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## RESEARCH ARTICLE

# Teaching and Learning Resources as Determinants of Students Academic Performance in Secondary Agriculture, in Rachuonyo North Sub County, Kenya

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### Abstract

In the last decade, performance of students in Rachuonyo North Sub County has taken a downward trend in the national examination, Kenya Certificate of Secondary Education (KCSE). This downward trend is particularly seen in the agriculture subject. This could be as a result of many interacting factors that may cause the poor performance of students in Rachuonyo, and therefore, availability of laboratory, classrooms, school farm, farm structures, textbooks and library being among the factors. In this study, these factors were referred to as teaching and learning resources. The objective of this study was to determine the influence of availability of teaching and learning resources on the students' academic performance in agriculture subject. Correlational design was used during the study and stratified sampling was used to select schools for the study. The target population was 754 students taking agriculture subject at Form Four. Stratified random sampling was used to select the sample for the study. The sample size was 254 students registered in agriculture subject. The items of the questionnaire were developed based on the objectives of the study and the items were discussed with other experts and then pilot tested to ascertain their reliability. The reliability coefficient was 0.72. The instrument was self-administered. Data was analyzed using quantitative methods where descriptive statistics including frequencies, percentages, means, as well as, standard deviation were used, while inferential statistics included Pearson correlation and simple regression were used to test the hypothesis, with levels of significance set at 0.05. Statistical Package for Social Sciences software was used for data analysis. The study observed that majority of the schools had laboratories, classrooms, school farms, libraries and adequate text books for agriculture; however, many schools did not have farm structures. In addition, the study found that schools without laboratories, school farms and farm structures had a higher mean score as compared to schools having these facilities. Similarly, schools with adequate classrooms, textbooks and libraries had higher mean scores as compared to schools without these facilities. However, tests for statistical significance concluded that performance in secondary school agriculture was not significantly determined by the availability of teaching and learning resources in Rachuonyo North Sub County.

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## INTRODUCTION

In the last decade, performance of students in Rachuonyo North Sub County has taken a downward trend in the national examination, Kenya Certificate of Secondary Education (KCSE). This downward trend is particularly

exhibited in the agriculture subject. Learning outcomes are influenced by many factors and therefore, many interacting factors such as social and economic factors may cause the poor performance of students in Rachuonyo North Sub County. This could be as a result of many interacting factors that may cause the poor performance of students in the Sub County, and therefore, availability of teaching and learning resources such as laboratory, classrooms, school farm, farm structures, textbooks and library being among the factors that formed the basis of this study. The facilities in any school have been observed as a very powerful factor to quantitative education. The importance to teaching and learning and the provision of adequate instructional facilities for education cannot be over-emphasized. The dictum that “teaching is inseparable from learning but learning is not separable from teaching” is that teachers do the teaching to make the students learn, but students can learn without the teachers. According to Akande (1985), learning can occur through one’s interaction with one’s environment which refers to facilities that are available to facilitate students learning outcome. These facilities include books, audio-visual, software and hardware of educational technology; so also, size of classroom, farm structures and school farms, availability of tables, chairs, chalkboards and shelves on which instruments for practical’s are arranged (Farrant, 1991; Farombi, 1998).

Laboratory is a room with specific equipment specially built for teaching by demonstration of theoretical phenomenon into practical terms. Farombi (1998) agreed with the saying that “seeing is believing” as the effect of using laboratories in teaching and learning of science and other science related disciplines as students tend to understand and recall what they see than what they hear or were told. Other studies reported that laboratory adequacy which is a school environment factor affect the performance of students in chemistry (Raimi, 2002 & Adeyegbe, 2005). In terms of academic achievement, Soyibo and Nyong (1984) have shown that schools with well-equipped laboratories have better results in the School Certificate Science Examinations than those that are ill-equipped. Writing on the situation of our secondary schools, Okoli (1995) reported that laboratories have become shelves of empty bottles of chemicals. In another study, Yadar (2007) noted that no course in science and mathematics can be considered as complete without including some practical work. The practical work ought to be carried out by individuals either in science laboratories or in classes. It is an established truth that an object handled impresses itself more firmly on the mind than the object merely seen from a distance or in an illustration. Thus practical work forms an important feature in any science and mathematics course (UNESCO, 2008).

