language. Short and Spanos (1989) claim that basic proficiency is not adequate to perform the more demanding tasks required in academic courses since students do not have exposure to, or lack an understanding of the vocabulary and context-specific language.

The schools were chosen to represent the actual LoI practices in Kenyan schools, based on the policy outlined in mother tongue. As the researchers explained (Cleghorn et al. 1989), the three schools in which this study was carried out provide models of Kenya's varied language conditions: one [school 1] was an urban school where instruction was in English from the start; the second [school 2] was a peri-urban school where English and Kiswahili—two second languages for most pupils — were used as the initial media of instruction; the third school [school 3] was located in a rural district where Dholuo [Luo], the local vernacular, was the third initial medium of instruction. In the first two schools most instruction in the upper primary level [grades 4–8] was in English, but in the third school, Luo was used quite freely for giving explanations and the like well past standard 4 [fourth grade].

The effects of bilingual education on academic subjects and its implications have also been investigated. Research on bilingual education programs and academic achievement has shown that bilingual program students made dramatic gains compared to the success of students schooled in second language only. The study by Collier showed that after 4-5 years of instruction, bilingual

program students achieved dramatically whereas the English-only group dropped significantly below their grade level (1989, p. 522). Several studies have also shown that bilingualism may be positively associated with cognitive and academic performance (Duncan and De Avila, 1979; Kessler and Quinn, 1980; Bain and Yu, 1980; Swain and Lapkin, 1981).

Studies by Cassels and Johnstone (1983, 1985), Pollnick and Rutherford, (1993) reveal that learning academic courses through the medium of English poses problems for students whose mother tongue is not English. The explanations given for these problems are linguistic and psychological. Studies exploring the underlying psychological problems indicate that second language learners are frustrated by failure to see meaning in texts and start to have a tendency toward rote-learning. Therefore, not much is stored in memory since what is learned by rote is easily forgotten. Linguistic effects are a result of one's lack of knowledge of grammar, rules of syntax, as well as meanings of words used in different contexts. Poor knowledge of these rules puts second-language learners at a disadvantage, being less able to see meaning in texts, when compared with first language counterparts who have been exposed to inherent and informal methods of learning their language at an early stage (Howe, 1970; Johnstone and Selepeng, 2001).

The results of the study investigating the effect of language on performance of second language students in science examinations by Bird and Welford (1995) also showed the effect was significant. There were significant differences in performance of modified forms of the questions between British school pupils and pupils for whom English was the second language. The study gave a clear indication that the wording of questions in science examinations was a real influence on the performance of second language students.

In the light of these studies, in this study, the effect of a foreign language, English, as a medium for instruction, on conceptual understanding of "The Energy Unit" in a science course was investigated. The reason why it was chosen is because this unit is related to everyday experiences and also covers abstract concepts. As explained by Pfundt and Duit (2000), how to teach the topic of 'energy' is investigated in many studies because of its nature, containing abstract concepts.

The Ministry of Education and several universities have stated that no research related to the effect of foreign languages on conceptual understanding has yet been conducted in Turkey and the results of these types of studies are needed to inform and identify government policies and education targets. This study is of particular importance because several changes in schools following the immersion program are being planned in the Turkish educational system (Ministry of Education, 1990; 1996).

## Classification of different mother tongues in relation to English language

One of the major findings of Cleghorn et al. (1989, p. 27) was that, English, mathematics, science and Swahili examination results show that school 1 students achieved higher scores than school 2 or school 3 students, but school 3 students achieved higher scores than school 2 students in all subjects except Swahili. Although this study seems to cast doubt on the role of the mother-tongue LoI in cognitive development, what it actually does is point to a possible combination of nonlinguistic factors that may explain the differences in results obtained by the three schools. These factors may include curricular changes; new course materials; trained, experienced teachers; and new methodologies. It should also be noted that English is a mother tongue for many urban Kenyan children.

Baker (1972) argues that English, French and Creole have become associated with knowledge, culture and egalitarianism respectively, while the Oriental languages which include Bhojpuri, Hindi, Urdu, Tamil, Telegu, Marathi and Mandarin, are largely identified with what may be termed 'ancestral heritage'. In the above censuses, it is significant to note that the instructions relating to 'mother tongue'

which accompanied the census forms read as follows: 'Mother tongue' - The language spoken in your home during your early childhood. You may not necessarily have spoken or speak the language at present'. It is thus clear that the term 'mother tongue' means something quite different from the definition 'one's native language' and it is this writer's experience that many Mauritians of Asiatic origin understand 'mother tongue' to mean a language spoken by one's ancestors at the time of their arrival in Mauritius. It is therefore safe to assume that the oriental languages are, in fact, 'ancestral' languages and are by no means primary or first languages for Mauritians. According to Baker (1972), egalitarianism is generally a more important matter than 'culture', 'knowledge' or 'ancestral heritage', which explains why, in practice, Creole, has been adopted as the language of everyday use by almost all Mauritians.

The vast majority of Mauritian learners are taught English in what has been called an 'acquisition poor environment' (Tickoo 1993) and, as a result, the language does not become a usable means of communication. When Mauritians speak of receiving their education through the English medium, it is a different scenario from the type of education that people in India, Anglophone Africa and Caribbean countries receive. These areas can be referred to as ESL (Least English Spoken countries) countries, i.e. where English plays the role of a genuinely second language, where it plays a 'social' role in the community and functions as a recognised means of communication among members who speak some other language as their mother tongue. The peculiar sociolinguistic situation of Mauritius, marked by a multiplicity of languages, affects the motivation to learn English in the classroom.

