

The Relationship between Agriculture Teachers' Satisfaction with Working Conditions and Public Secondary School Students' Agriculture Performance in KCSE

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Abstract: Agriculture subject at secondary school level in Kenya equips students with knowledge, skills and competences that are vital for achieving their desired KCSE performance. The level of Agriculture teachers' satisfaction with their working conditions could affect implementation of agriculture curriculum as well as student's Agriculture scores. In Nyeri County, public secondary-school students continue to perform poorly in Agriculture in KCSE with the results from 2009 to 2015 indicating an aggregate grade of C-. It was not clear whether teachers' satisfaction with working conditions was affecting students' performance so this study sought to provide that missing information. The working conditions entailed classroom conditions, accessibility of the school, school compound layout, clean water provision, sanitary facilities, security, teaching facilities, timetabling and contribution of marking KCSE projects to the final score. The study was a census involving 185 public secondary school teachers in the County and employed an ex-post facto survey research design. A structured self-administered questionnaire was used to collect data, which were analyzed using the Statistical Package for Social Sciences (SPSS) Version 22. Both face and content validity of the questionnaire were determined using a panel of five agricultural education experts at Egerton University while its reliability was determined using a sample of 30 Agriculture teachers from Kirinyaga County, which has teachers with similar characteristics as those of Nyeri County. A Cronbach's alpha reliability coefficient of 0.88 was obtained, which is above the minimum threshold acceptable in educational research. Descriptive statistics such as means, frequencies, standard deviations and charts were used to summarize and present the findings of the study. The study found out that agriculture teachers were satisfied with classroom conditions, accessibility of the school, school compound layout, clean water provision, sanitary facilities, security in the school and timetabling. Availability of teaching facilities and contribution of marking KCSE projects to the final score were rated unsatisfactory. The Pearson Product Moment Correlation Coefficient was used to analyze data at a confidence level of $\alpha=0.05$ which indicated a positive relationship between Agriculture teachers' satisfaction with working conditions and students' performance in Agriculture in KCSE. Based on the findings, the researcher concluded that favorable working conditions should be enhanced to improve student KCSE performance in Agriculture. The researcher recommends that the Ministry of Education and other education stakeholders should improve Agriculture teachers working conditions in order to enhance students' KCSE Agriculture scores. **Key Words:** Agriculture, Students' Performance, Teachers' Satisfaction, Working Conditions

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I. Introduction

At all levels of educational development of any society, teachers are important and their satisfaction with working conditions will basically affect the quality of services they render to this sector¹. There is consensus that of all the factors inside the school that affect children's learning and achievement, the most important is the existence of effective teachers^{2,3}. Theoretically, satisfaction with working conditions is a predictor of positive work related with outcome such as improved performance^{1,4}. If workforces are satisfied with their working conditions, organization productivities and performance of workers would be greater than before and intention of workers to quit and absenteeism would be decreased. Work environment has been found to be one of the factors that affect employee's decision to stay with the organization. In schools, teachers' satisfaction with working conditions is important because it impacts directly on the delivery of lessons, effectiveness of teaching, student performance and pass rates^{5,6,7}.

Most educators and researchers have agreed that total learning environment should be comfortable, pleasant, and psychologically uplifting, among its occupants, and should support the academic process⁸. It has been observed that working environment that is comfortable, relatively low in physical and psychological stress, has facilities and attainment of work goals will tend to produce high levels of satisfaction among employees⁹. Teachers concerns about high student pass rates are understandable because achieving high student achievement levels in schools is a top national priority in many countries and it is reasonable to argue that stakeholders in education judge teacher effectiveness not on what they do in the classroom but by the results they produce in national examinations^{2,10}. A student's performance in any examination is dependent on many variables. Such variables include the type of school and its facilities, the qualification of teachers, the students' academic background, the environment from which they come from, the type of leadership provided by principals and their qualifications and parentage¹¹.