Research findings have shown that the success of any educational endeavor rests on the availability of physical facilities, especially the school building. Writing on its importance, Olutola (1982), noted that the availability of the school building contribute to good academic performance as they enhance effective teaching-learning activities. A study done by Zinnah and Adam (2003) declared that many of the traditional ways of teaching are no longer fully adequate unless correctly accompanied with appropriate instructional strategies. Comparing schools in developing countries with what is obtained in industrialized world, in terms of facilities, materials, utilization, and provision, Akintayo (1997) noted that schooling in developing countries like Nigeria takes place under condition that are very different from those in developed countries like Great Britain. In another development, Aliyu (1993) as cited by Johnson (1998) found that there was no significant difference between students in secondary schools with and without adequate instructional facilities. While commenting on the teaching of Agricultural Science in Nigerian secondary schools, Egun and Badmus, (2007) study revealed that the subject was taught in the classroom theoretically without practical work and the use of relevant instructional materials. As a result of the poor method of teaching, students see the subject as difficult, hence, they develop negative attitude towards it. Similarly, Egun and Badmus (2007) in their research on reducing teachers’ instructional difficulties in identified content area of Agricultural Science discovered that lack of relevant instructional materials is among other reasons for teachers’ difficulty in teaching certain content areas of Agricultural Science syllabus.

The implementation of 8-4-4 secondary school curriculum faced a lot of challenges and problems due to lack of facilities such as agriculture tools and machines which was cited by the evaluation report findings by Kenya Institute of Education (1990). Rono (1990) noted that the relationship between achievement and availability of textbooks was more consistent than between achievement and other variables such as teachers’ training, class size and facilities. Exploring the effects of textbooks and other factors on student achievement gain, Lockheed (1986) found in their longitudinal data from a national sample of eighth grade mathematics classrooms in Thailand that textbooks may affect achievement by substituting for additional post-secondary mathematics education of teachers and by delivering a more comprehensive curriculum. Altbach (1983) stated that “nothing has ever replaced the printed word as the key element in the educational process and, as a result, textbooks are central to schooling at all levels”. In his empirical studies of use of textbooks and educational achievement involving 1,006 primary school pupils, Fuller

(1985) revealed that students who had used more than two textbooks were almost three times as likely to pass compared to students that used one textbook. The findings of Glewwe, Kremer and Moulin, (2006) in Kenya found that textbooks had effects only among the best students, perhaps because the textbooks were difficult for most students. However, textbooks were found to raise test scores in the Philippines (Heyneman, Jamison & Montenegro, 1984).

Library as a resource, occupies a central and primary place in any school system. It supports all functions of school-teaching and provides service and guidance to its readers. According to Fowowe (1988) a library must be up-to-date and at the same time allow access to older materials. For instance, Keith (2004) study found that the size of a library media programme as indicated by the size of its staff and collection is the best school predictor of academic achievement of students. In addition, the instructional role of the library media specialist shapes the collection and in turn academic achievement. Finally, the degree of collaboration between library media specialist and classroom teacher is affected by the ratio of teachers to pupils. In a related study, Waldman (2003) discovered that students visit library for different purposes. This purpose, therefore, has a strong influence on their performance. In other studies (Lance, 2000; Todd & Kuhlthau, 2004) confirmed a significant correlation between the presence and the use of library materials by students and teachers with better student performance. Similarly, a correlation was found between the school inputs and better student achievement (Todd & Kuhlthau, 2005). The discussion continued as to whether school facilities have effects on student achievement. Government of Pakistan (2005) showed the mixed effects of school facilities. According to the study, the availability of a library, did not affect student achievement. Similarly, Yousaf (2005) found that physical facilities were not favorable for students' successful transition to higher education

## Methodology

The study used co-relational design to get teachers and students opinions on the students' related variables and school variables, as well as to determine the degree of association between performances in agriculture by secondary school students. In this case, the influence of the independent variables on the dependent variable shall have taken place without the researchers' manipulation. Co-relational study involves collection of two or more sets of data from a group of subjects in order to determine the subsequent relationship between the two sets of data (Kathuri & Pals, 1993). The target population consisted of Form Four students taking Agriculture Subject as an examinable subject in the Kenya Certificate of Secondary Education Examination (KCSE) in Rachuonyo North Sub County and 38 secondary school agriculture teachers. The County has 38 secondary schools with a population of 754 students taking agriculture (Rachuonyo Sub County Education Office Records, 2012). Thus the population of the study was 754 students registered in Agriculture subject at Form Four and 38 secondary school agriculture teachers.