In South Africa, a study was made in 1990 of a transitional bilingual program, the Threshold Project. In this project, the LoI shifted from the mother tongue to English at the third grade. The objective of the study was to test the cognitive development of the children in that program. According to Lockett

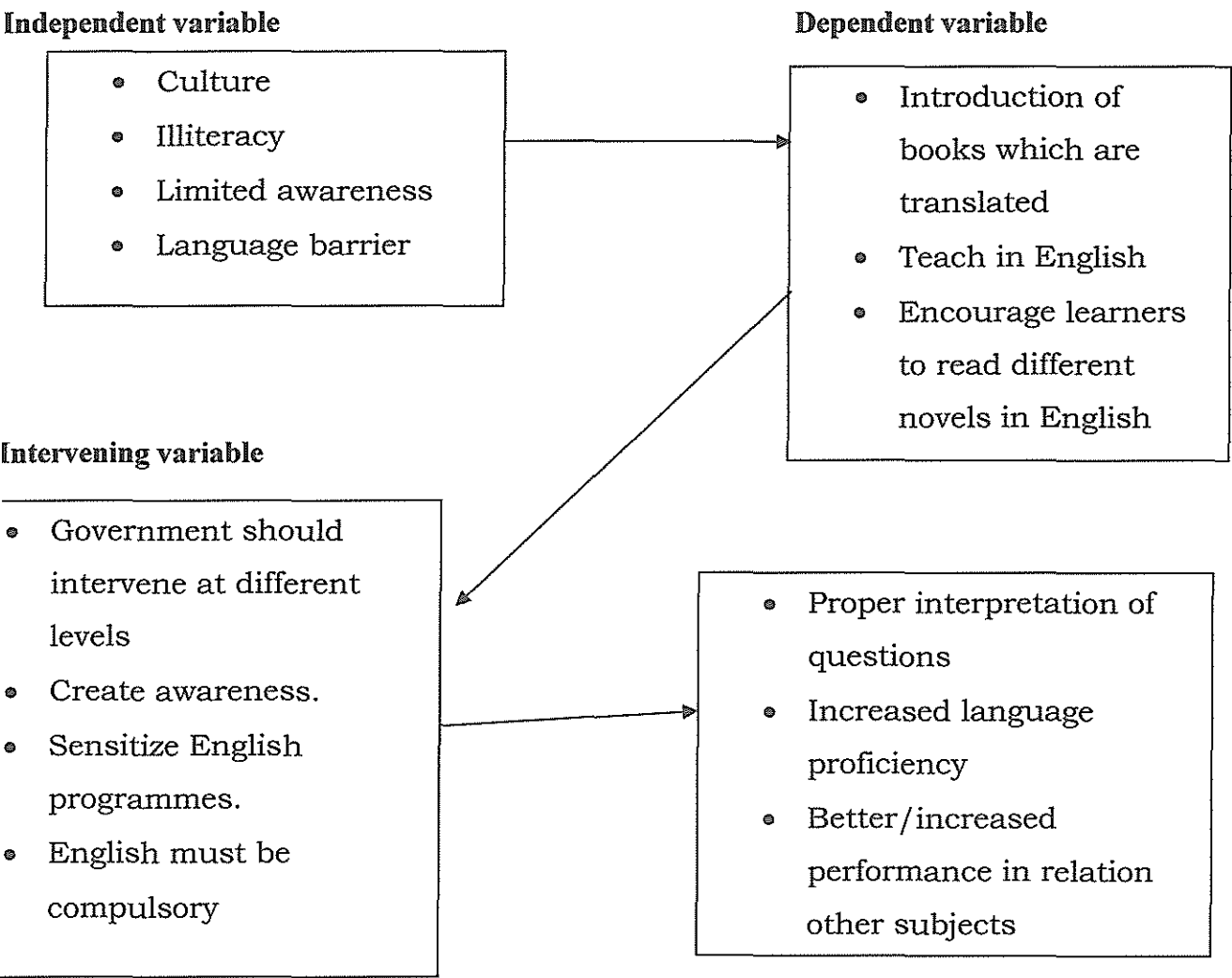
(1994, p. 5), "pupils could not explain in English what they already knew in their first languages; nor could they transfer into their first languages the new knowledge that they had learnt through English." The main conclusion of the study was that bilingual programs that shift the LoI (Local Language) from the mother tongue to a second language before children reach a certain age or level of cognition-what Cummins (1979) called cognitive academic language proficiency-will result in failure (Luckett 1994).

So far, no research has been done in Tanzania to show whether, at the primary-school level, the cognitive development of children whose LoI is Kiswahili is better or worse than that of children whose LoI is English. However, research in Tanzania has clearly shown that, at the secondary-school level, teaching in Kiswahili has a cognitive-development advantage over teaching in English (Mlama and Materu 1978). It was shown, for instance, that when students are asked a question in English, the answer is often incoherent and irrelevant, showing lack of understanding of the question or an inability to answer in English. When the same question is asked in Kiswahili, students give a relevant and articulate answer. One may conclude that this is also the case at the primary-school level, perhaps to a greater extent, as pupils at this level have had even less exposure to English.

Standards of primary-school education in Tanzania have been said to be falling, but this has not been demonstrated as being a result of using Kiswahili as the LoI. Mvungi (1974) stated that the falling standards were due to other factors, including poorly trained teachers, inadequate facilities, and lack of motivation among teachers because of poor pay.

1.10 CONCEPTUAL FRAMEWORK

EFFECTS OF LANGUAGES IN RELATION TO THE STUDENTS' PERFORMANCE OF SCIENCE SUBJECTS: A CASE STUDY OF ENGLISH LANGUAGE IN NYATIKE DIVISION



The diagram above tries to explain the system of concepts and their interrelationships. It illustrates the benefits of improved language proficiency as a dependent variable which will help in students' proper interpretation of exams, improved performance among others.