Consequently, the quality of education is dependent on the quality of human and material resources available for teaching (inputs), quality of teaching and learning practices (process) and the quality of outcomes¹². The performance of teachers can be measured by performance indicators such as success in impact of pupils' progress; impact on a wider outcome for the pupils; improvement in specific elements of practice such as behavior; management or lesson planning; success in national/local examination; low repetition and dropout rates; teacher/pupil contact time and; students' time on relevant task¹³. Studies world over and in Sub-Saharan Africa have shown that variables like working conditions, are said to affect the level of job satisfaction an individual derives from his or her work^{14,15}. Kirimi, Gikunda, Obara and Kibett¹⁶ found that working conditions had a significant effect on performance of agriculture teachers' in which an improvement in the working conditions led to an increase in the teachers' performance. However, available data show an average mean score of 5.36 in agriculture at Kenya Certificate of Secondary Education (KCSE) in Nyeri County from 2009 to 2015¹⁷. The low performance has raised concern to education stakeholders since the economy of Nyeri County is dependent predominantly on agriculture.

Agriculture teachers are expected to be effective in their teaching job however, for them to be effective they should be accorded emotional, administrative and technical support¹⁸. Unlike other subjects, the effective teaching of agriculture takes place not only in a classroom and laboratories but also in the school farm. Agriculture teachers are expected to involve learners actively in agricultural activities through project work that exposes them to long lasting experiences and assists them think critically enhancing learning and retention¹⁹. In addition, the assessment of the agriculture projects poses unique challenges related to discrepancies in evaluation. Notably, an agriculture teacher plays a noble role in ranking and maintaining interest in students with the desire to venture into agriculture practical work²⁰. Through adoption of participatory curriculum implementation the agriculture teacher promotes innovation and creativity in agriculture subject which leads to acquisition of skills for life²¹. As a result, agriculture teachers help to build self-confidence and high self-esteem among agriculture students. All these activities require a lot of commitment from the agriculture teachers and are quite demanding hence may affect their satisfaction with working conditions. It is against this background that it is important to determine the relationship between Agriculture teachers' satisfaction with working conditions and students' performance in Agriculture in KCSE.

II. Methodology

The study employed an ex-post facto survey research design. The design was adopted because the cause, that is, the independent variable (working conditions) was studied after it had exerted its effect on the dependent variable (performance in agriculture). According to Borg and Gall²² and Creswell²³ this is referred to as the fact. The effects of a naturally occurring treatment were examined after they had taken place. Students had been enrolling in agriculture from the time it became an elective subject and teachers working conditions had been influencing their performance. Therefore establishing whether any correlation exists between teachers' satisfaction with working conditions and students' performance in agriculture was measured without any manipulation by the researcher. The study was a census involving 185 public secondary school agriculture teachers in the County.

The study was confined to TSC employed agriculture teachers from all public secondary schools in Nyeri County which had presented candidates to KNEC from 2012 to 2014. Public secondary schools were selected because people teaching there are employed using public funds and their work environment may be affected by resources provided. Agriculture teachers were targeted because they are involved in disseminating agricultural knowledge to the youth of a country whose economy relies on agriculture. KCSE agriculture mean scores from 2012 to 2014 were used because they are the most recent complete years that could be used for comparison in order to give an overview of agriculture performance. Also, since performance does not change drastically they formed a basis to compare since they had similar characteristics.

A structured self-administered questionnaire was used to collect data, which were analyzed using the Statistical Package for Social Sciences (SPSS) Version 22. The working conditions satisfaction statements were anchored on a five point Likert scale where; 5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree and 1- Strongly Disagree. Respondents were required to indicate in this scale the extent they agreed or disagreed with the given working conditions satisfaction statements. Agriculture performance was measured as an index of average mean scores in KCSE in three consecutive years (2013-2015) and agriculture teachers' rating on a set of student factors. Both face and content validity of the questionnaire were determined using a panel of five agricultural education experts at Egerton University while its reliability was determined using a sample of 30 Agriculture teachers from Kirinyaga County, which has teachers with similar characteristics as those of Nyeri County. A Cronbach's alpha reliability coefficient of 0.88 was obtained, which is above the minimum threshold acceptable in educational research. Descriptive statistics such as means, frequencies, percentages, standard deviations and charts were used to summarize and present the findings of the study. The Pearson Product Moment Correlation Coefficient was used to analyze data at a confidence level of $\alpha=0.05$.