Stratified sampling was used to select schools for the study and geographical location of schools within the Sub County was used as the criteria for stratification. Mugenda and Mugenda (2003) noted that the goal of the stratified random sampling is to achieve the desired representation from various sub groups in the population. Krejcie and Morgan (1970) indicate, from a finite population of 750, a sample size of 254 would be appropriate. Borg and Gall (1993) suggested a minimum of 30 cases for co- relational research and therefore, for the schools, the required critical mass was 30 secondary schools. Thus, 254 Form Four agriculture students and 30 agriculture teachers constituted the sample for the study. Selection of specific schools from each division was done through stratified random sampling. The unit of sampling was secondary school rather than individual students because secondary schools operate as an intact group (Borg & Gall, 1989). This means, therefore, that each school was considered as one group. The 254 students were divided by 30 schools participating in the study to give about 9 Form Four students per school assuming that the numbers of Form Fours were equally distributed in the schools within the Sub County.

The instruments for data collection were carefully designed. Data on the dependent variable was the scores on the agriculture Mock examination taken by all agriculture students during Rachuonyo Sub County Mock Examination. Researchers developed two questionnaires that were administered to Form Four agriculture students and agriculture teachers to collect data on students' characteristics. The instrument was given to experts for validation. The questionnaire was pilot tested using a school in a Division that was not included in the study but had similar characteristics as the sample schools to ascertain the reliability of the instrument. The reliability coefficient was estimated using split half method that yielded a reliability coefficient of 0.72.

The researchers visited the sampled schools to administer the questionnaire to agriculture students and teachers in all the sampled schools. Filled questionnaires were collected from the students and teachers by the researcher. The collected data relating to availability of teaching and learning resources such as laboratory, classrooms, school farm, farm structures, textbooks and library were sorted through cleaning and coding and then organized for easy analysis. Quantitative methods of data analysis were used with both descriptive as well as inferential statistics being applied to explain the results of the study. Using descriptive statistics helped the researchers to describe the population of study, while inferential statistics helped the researchers to make inferences about the population based on the results of a representative sample (Mugenda&Mugenda, 2003). The types of descriptive statistics used included frequencies, percentages, means, as well as, standard deviations while inferential statistics used included Pearson correlation and simple regression analysis. The Alpha level was set at 0.05. The statistical package for social sciences was used in the data analysis.

## Results and Discussions

The study investigated the availability of teaching and learning resources such as laboratory, classrooms, school farm, farm structures, textbooks and library as determinants of students' academic performance in agriculture subject.

### *Availability of laboratory as a determinant of the students' academic performance in agriculture*

According to the study, 48.8% of the respondents indicated that laboratories were available in the school while, 18.5% indicated that laboratories were readily available in the school and 32.7% indicated that the laboratories were not available in the school (Table 1). In this study, it is evident that majority (67.3%) of the respondents had laboratories in their schools. However, results of the study, found that schools without laboratories had a higher mean scores (49.0244) (Table 2) as compared to schools which had laboratories.

**Table 1: Responses on the Availability of the Laboratory**

Laboratory availability	Frequency	Percent
Readily available	47	18.5
Available	124	48.8
Not available	83	32.7
<b>Total</b>	<b>254</b>	<b>100</b>

**Table 2: Comparing Availability of Laboratory and Performance in 2012 Mock Examination**

Laboratory availability	Mean	N	Std. Deviation
Readily available	45.0638	47	15.77616
Available	47.9919	124	13.62476
Not available	49.0244	83	15.03246
<b>Total</b>	<b>47.7826</b>	<b>254</b>	<b>14.51122</b>

### *Availability of classrooms as determinant of the students' academic performance in agriculture*

From the analysis in terms of classroom availability, 36.7% of the respondents indicated that classrooms were readily available and 56.6% indicated that classrooms were available accounting for 93.3% of classroom availability while only 6.7% of the respondents indicated that classrooms were not available (Table 3). Schools that had classrooms had higher mean scores as compared to schools that did not have classrooms (Table 4).