But however much as the above can be achieved there are always interferences that hinder the usage of English subject in relation to science subjects they include; culture, high levels of illiteracy and

language barrier among students, from the above constraining variables we shall get the intervening variables which will breed the moderating variables.

As the two constraining variables are interrelated, that is independent and dependent variable they will produce an intervening variable and the output from the three, that is will be a moderating variable which is the outcome.

## **CHAPTER THREE**

### **3.0 METHODOLOGY**

#### **3.1 Introduction**

In this chapter, the researcher highlighted on the research design, research area, population size, research instruments, data collection methods that will be used, data analysis and validity and reliability of data.

#### **3.2 Research design**

The study used a combination of both qualitative and quantitative research design for the purpose of making valid conclusions. Quantitative design which is classified in two broad categories, that is; experimental and non experimental examined how English language influences the students' performance in science subjects in secondary schools as an independent variable where as qualitative design involved the use of questions to obtain views from the respondents.

#### **3.3 Area of the study**

The study was conducted in Nyatike Division Nyatike district, Nyanza ~~Province~~ province-Kenya and assessed how English language influences the students' performance in science subjects in secondary schools.



**3.4 Population of the study**

The study population ranged from staff members from the selected schools and the students within the respective schools. Most of the respondents comprised of pre-school teachers.

**3.5 Sample procedure**

The study used both random sampling and purposive sampling procedures. Purposive was used to select different activities in the area of investigation in order to get the required data and information. Random sampling was used because respondents have equal chances of being selected.

**3.5.1 Sample size**

The respondents were randomly selected and categorized. They comprised of both sexes but of different marital statuses and age groups and the study used 80 respondents. This was intended to get a variety of views and unbiased response which made the study a reality. Also his sample size was selected since, Sutton and David, (2004), state that a sample size should not be less than 30. Beyond basic description it would be difficult for the researcher to under take more complex statistical analysis, as most of these analyses require a minimum sample of 30.

**3.6 Data collection methods**

Data was collected from both primary and secondary sources. Secondary data was got by extracting information regarding how English language influences the students’ performance in science subjects in secondary schools, by reading newspapers, journals, and text books plus the already existing work on internet and magazines. Primary data was got from the field by use of the following methods;

**3.6.1 Interviews**

This involved face to face interaction between the researcher and the participant through discussion. The interviews were in two ways, namely:

Structured interview in which the responses by the participants were brief and specific.

Unstructured interviews, where the responses were long, elaborated and not specific, the interviews were conducted in group, individual.

The researcher carried out interviews with teachers and head teachers, using the interview guide because it is the most appropriate method which can be used to study the attitudes, values, beliefs and motives of people. It also has an element of flexibility. These persons were interviewed individually so as to get independent answers.

## **6.2 Observation**

This involved the use of personal intuition based on different body senses, for example seeing (eye) hearing (ear) touching (hand) smelling (nose). Observation can be used in three main ways, namely; naturalistic observation. Here, the presence of the researcher was not known. He hid himself passive observation. The presence of the researcher was known but his role in the activity was hidden. He did not participate at all. In active observation. The presence of the researcher was known to the participants. The observer played a leading role to bring out information.

## **6.3 Questionnaires**

This was the discussion in written form whereby the responses of the participants were put on paper provided by the researcher, the questionnaire was also in two forms, namely: open-ended questionnaire in which the responses by the participants were free according to their understanding.

The close-ended questionnaires in which responses were provided by the researcher and the participants one of them accordingly, for example strongly agree, agree or strongly disagree.

The researcher left out questionnaires to mainly the literate group. These included; staff members and some students. These had guiding questionnaires which the researcher gave to individual respondents to fill. The researcher gave some two days to respondents to study and fill the questionnaires. He requested the respondents to ask for clarification where they could not understand.

## **3.7 Reliability and validity**

In order to ensure and maintain a high level of reliability and validity in this study, the researcher did the following:

questionnaires were pre-tested (rephrasing them in order avoid leading question). Ambiguous questions were made clear and irrelevant questions deleted.

The researcher used accurate questions which are open ended in nature by use of questionnaires from the staff members, and head teachers. The questions set had enough space to give appropriate responses. Close ended questions were also used.

## **8 Procedure for data collection**

After the approval of the proposal by the responsible authority at the school of education, the researcher got an introductory letter from the institute of open and distance learning KIU to progress to the field for data collection. The researcher presented the letter to the different Local Chiefs (L.Cs), Nyatike division Nyatike district, Nyanza province-Kenya, who later introduced her to different L.C.I officials who assisted her to make sampling frames with the help of other relevant respondents. The researcher made appointments with respondents on when to meet them. The interviews were conducted in staff rooms and in compounds of the schools.

## **9 Data processing**

### **9.1 Editing and spot checking**

The researcher edited during and after each interview with the respondents. This ensured that information given was logical, accurate and consistent.

Obvious errors and omissions were corrected to ensure accuracy, uniformity and completeness so as to facilitate coding.

### **9.2 Coding**

This ensured that all answers obtained from various respondents are given codes and classified into meaningful forms for better analysis.

## **10 Data analysis**

The data filled in the questionnaires were copied and analyzed by tallying it and tabling it in frequency tables identifying how often certain responses occurred and later evaluation was done. The information was later recorded in terms of percentages.

The recorded data was later edited and interpreted which ensured uniformity, legibility and consistency. Also, interview results were coded on frequency tables and calculated in terms of percentages and presented in this study.