III. Results and Discussions

Gender of the Respondents: The gender distribution of the agriculture teachers involved in the study constituted 60% male. This indicated that implementation of agriculture curriculum was handled by men and agrees with the findings of Kirimi et al.¹⁶ in their study on influence of motivational factors on the performance of secondary school agriculture teachers in Imenti south district.

Age of the Respondents: The age of the respondents ranged between 25 years and 58 years with a mean age of 44 and standard deviation of 8.1. The mean age of 44 years may imply that most of the teachers were settled in the teaching professional and had a desire for career longevity, personal growth and a sense of moral obligation. Notably, 54% of the teachers were above the mean age tending towards retirement hence there could be reduced intention of the teachers to quit

or seek alternative job opportunities. The results further revealed that very few teachers had joined the profession indicated by the low percentage of teachers below 30 years.

Professional Training of Respondents: All the respondents were trained agriculture teachers. This implies that they were in a position to understand best the dynamics of implementing the agriculture curriculum having been trained in the subject. Professionally trained teachers possess sufficient pedagogical skills that are suitable for the dissemination of agriculture content leading to higher students' academic performance. As observed by Muchiri et al.²⁴ most agriculture teachers develop a positive perception towards secondary school agriculture during their training independent of the agriculture teachers' teaching experience and professional qualifications.

Academic Qualification of Respondents: A majority of the respondents had attained a bachelor's degree and above (61.6%). With high education level, teachers' intellectual capacity is expected to be high.

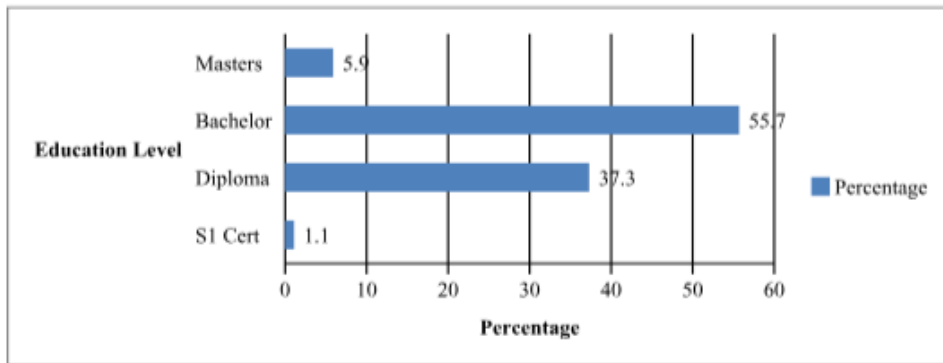


Figure 1: Distribution of respondents by education level

Current Designation of Respondents: Agriculture teachers held different designations based on their qualifications and years of service. A majority held administrative positions (58.4%) ranging from subject heads to school headship. This implies that they were expected to perform teaching, administrative and supervisory duties that relate to their terms of service to promote education in Kenya. Respondents' designations were as shown in Figure 4.