**Table 3: Agriculture Teachers Responses on Availability of Classrooms**

Classroom availability	Frequency	Percent
Readily available	11	36.7
Available	17	56.6
Not available	2	6.7
<b>Total</b>	<b>30</b>	<b>100</b>

**Table 4: Comparing Teachers Responses on Classroom Availability and KCSE average Mean Score (2009-2011)**

<b>Classroom availability</b>	<b>Mean Score KCSE</b>	<b>N</b>	<b>Std. Deviation</b>
Readily available	6.1250	11	.92063
Available	6.1207	17	1.11827
Not available	4.7600	2	.07071
<b>Total</b>	<b>6.0215</b>	<b>30</b>	<b>1.04840</b>

***Availability of school farm as a determinant of the students' academic performance in agriculture***

Most of the respondents (64.57%) indicated that the school farm was available and 31.1% indicated that the school farm was readily available, accounting for 95.67% school farm availability. However, 4.33% indicated that the school farm was not available (Table 5). The study however, found that schools that did not have school farms performed better (51.4) compared to than having school farms (Table 6).

**Table 5: Agriculture Students Responses on Availability of School Farm**

<b>School Farm availability</b>	<b>Frequency</b>	<b>Percent</b>
Readily available	79	31.1
Available	164	64.57
Not available	11	4.33
<b>Total</b>	<b>254</b>	<b>100</b>

**Table 6: Comparing Availability of School Farm and Students Performance in 2012 Mock Examination**

<b>School Farm</b>	<b>Mean</b>	<b>N</b>	<b>Std. Deviation</b>
Readily Available	47.7468	79	15.73048
Available	47.5793	164	13.80894
Not Available	51.4000	11	16.81402
<b>Total</b>	<b>47.8976</b>	<b>254</b>	<b>14.59809</b>

***Availability of agriculture textbooks as a determinant of the students' academic performance in agriculture***

Majority of the respondents (62.20%) indicated that the text books for agriculture were available and 33.07% indicated that textbooks were readily available accounting for 95.27% textbook availability. However, 4.73% of the respondents indicated that the textbooks for agriculture were unavailable (Table 7). The study found that schools where textbooks were available had higher mean scores (48.3208) compared to schools that did not have textbooks (Table 8).

**Table 7: Agriculture Students Responses on Availability of Agriculture Textbooks**

<b>Textbook availability</b>	<b>Frequency</b>	<b>Percent</b>
Readily Available	84	33.07
Available	158	62.20
Not Available	12	4.73
<b>Total</b>	<b>254</b>	<b>100</b>

**Table 8: Comparing Availability of Agriculture Textbooks and Students Performance in 2012 Mock Examination**

<b>Textbooks availability</b>	<b>Mean</b>	<b>N</b>	<b>Std. Deviation</b>
Readily Available	47.1786	84	15.59901
Available	48.3208	158	14.06644
Not available	44.3000	12	12.50822
<b>Total</b>	<b>47.8976</b>	<b>254</b>	<b>14.59809</b>

***Availability of farm structures as a determinant of the students' academic performance in agriculture***

From the analysis, majority of the respondents (60.62%) indicated that the farm structures were unavailable, while 32.30 indicated that farm structures were available and another 7.08% indicated that farm structures were readily available accounting for 39.38% farm structure availability (Table 9). The study found that schools without farm structures had a higher mean scores (49.4156) compared to schools that had farm structures (Table 10).