## **11 limitations and solutions**

In the study the following limitations were met:

The major limitation of the research was inadequacy of financial resources. Visiting Nyatike Division schools, Nyanza province-Kenya several times for data collection several times turned out to be expensive in terms of transport; however this was solved by obtaining extra funds from family members, colleagues and good friends.

There was mounting pressure from the administration especially at the faculty for students to complete the research on schedule which is likely to affect the quality of research.

The study required a lot of time to be dedicated to collecting substantial data from one student to another making observations, continuous review of literature, data analysis and report writing and this worked out by devoting more time on the research work by reducing on the leisure time at her disposal.

## **CHAPTER FOUR**

### **4.0 PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS**

#### **4.1 Introduction**

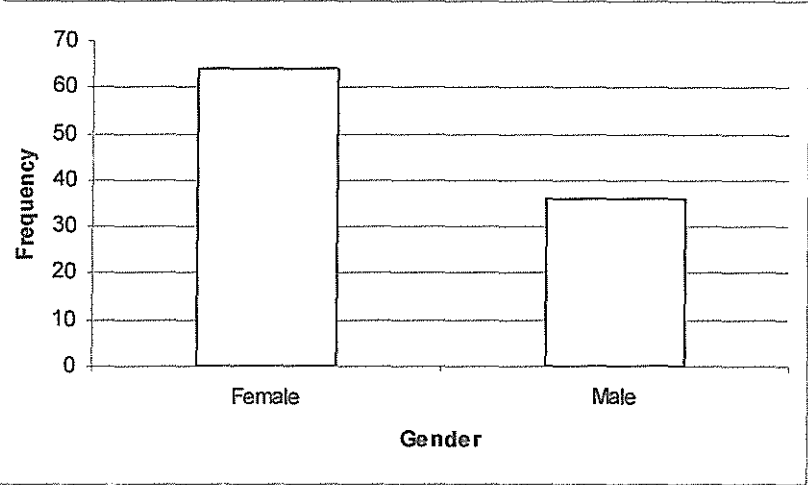
This chapter shows how the collected data was analyzed and interpreted. The data filled in the questionnaires was copied and analyzed by tallying it and tabling it in frequency tables identifying how often certain responses occurred and later evaluation was done. The information was later recorded in terms of percentages. The recorded data was later edited and interpreted which ensured uniformity, reliability and consistence. Also, interview results were coded on frequency tables, pie-charts and bar-graphs which was calculated in terms of percentages and presented in this study in relation to the research questions.

A total of 50 respondents were used in the study, these included students from the selected secondary schools, their head teachers and all class teachers this was intended in order to make the study a reality.

#### **4.2 Background information**

Respondents were asked to state their sex and the results are shown figure 1.

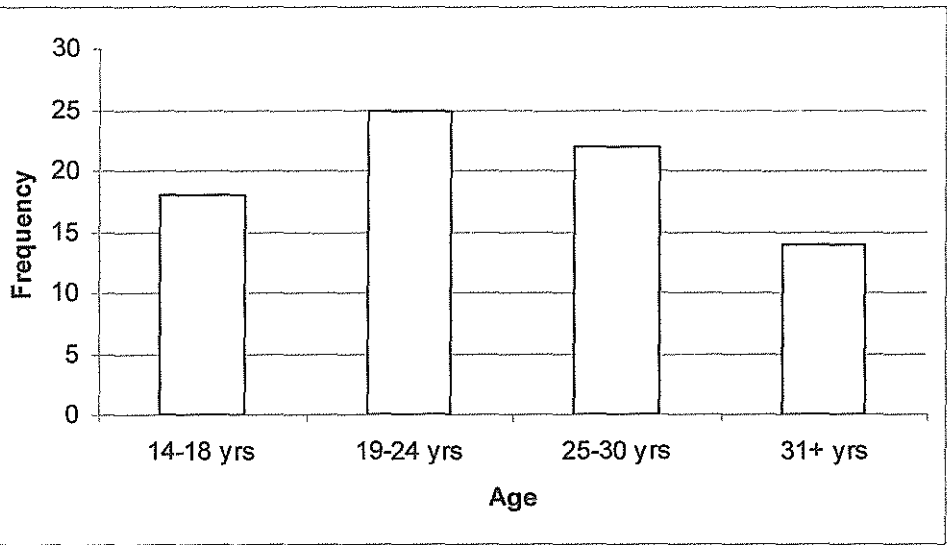
Figure 1; Classification of respondents by sex



Source: primary data

During the field study, it was witnessed out that, the biggest numbers of respondents from Nyatike Division schools district were females as it was represented by 64% and 36% of the respondents were males, implying that, females to a greater extent took part in the study.

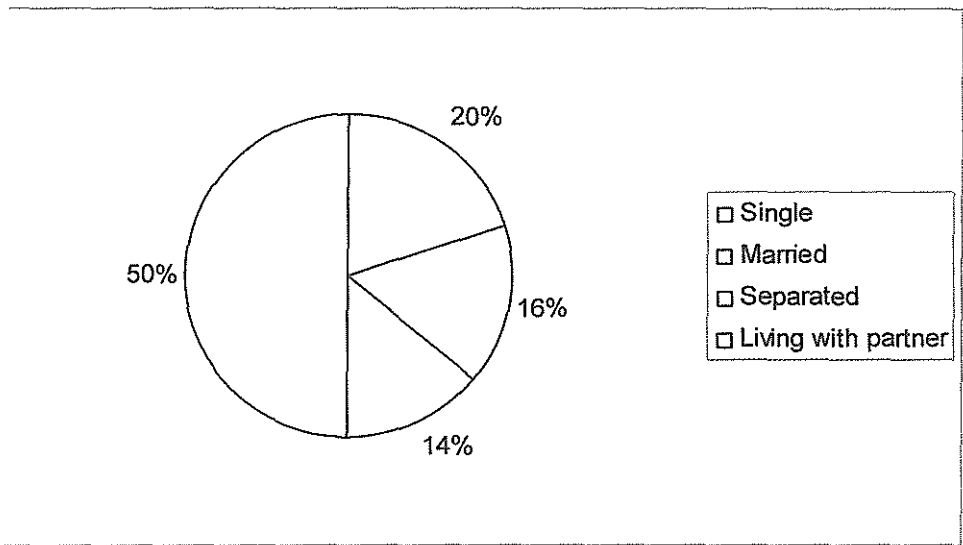
Figure 2: Classification of respondents by age