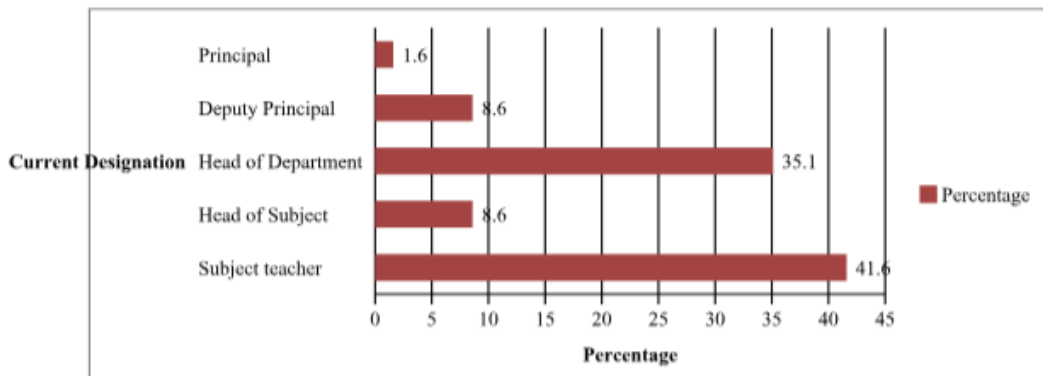


Figure 2: Distribution of respondents by current designation

Other Respondents' Responsibilities: Other than teaching agriculture, respondents were asked give other responsibilities allocated. The data revealed that agriculture teachers were fully engaged and had other duties to carry out other than teaching. This is in agreement with the TSC's expectations that teachers are expected to perform co-curricular activities that relate to their terms of service to promote education in Kenya²⁵. The other responsibilities held are shown in Table 1.

Table 1: Other Responsibilities of Agriculture Teachers

Responsibility	Yes Frequency	Percentage
Club patron	98	53
Guidance and counselling	42	22.7
Disciplinary committee	39	21.1
Dean	4	2.2
CA/CU patron	7	3.8
Farm manager	1	0.5
Class teacher	96	51.9
Games teacher	26	14.4
House teacher	22	11.9

Teaching Experience of Respondents: Respondents indicated a teaching experience ranging between 2 years and 32 years with a mean teaching experience of 17 and standard deviation of 8.2. A mean teaching experience of 17 years could imply that the teachers have mastery of content, skills and appropriate methodology. Preparation of candidates for the national examinations and marking agriculture project would be familiar tasks. Over, 78% of the teachers had a teaching experience of over 10 years, which further indicates high teaching competencies. Distribution of teaching experience is indicated in Figure 3.

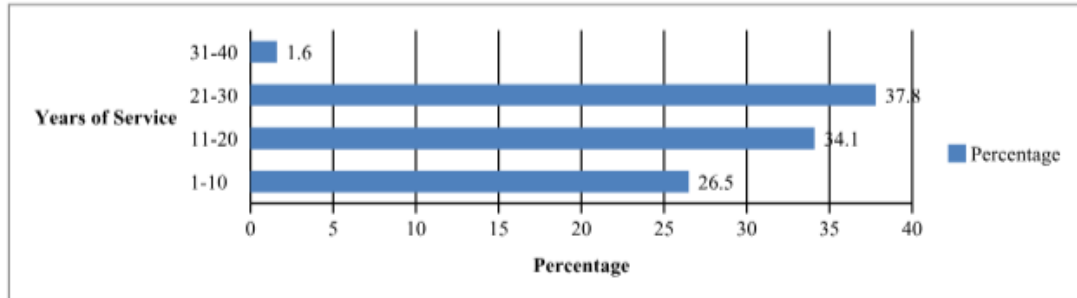


Figure 3: Distribution of respondents by experience

School Category of Respondents: Most of the respondents taught in county schools (81.6%). This indicates that majority of agriculture students were in the county secondary schools and majority of the respondents were from those schools. Overall student agriculture performance would be determined predominantly by the county schools performance. The results were as shown in Figure 4.

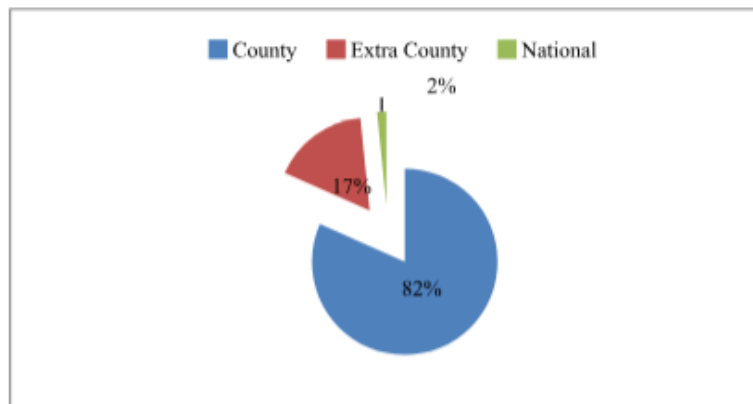


Figure 4: Distribution of respondents by school category

Description of Respondents' School: Respondents were to indicate the type of their school. Figure 5 presents the description of the schools involved in the study.