**Table 9: Agriculture Students Responses on Availability of Farm structures**

<b>Farm structure availability</b>	<b>Frequency</b>	<b>Percent</b>
Readily available	18	7.08
Available	82	32.30
Not available	154	60.62
<b>Total</b>	<b>254</b>	<b>100</b>

**Table 10: Comparing Availability of Farm structures and Students Performance in 2012 Mock Examination**

<b>Availability of Farm structures</b>	<b>Mean</b>	<b>N</b>	<b>Std. Deviation</b>
Readily available	45.2222	18	15.62259
Available	45.2469	82	15.60251
Not available	49.4156	154	13.62221
<b>Total</b>	<b>47.8976</b>	<b>254</b>	<b>14.59809</b>

***Availability of library as a determinant of the students' academic performance in agriculture***

Regarding the availability of the library, 23.2% indicated that library was readily available and 54% indicated that library were available accounting for 77.2% library availability, while 22.8% indicated they did not have a library (Table 11). According to the study, schools that had libraries readily available had higher mean scores (49.322) compared to schools without library (Table 12). From this study, many schools had libraries, and this determined academic performance of students in secondary school agriculture. Schools that did not have libraries had a lower mean score in examinations.

**Table 11: Agriculture Students Responses on Availability of Library**

<b>Library</b>	<b>Frequency</b>	<b>Percent</b>
Readily available	59	23.2
Available	137	54.0
Not available	58	22.8
<b>Total</b>	<b>254</b>	<b>100.0</b>

**Table 12: Comparing Library Availability and Students Performance in 2012 Mock Examination**

<b>Library availability</b>	<b>Mean</b>	<b>N</b>	<b>Std. Deviation</b>
Readily Available	49.3220	59	15.59116
Available	47.5956	137	14.22120
Not available	46.6552	58	14.17008
<b>Total</b>	<b>47.8976</b>	<b>254</b>	<b>14.59809</b>

**Hypothesis Testing**

*Availability of teaching and learning resources has no statistically significant influence on students' academic performance in agriculture.*

The analysis of variance found F statistics to be 2.599 with a significance value of more than 0.05 (.119) (Table 13). This was also supported by the t-value of the independent variable being less than 1.96 where t-value was 1.612 (Table 14), meaning that the teaching and learning resources was not a significant predictor of the dependent variable.

**Table 13: Analysis of Variance on Teaching and Learning Resources ANOVA<sup>b</sup>**

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2.691	1	2.691	2.599	.119(a)
Residual	25.886	25	1.035		
<b>Total</b>	<b>28.578</b>	<b>26</b>			

a Predictors: (Constant), Number of available teaching and learning resources

b Dependent Variable: Average mean score of K.C.S.E between 2009-2011

**Table 14: Regression Coefficients on Teaching and Learning Resources Coefficients<sup>a</sup>**

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	4.807	.778		6.177	.000
Number of available teaching and learning resources	.293	.182	.307	1.612	.119

a Dependent Variable: Average mean score of K.C.S.E between 2009-2011

Linear regression results yielded a t-value of -0.1547 which was less than 1.96, with a significance of 0.123 (Table 15) which was greater than 0.05. This means that the teaching and learning resources considered were not a significant predictor of the students' performance in agriculture in Rachuonyo North Sub County.

**Table 15: Regression Analysis on Teaching and Learning Resources and Performance in Agriculture Mock Examination Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	53.944	4.012		13.445	.000
	Number of teaching and learning resources available	-1.608	1.039	-.097	-1.547	.123

a. Dependent Variable: marks in Percentage

## Discussions

In this study, it is evident that majority of the schools had laboratories. However, results of the study, found that schools without laboratories had a higher mean scores as compared to schools which had laboratories. From the findings, use of theoretical methods does not necessarily mean that laboratories are not needed. The laboratory can be there, but they are not gainfully used, and therefore, the students will continue performing poorly. These findings were inconsistent with other studies that reported that laboratory adequacy which is a school environment factor affect the performance of students in chemistry (Raimi, 2002 & Adeyegbe, 2005). In terms of academic achievement, Soyibo and Nyong (1984) have shown that schools with well-equipped laboratories have better results in the School Certificate Science Examinations than those that are ill-equipped. This study found that availability of laboratories had little impact on the performance of students in agriculture as majority of schools had laboratories, yet their performances in agriculture were still low despite the availability of laboratories, however, their adequacy, use of laboratories and whether laboratories are equipped or not could be determining performance in agriculture.