Source: primary data

Figure 1 shows that the biggest percentage of the respondents were in age bracket of 19-24 years, here as 18% represents interviewees who were in the age bracket of 14-18 years, then 17% of the respondents (teachers) were 31 years and above.

**Figure 3; Respondents' marital status**

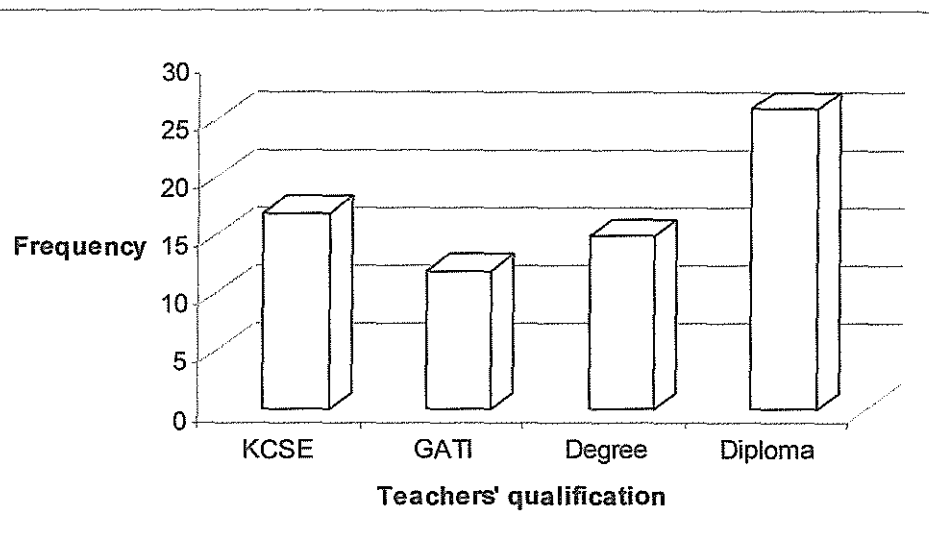


*Source: primary data*

An assessment of the respondents' marital status was as follows; the biggest percentage of the respondents were found to be living with their partners as shown by 50% where as 20% of the interviewees attributed to be single, 16% of them said that they are married, implying that they have their own problems, then 14% of the respondents in the school where the interviews were held from attributed that they separated, implying that, they are to a greater extent have their own problems by relationships as illustrated in Figure 2 above.



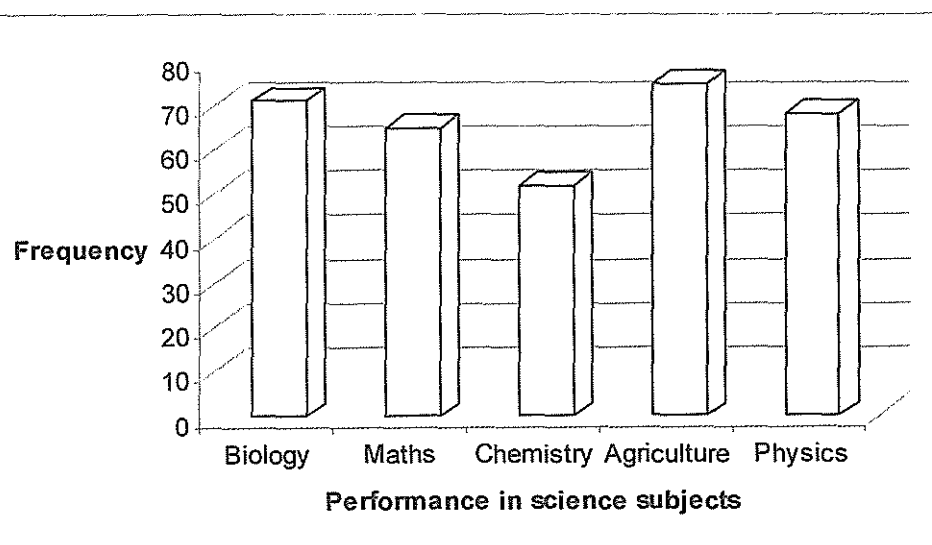
**Figure 4; Qualifications attained by teachers in Nyatike division**



*Source: primary data*

In an assessment of the teachers' qualifications were as follows; the researcher found out that, 26% teachers had attained Diploma in education and 30 of them had attended Advanced level certificate in education where as 17% of the interviewed respondents attributed to have attained KCSE, implying that teachers at Muranga district had attained qualifications in different fields.