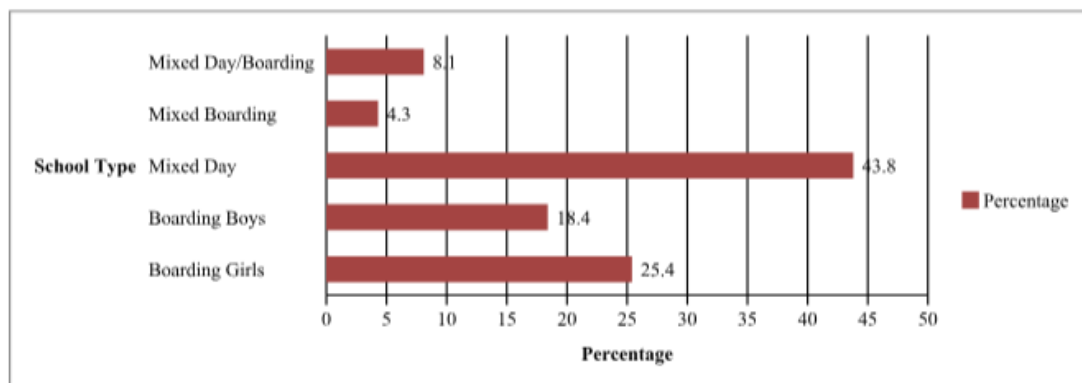


Figure 5: Distribution of respondents by school type

Location of Respondents' School: Public secondary schools in the county are located in rural settings constituting 95.1%. This indicates that the agriculture teachers could make use resources and knowledge of the neighbouring community in the teaching learning process. This could advantage learners further due to ease of accessing agricultural activities in their surroundings.

Performance Index: A performance index was computed using the average mean score of students' performance in KCSE and student factors performance indicator. Students' agriculture performance index was computed by getting the aggregate score for KCSE agriculture subject mean score for three years (2013-2015) and the agriculture teachers' satisfaction rating on a set of student factors. The subject mean of three years agriculture mean scores per school was calculated on a scale of 1-12 and then an overall mean obtained. The mean scores were categorized and ranked as shown in Table 2.

Table 2: Distribution of Agriculture Performance in KCSE per School from 2013-2015

Category	Level of Performance	Frequency	Percent
Below 2.99	Low	12	6.5
3.0 – 4.99	Below average	81	43.8
5.0 – 6.99	Average	52	28.1
7.0 – 8.99	Good	28	15.1
Above 9.0	Very Good	12	6.5
Total		185	100.0

Mean=5.5, SD=1.95

The agriculture teacher was supposed to rate the level of satisfaction with five student factors related to performance on a Likert scale (1=Strongly Disagree, 2= Disagree, 3=Undecided, 4=Agree and 5=Strongly Agree). The scores on the Likert scale for the 5 items were added to obtain a scale ranging from 5 to 25 which was then put in categories that defined the five different levels of teacher satisfaction with student factors. The results were as shown in Table 3.

Table 3: Agriculture Teachers Satisfaction with Student Factors

Indicator	Frequency					Mean
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
Student attitude positive	69	110	1	4	1	4.3
Assignments performance	16	108	10	45	6	3.4
Fully engage in instruction	45	113	2	21	4	3.9
Performance vs KCPE	19	85	5	62	14	3.2
High level of discipline	19	113	8	42	3	3.6

n=185, Mean=3.6, SD=0.62

The two values; student factors performance indicator and the mean of mean scores were added and the mean obtained which provided a single index for performance. The average mean score in agriculture was 5.5 and rating on student factors by the agriculture teachers was 3.6 giving an overall mean of the computed performance index as 4.55. The performance index was correlated with agriculture teachers' satisfaction with working conditions when testing hypothesis.