The study established that schools that had classrooms had higher mean scores as compared to schools that did not have classrooms. It is therefore, evident that availability of classrooms is determining performance of students in

secondary school agriculture. The study findings were consistent with a study conducted by Williams (1973), who succinctly said that school buildings are very vital input to educational system; emphasizing that even though they do not teach but their use may facilitate or impede learning. However, he did not see school building as one of the critical variables affecting school academic achievement because he found no evidence to show that an expensive school building would necessarily improve academic achievement. Giving credence to the above finding, Owoeye (1991) in his submission, expressed skepticism about any useful relationship between such expensive structures and academic achievement. The study, therefore, found that availability of classrooms can determine students' performance in agriculture.

School farms were found to be available in most schools; however, few schools did not have school farms. The study however, found that schools that did not have school farms performed better compared to schools having school farms. School farms are useful in the teaching of agriculture, especially during practical activities and demonstrations involving agronomic practices. The findings of the study are consistent with a study done by Zinnah and Adam (2003) that declared that many of the traditional ways of teaching are no longer fully adequate unless correctly accompanied with appropriate instructional strategies. They identified constraints to teaching– learning materials in Agricultural Science such as shortage of tools, and other equipment, lack of finance to provide the required materials and facilities, insufficient textbook for students and absence of school farms. The findings of this study, found a negative relationship between school farm availability and students' performance in agriculture.

Many schools were found to have the text books for agriculture. However, fewer schools did not have the textbooks for agriculture. The study found that schools where textbooks were available had higher mean scores than schools that did not have textbooks. These findings were consistent with the findings of Glewwe, Kremer and Moulin, (2006) in Kenya which found that textbooks had effects only among the best students, perhaps because the textbooks were difficult for most students. However, textbooks were found to raise test scores in the Philippines (Heyneman, Jamison & Montenegro, 1984). Therefore, the study found that textbooks availability can determine students' performance in secondary school agriculture.

The study observed that majority of schools did not have farm structures. As a result, the study found that schools without farm structures had higher mean scores compared to schools that had farm structures. The study findings were consistent with the findings of Egun and Badmus, (2007) while commenting on the teaching of Agricultural Science in Nigerian secondary schools; their study revealed that the subject was taught in the classroom theoretically without practical work and the use of relevant instructional materials. As a result of the poor method of teaching, students see the subject as difficult, hence, they develop negative attitude towards it. Similarly, Egun and Badmus, (2007) in their research on reducing teachers' instructional difficulties in identified content area of Agricultural Science discovered that lack of relevant instructional materials is among other reasons for teachers' difficulty in teaching certain content areas of Agricultural Science syllabus. From the findings, farm structure availability seems not to determine academic performance of students in secondary school agriculture, since performance was higher in schools without farm structures than schools with farm structures.

Majority of the schools were found to have libraries, however, according to the study, schools that had libraries readily available had higher mean scores compared to schools without library. From this study, many schools had libraries, and this determined academic performance of students in secondary school agriculture. Schools that did not have libraries had a lower mean score in examinations. Availability of libraries does sometimes have a negative influence on performance of students in secondary school agriculture as students do not have a place for private studies in school. Studies have established significant relationship between library and students' academic performance. For instance, Keith (2004) in his study found that the size of a library media programme as indicated by the size of its staff and collection is the best school predictor of academic achievement of students. In addition, the instructional role of the library media specialist shapes the collection and in turn academic achievement. Finally, the degree of collaboration between library media specialist and classroom teacher is affected by the ratio of teachers to pupils. In a related study, Waldman (2003) discovered that students visit library for different purposes. This purpose, therefore, has a strong influence on their performance. In other studies (Lance, 2000; Todd & Kuhlthau, 2004) have confirmed a significant correlation between the presence and the use of library materials by students and teachers with better student performance. Similarly, a correlation was found between the school inputs and better student achievement (Todd & Kuhlthau, 2005). The discussion continued as to whether school facilities have effects on student achievement. Government of Pakistan (2005) showed the mixed effects of school facilities.

According to the study, the availability of a library, did not affect student achievement. The study found that availability of library determined performance of students in secondary school agriculture.

Linear regression results yielded a t-value of -0.1547 which was less than 1.96, with a significance of 0.123 which was greater than 0.05. This means that the teaching and learning resources considered were not a significant predictor of the students' performance in agriculture in Rachuonyo North Sub County. Thus the null hypothesis was accepted, because performance in secondary school agriculture was not significantly determined by the availability of teaching and learning resources in Rachuonyo North Sub County.