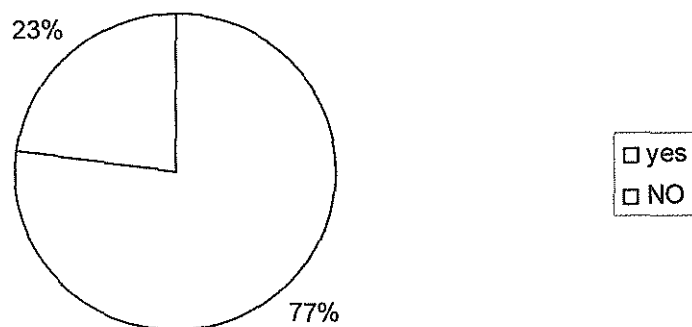
**Figure 5; Performance in Nyatike Division schools in science subjects**



During the study in the field, it was found out that the performance in Nyatike division schools in science subjects was not bad in the following subjects: biology represented by 68% of the respondents

d maths also noted with 62% where as it was found out however that chemistry was the only subject which was poorly done at the school shown with 59%, with agriculture being the best done subject at the school represented with 73% of the respondents and accompanied with physics being one of those best done subjects at the school shown with 67% in the figure above.

**Figure 6; Do you like teaching sciences in girl's schools?**



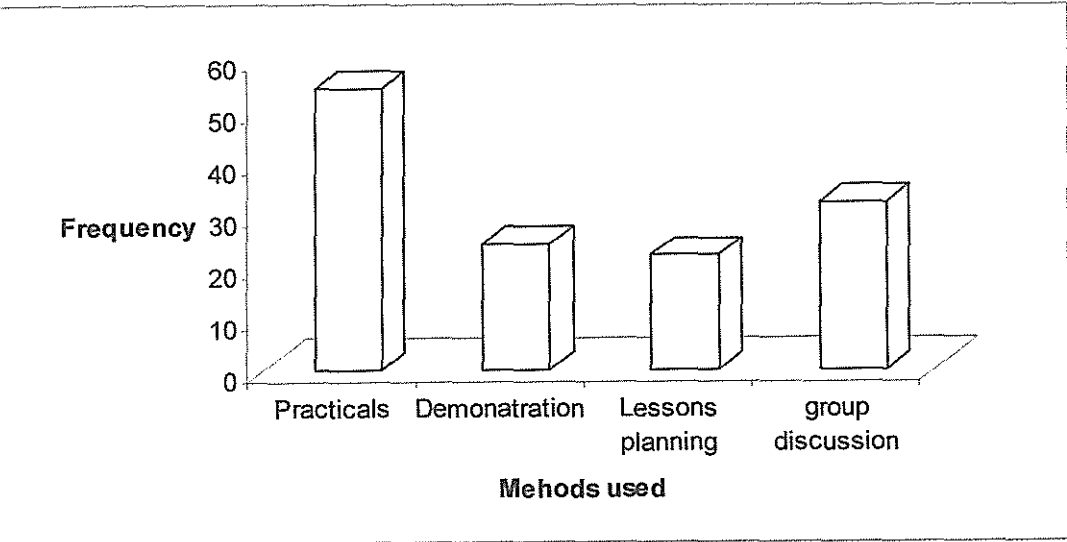
It was found out in the above figure that, the biggest percentage of the respondents (teachers) liked teaching sciences in girl's schools as it is represented with 77% implying that girl's in had a very high chance of passing science subject where as it was noted that only a small portion of percentage represented by 23% did not like teaching sciences in girl's schools as clearly shown above.

**Table 1; Availability and adequacy of resources in both teaching and physical resources**

Resource availability	Frequency	Percentage
Well equipped Laboratory	18	30
Well stocked Library	15	25
Qualified science teachers	13	21.7
Others	14	23.3
Total	60	100

Numerous responses were put forward during the field study by the respondents, on the availability and adequacy of resources were as follows: well equipped laboratory as one of the leading resources noted with 30% of the respondent also among the resources available were well stocked library and qualified science teachers which were represented with a percentage of 25% and 21.3% respectively it was also noted that there were other available resources which included doing regular practical, constant revision and consultations from teachers as shown with 23.3%.

**Figure 7; Various methods used for teaching science and how frequently each method is used**



Close to 60% of the respondents noted that, practicals were one of the leading method used for teaching science and frequently is used, followed by group discussion represented with 37% implying that if those methods are to be concentrated on the performance of students can be improved where as

monstration and lesson planning were the methods which were seen to have less impact on sciences shown with 20% 19% respectively.

**Table 2: Head teachers' opinions on teaching English language in relation to the students' performance in science subjects**

<b>Opinions</b>	<b>Frequency</b>	<b>Percentage</b>
Cooperation among teachers & students	20	40
Make use of the available materials	08	16
Ensure efficiency among teachers	22	44
<b>Total</b>	<b>50</b>	<b>100</b>

**Source; Primary data**

Different opinions were received by the researcher which ranged from; 40% of the respondents emphasized there should be cooperation among the science teachers and students especially when learning reading skills in English language is concerned where as 44% of the interviewees said that efficiency should be enhanced among the teachers, and 16% of them attributed that teachers should make use of the available materials as portrayed in table 1 above.

**Table 3: lack of teaching English language on the students' performance in science subjects**

Opinions	Frequency	Percentage
Yes	35	70
No	15	30
<b>Total</b>	<b>50</b>	<b>100</b>

**Source; Primary data**

Table 2, indicates that majority of the respondents attributed to yes, implying that there is lack of teaching English language on the students' performance in science subjects in Nyatike division schools as it was revealed by 70% whereas 30% of the interviewees pointed out that they do not experience problems associated with English language as far as performance in science subjects is concerned as illustrated in the table above.