Agriculture Teachers' Working Conditions and Student performance

Working conditions were measured using 9 indicators. The mean level of agriculture teachers' satisfaction with working conditions was 3.61 and a standard deviation of .60. In a scale of 1-5 the respondents indicated the extent to which they agreed with a set of statements regarding the working conditions. The numbers in the Likert scale for the nine items were added to obtain a scale ranging from 9 to 45 which was then put into categories that defined the five different levels of satisfaction with working conditions. The ratings by 185 respondents on the nine indicators of satisfaction with working conditions were aggregated to obtain frequencies, percentages and a mean index.

Overall, the respondents indicated satisfaction with the working conditions which meant that most of the basic requirements in a working environment were satisfactory as shown in Table 4.

Table 4: Agriculture Teachers Level of Satisfaction with Working Conditions

Indicator	Frequency					Mean
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
Classroom condition	42	122	2	18	1	4.0
Accessibility of the school	56	103	3	21	2	4.0
School compound layout	33	111	9	30	2	3.8
Provision of Clean water	52	97	2	30	4	3.9
Provision of Sanitary facilities	34	103	4	39	5	3.7
Provision of Security	28	100	10	40	7	3.6
Availability of Teaching facilities	25	64	3	75	18	3.0
Considerate Timetabling	18	121	6	35	5	3.6
Project work contribution to KCSE	24	63	11	53	34	2.9

n=185

From the results it is clear that respondents indicated satisfaction in the following aspects, classroom condition (88.6%), accessibility (86%), school compound layout (77.8%), provision of clean water (80.5%), provision of sanitary facilities (74.1%), provision of security (69.2%) and considerate timetabling (75.1%). However they were dissatisfied with availability of teaching facilities (48.1%) and contribution of project marks to students' agriculture grade in KCSE (47.1%).

Since the agriculture teachers' indicated satisfaction with working conditions, they would be expected to exhibit high degree of commitment and increased performance as documented in past research by Ngethe et al.⁹ that working environment that is comfortable, relatively low in physical and psychological stress, has facilities and attainment of work goals will tend to produce high levels of satisfaction among employees.

Test of Hypothesis: The hypothesis stated that "there is no statistically significant relationship between agriculture teachers' working conditions and students' agriculture performance in KCSE examination in Nyeri County". This hypothesis was tested using Pearson's Product Moment Correlation Coefficient. The mean index of the 9 indicators of working conditions was computed and found to be 3.61 and then correlated with the mean performance index. The results are presented in Table 5.

Table 5: Working Conditions and Students' Agriculture Performance Index

		Working conditions
Students' agriculture performance index	Pearson Correlation (r)	.223*
	Sig. (2-tailed)	.002
	n	185

*. Correlation is significant at the 0.05 level (2-tailed).

The result indicate that a positive and statistically significant relationship exist between agriculture teachers' working conditions and the agriculture performance of students at KCSE ($r = .223$, $n = 185$ and Critical $\alpha = 0.05$). The study rejects the null hypothesis and accepts the alternative hypothesis that there is a statistically significant relationship between agriculture teachers working conditions and students' performance in agriculture. There is a strong positive relationship between working conditions and students' academic performance in agriculture. This implies that an improvement in working conditions could lead to an improved performance of students'. This findings are consistent with other studies that working environment that is comfortable, relatively low in physical and psychological stress, has facilities and attainment of work goals will tend to produce high levels of satisfaction among employees^{9,26,27,28} and therefore enhanced students' academic performance. The results also concur with the findings of Kirimi et al.¹⁶ that working conditions had a significant effect on performance of agriculture teachers' in which an improvement in the working conditions could lead to an increase in the teachers' performance.

IV. Conclusion

An increase in agriculture teachers' satisfaction with the working conditions could lead to an improvement in students' performance in agriculture at KCSE. This implies that Agriculture teachers' satisfaction with working conditions is directly proportional to students' performance in Agriculture at KCSE.

Recommendations

School administrators in the County and at the national level should in consultation with other secondary school education stakeholders provide and maintain adequate teaching facilities to improve agriculture teachers' job satisfaction. The contribution of agriculture project marks to the overall student scores needs further interrogation.

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