## Conclusions

- From the findings, use of theoretical methods does not necessarily mean that laboratories are not needed. The laboratory can be there, but they are not gainfully used, and therefore, the students will continue performing poorly.
- The study established that schools that had classrooms had higher mean scores as compared to schools that did not have classrooms. It is therefore, evident that availability of classrooms was determining performance of students in secondary school agriculture.
- The study observed that many schools had school farms; however, few schools did not have school farms. The study however, found that schools that did not have school farms performed better compared to schools having school farms.
- Many schools were found to have the text books for agriculture. However, fewer schools did not have the textbooks for agriculture. The study found that schools where textbooks were available had higher mean scores in agriculture examination compared to schools that did not have textbooks.
- The study observed that majority of schools did not have farm structures. The study found that schools without farm structures had higher mean scores in agriculture examination compared to schools that had farm structures.
- Majority of the schools were found to have libraries, in addition, schools that had libraries had higher mean scores in agriculture examinations compared to schools without library.
- Linear regression results yielded a t-value of -0.1547 which was less than 1.96, with a significance of 0.123 which was greater than 0.05. As a result, the teaching and learning resources considered were not a significant predictor of the students' performance in agriculture in Rachuonyo North Sub County. Thus the null hypothesis was accepted, because performance in secondary school agriculture was not significantly determined by the availability of teaching and learning resources in Rachuonyo North Sub County.

## Recommendation

In this study, use of theoretical methods of teaching does not necessarily mean that the teaching and learning resources are not needed. The resources can be available but students will continue performing poorly because those resources are never gainfully used, therefore, performance can continue being poor, but it is not the resources to blame, but other factors not investigated in this study. Therefore, teachers should gainfully use the available resources for the benefit of the learners.

## References

- Adeyegbe, S. O. (2005). *In search of indices for measuring the standard of education: A need for a shift in Paradigm*. A special seminar by West African Examinations Council. Lagos 7th May.
- Akande, O.M. (1985). *Hints on Teaching Practice and General principles of Education*. Lagos, OSKO Associates.
- Akintayo, M.O. (1997). *Primary school Facilities, Materials, Utilisation and Improvement in A.O.Ajayi and B. Sokan (eds), Effective Management of Primary Education*.
- Aliyu, K. (1993). *Instructional Facilities and Secondary School Students Academic Performance in Bida and Lavun Local Government of Niger State*. M.Ed Dissertation, University of Ilorin.
- Altbach, P.G. (1983). *Key Issues of Text book provision in the Third World*. Prospects, 13 (315- 325).

- Borg, B.S. and Gall, M.D. (1993). *Educational Research. An Introduction*. White Plains, New York: Longman.
- Borg, B.S. and Gall, M.D. (1989). *Education Research. An Introduction. (6<sup>th</sup> Ed.)*. White Plains, NY: Longman.
- Egun, A. C. and Badmus, M.O. (2007). Reducing Teachers Instructional Difficulties in Identified Content Area of Agricultural Science Syllabus of Senior Secondary School for Better Understanding in Nigeria. *Journal of Social Science*, 15(2): 141-145.
- Farombi, J.G. (1998). Resource Concentration, Utilization and Management as Correlates of Students' Learning outcomes: A study in School Quality in Oyo State. Unpublished Ph.D. Thesis, University of Ibadan.
- Farrant, J. S. (1991). *Principles and practice of Education* (Tenth Impression) Singapore Longman.
- Fowowe, S.O. (1988). Finding Academic Libraries In Nigeria: A survey of some Nigerian University libraries. *Ilorin Journal of Education*, 8, (21-16).
- Fuller, B. (1985). Raising school quality in developing countries: what investments Boost learning (Education and Training series, Discussion paper number (EDT) Washington DC. World Bank.
- Glewwe, P. and Kremer, M. (2006). "Schools, Teachers and Education Outcomes in Developing Countries." Forthcoming in E. Hanushek and F. Welch, eds., *Handbook of the Economics of Education*. North Holland.
- Government of Pakistan. (2005). *National Assessment Report 2005*, NEAS (National Education Assessment System), Ministry of Education, Islamabad.
- Heyneman, S., Jamison, D. and Montenegro, X. (1984). "Textbooks in the Philippines: Evaluation of the Pedagogical Impact of a Nationwide Investment." *Educational Evaluation and Policy Analysis* 6(2): 139-150.
- Johnson, A. B. (1998). School Mapping and Resource Supply as Correlates of students Academic Achievement in Kwara State Secondary Schools, Unpublished Ph.D Thesis, University of Ibadan.
- Kathuri, N.J. and Pals, A.D. (1993). *Introduction to Education Research*. Education Media Centre, Egerton University.
- Keith, C.L. (2004). *School librarians and student performance*. <http://www.libraryqueen.suca.info/ref/library> Retrieved 19/08.12.
- Kenya Institute of Education, (1990). *Evaluation Report Finding*. Nairobi, Kenya Literature Bureau.
- Krejcie, V.R., and Morgan, V.D. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*. 30, 607-610.
- Lance, K.C. (2000). *Measuring up to Standards: The Impact of School Library Programs and Information Literacy in Pennsylvania Schools*, Department of Education's Office of Commonwealth Libraries, Pennsylvania: Pennsylvania.
- Lockheed, M.E. (1986). How Textbooks Affect Achievement in Developing Countries: Evidence from Thailand. *Educational Evaluation and Policy Analysis* Winter, 8(4), 379-392.
- Mugenda, M.O. and Mugenda, G.A. (2003). *Research Methods. Quantitative & Qualitative Approaches*. Nairobi, Act Press.