**Table 4: methods used while teaching English language aimed improving students' performance in science subjects**

Methods	Frequency	Percentage
Chalk and board	22	44
Multi media presentation approach	4	8
Audio visual method	8	16
Inquiry approach	10	20
Reading method	6	12
<b>Total</b>	<b>50</b>	<b>100</b>

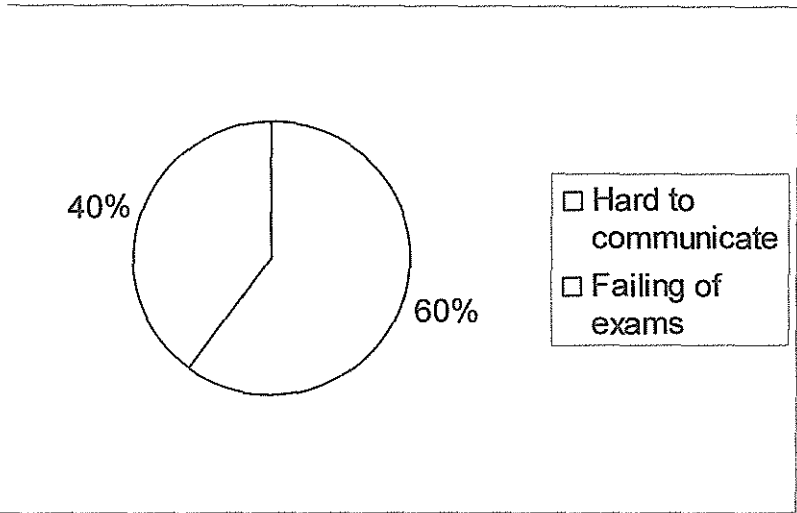
**Source; Primary data**

Table 3 shows the majority of the respondents in Nyatike division Nyatike district who use chalk and board methods as represented by 44% while teaching English language, whereas 12% revealed that they use reading methods. When interviewed in details to find out why they mainly use chalk and board, their responses were attributed to lack of enough reading materials to cover all the schools especially government schools. The researcher also found out that teachers in the Nyatike Division

schools use a variety of methods while teaching English language but the major one is chalk and talk. Chalk and talk helps the teachers to express the feelings and interaction with students.

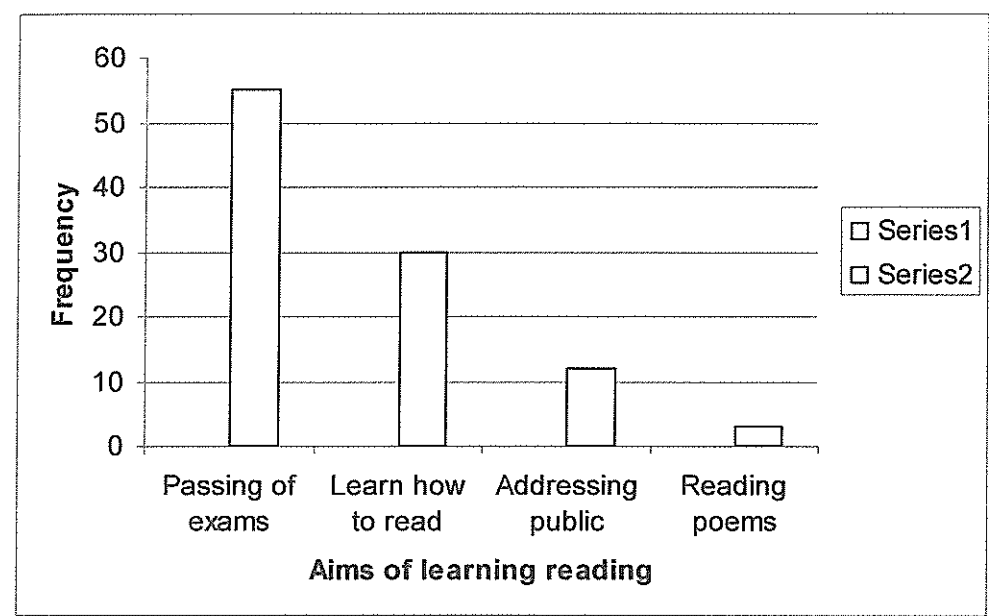
The researcher acquired some information from the science teachers about the effects of English language aimed improving students' performance in science subjects and the results collected regarding this research question were illustrated in figure 1 below;

Fig 8: effects English language on the students' performance in science subjects



An assessment of the effects of English language on the students' performance in science subjects were as follows; 60% of the teachers from where the study was conducted from, attributed to the process of delivering/communication with the students becomes a problem, this was supplemented by the 40% of the respondents who said that, some students who can not read in most cases fail exams which bring the blame to us by the head teacher, parents and the government as portrayed in figure 1 above.

**Figure 9: aims of learning English language aimed improving students' performance in science subjects**



**Source; Primary data**

In an assessment of the aims as to why students are encouraged to grasp the learning reading skills were as follows; the biggest percentage of the respondents said that, it enables students pass their exams since their they are set in English and this was showed by 55% of the interviewees where as 30% of the respondents attributed that enabling students learn how to read English a part from Swahili the commonly used language in the school and the least percentage emphasized that it enables them learn how to read poems as depicted in the figure above.

## **CHAPTER FIVE**

### **5.0 DISCUSSIONS, SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **1 Introduction**

This chapter looks at the discussions, summary, conclusion and recommendations that can be adopted in order to solve the negative effects of English language on the students' performance in science subjects.

#### **2 Discussion of the findings**

The study found out that the teaching English language helps students to interpret and pass their examinations which are set in English for the students. The researcher also discovered that reading is a process of appreciation, understanding and perception of written or printed materials. Reading skills help the students to understand the meaning of written materials and covers the alert strategy that leads to understanding and perform better in science subjects. The aims of reading skills according to the teachers 70% revealed that they are many and 30% attributed that much as the aims of teaching reading skills are many, the minority of them essentially use them.

Teaching English language helps students and teachers to communicate and associate with each other more easily because it involves the recognition of letters, words phrases and clauses and in some esteem, it can be considered a simpler process than intellectual capacity which enhances them perform better in science subjects. Understanding on the other hand is a process of agreeing, understanding between the reader and the writer.

The study findings closely tally with Wendy's (2003) who found out that improving the school readiness and literacy skills to children (pupils) is an essential goal of the parents taking children to school. The findings of the 4 year national evaluation of the teaching process revealed that



participating children who had no prior pre-school experience double the expected developmental growth rate. These findings suggest that as students enter the government schools they are more likely to know the basic concepts and pioneers of such skills than would have with the absence of the programme.

Grant (1988) also observed that in the family literacy standard, parents work on foundation of academic and parenting skills while their children attend pre-school class. Follow up studies of pre-school participants who were at risk of failure when they enrolled in the family literacy programme showed that primary grade pupils performed above average on variables such as academic performance, motivation to learn, attendance and probable success in school. And 90% of the school children who knew how to read were rated as not considered at risk for school failure by their current teachers.

Research indicates that the sequence of failure starts early in child's school career. Stanovic (1986) argues with good evidence that children who encounter problems in the stages of learning to read fall farther and farther behind their peers. Longitudinal studies (Juel 1988) reveal that there is an early 90% that a child who is a poor reader will always remain a poor reader at the end of any grade. As they move through the grades, poor readers are apt to experience continued failure and defeat which may account for the tendency of low achieving learners to drop out of school.

The researcher found out that teachers in secondary schools use a variety of methods in the teaching and learning of English. This is because reading trains students in literal comprehension, which consists of two types to enable learners to know how to read. The tasks include recognition and recall tasks. Recognition tasks require the students to identify the main points regarding selection or the exercise that use the explicit content of the reading selection

he study finding was in-line with Nduhukaire et al (1998) who pointed out why pupils succeed or fail in schools as one of the most enduring questions which teachers ask themselves while teaching pupils how to read and write. As salient findings from traditional research on both adult education and early childhood intervention programmes that the mothers' level of education is one of the important factors influencing children's reading levels and other school achievements. Generally, traditional research has revealed that more highly educated mothers have greater success in providing their children with the cognitive and language skills that contribute to early success in school.

Muwonge K (1989) points out that integrated approaches involve linking various aspects of social studies and even some from outside the subject to make learning complete and meaningful, they also involve linking what is already known to new knowledge to create logical progression in learning; the subject is taken as one and treated as such since this approach involves various aspects in the teaching of the reading skills.

Similarly, and McDonald (1998) also found out that there are many methods of making pupils learn effectively. Their observations were that children of mothers with high levels of education stay in school more than the children of mothers with low levels of education. The National Assessment of Education Progress (NAEP)(2004) data provide some evidence supporting the traditional interpretations of children's academic success that focus on gross measures of parent's education attainment.

### **3.3 possible means and ways of improving quality and quantity of teaching English language aimed at improving on the performance of science students**

The study finding is in line with the researcher's observation that the effectiveness of teaching methods applied by teachers is associated with teacher's ability to classrooms if you want to help students with

their skills of reading English, it is important to help them to read books that are appropriate to their levels and abilities.

However, the effectiveness of the methods depends on the learners' attendance and the kinds of rules and regulations in secondary schools. Secondary schools whose administration policies are tight, teachers teach reading skills more frequently as compared to schools which have loose administrations (Miomia (2003).

Furthermore, the researchers found out that the learning atmosphere in the secondary schools has a say in both the teachers and the students. In schools which have enough reading materials, students and teachers use them more than in a situation where the reading materials are not available (Griffin, 1998).

At times to allow students to read books that are relatively easy for them, conceivably the ones that they have read earlier than the recent. This will give them a feeling of contentment and confidence specially if they can manage to read a whole book by themselves. Check on the confidence of the students especially those in Forms 1, 2, as it is vital in helping their reading skills. Students just like adults, like to look at a book before deciding whether to read or not to read it. Even after the student has started, he or she may find it too difficult or simple for him or her and so discards it and looks for another.

### 3 Summary

During the study it was observed that languages has a great impact on the students' performance in science subjects as it discovered Nyatike Division Nyatike district, Kenya especially at lower levels.

### 4 Conclusion

Based on the study findings, the researcher concluded that English has many aims; it is a medium of exchange in <sup>K</sup>Uganda, an official language used by students in answering examinations both internal and external but its teaching has not been so effective as the study revealed

Many methods that exist are necessary for teaching reading skills to students in secondary school but teachers of English do not use all of them. Parents in socio economic status in Nyatike division Nyatike district could enable them to meet their students' requirements at school but due to the fact that they have low levels of interest in investing in education, some parents or guardians completely fail to provide students with the necessary school requirements.

### 5 Recommendations

5.1 Teachers should ensure that they use a variety of methods to make reading skills more effective in the education system.

5.2 More emphasis should be put on the teachers on the teaching of reading skills to students in forms, 1, 2, 3 because of its role in education.

5.3 Parents or guardians should always work together with the teachers in secondary schools to ensure that students are provided with the necessary school requirements because absence of such materials affects their performance.

5.4 Teachers should also put more interest in learning how to read because no child can be in position to pass when he or she can not read or interpret the set questions.

## **.6 Areas for further research**

he study explored the effects of languages in relation to the students' performance in science subjects in Nyatike Division Nyatike District. The structure of the study was infra-firm, as it focused on the students and teachers of the school.

o expand the scope of teaching materials on students' learning of reading skills in English as a language aimed at improving on the performance in science subjects in Kenya there is need to conduct further studies in the following thematic areas:

- i. A study on the kind of teaching materials being used as product of modern instructional components of the teaching skills.
- ii. A comparative analysis of the costs of teaching and learning skills.

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