- Okoli, A. (1995). Education: A year of disaster at all Levels. Vanguard, January 4, p 12-13.
- Olutola, A. (1982). School planning and Maintenance Introduction to Educational Planning, S Adesina (ed). Ile-Ife University of Ife Ltd, p.210-219.
- Owoeye, J.S. (1991). A Study of the Relationship between Class Size and Educational Quality in Ondo State. Unpublished M.Ed Thesis, University of Lagos.
- Rachuonyo Sub County Education Office Records (2012). *Rachuonyo North District Secondary Schools Enrollment Data*. Ministry of Education, Kosele.
- Raimi, S. M. (2002). *Problem-solving Techniques and Laboratory skills as supplements to Laboratory Teaching in Senior Secondary School Students' Learning of Volumetric Analysis*. Unpublished Ph.D. Thesis University of Ibadan, Ibadan.
- Rono, J. (1990). *Factors Influencing the Rate of Dropouts among Secondary School Students in Nandi District*. Unpublished M.E.D Thesis Nairobi; Kenyatta University.
- Soyibo, K. and Nyong, G.O.E. (1984). An Analysis of the School Certificate Biology Result of Old and New Secondary Schools in Cross Rivers State 1978 – 1982. *Nigerian Educational Forum* 7(2), 245 – 250.
- Todd, R. and Kuhlthau, C. (2004). *Student learning through Ohio school libraries: Background, methodology and report of findings*, OELMA, Columbus: OH.
- Todd, R. and Kuhlthau, C. (2005). Student learning through Ohio school libraries, Part 1: How effective school libraries help students. *School Libraries Worldwide*, 11(1), 89-110.
- UNESCO. (2008). Challenges of implementing free day secondary education in Kenya. Experiences from district. Nairobi: UNESCO
- Waldman, M. (2003). Fresher's use of library electronic resources and self-efficacy. *Information Research*, 8, (2), 202-234.
- Williams, T.D. (1973). Efficiency of Education in Education and National Building in the Third World, J. Lowe, N. Grant and T.O. Williams (Eds.) Ibadan, Onibonje Press and Book Industries (Nig.) Ltd.
- Yadar, K. (2007). *Teaching of Life Sciences*. New Delhi, Anmol Publication. Ltd. India
- Yousaf, M.I. (2005). *Relationship of Performance of University Students with the Selected Variables of School Age*, Unpublished PhD Thesis, University of Arid Agriculture
- Zinnah, M. and Adam, I. (2003). Teaching of Agricultural Science at the Basic Education Level in Developing countries: A Case Study of the Nature and Constraints at Cape Coast District of Ghana. AIAEE 2003 *Proceedings of the 19<sup>th</sup> Annual Conference* Raleigh, North Carolina, USA.