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# Comparison of Perceptions of Secondary School Principals, Teachers and Learners Towards Factors Influencing Implementation of Agriculture Projects in Kisii District of Kenya

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**Abstract:** The purpose of the study was to compare the perceptions of school principals, agriculture teachers and learners towards factors influencing implementation of KCSE agriculture projects. A total of 30 principals, 30 teachers and 342 form four agriculture learners from selected provincial, district and private school categories of Kisii district, Kenya were selected to participate in the investigation. The school principals and agriculture teachers were purposively sampled while proportionate stratified random sampling was used to select form four agriculture learners. Data on perceptions were collected using questionnaires. Descriptive statistics, one-way variance analysis (ANOVA) and multiple comparison test (LSD) were used to examine the data. Results showed that all the respondents had positive perceptions towards the factors investigated. However, the agriculture learners had higher mean perception scores towards the factors compared to principals and teachers. The learners significantly differed with principals and teachers on their mean perception of the factors influencing the implementation of KCSE agriculture projects. The mean perception scores of school principals and agriculture teachers were not significantly different. It was concluded that perceptions of the learners towards factors influencing implementation of KCSE agriculture projects is higher because of their actual involvement in the implementation process. The comparatively lower but similar perceptions of school principles and agriculture teachers towards the factors are an issue that needs to be addressed so as to enhance success of the projects. The Ministry of Education should regularly organize workshops to sustain and improve the observed positive perceptions of the principals and agriculture teachers towards the factors. The Boards of school Governors and principals should avail requirements of project implementation in schools for smooth implementation to maintain the positive perceptions of the factors by learners.

**Key words:** Perceptions · School principals · Teachers · Learners · Agriculture projects

## INTRODUCTION

The centrality of food in life and the fear by society of food shortages provides the initial importance of offering agriculture education in schools that aims at providing a critical mass of the population educated in agriculture [1]. Training of the youth is one way of farmer training which is a means of rural development [2, 3]. According to [4-6] for Kenya to achieve agricultural growth targets, the country must increase the level of general knowledge and skills in the farming community. Therefore school agriculture is an attempt to inculcate values, attitudes, knowledge as well as practical skills in learners needed to improve agricultural production [7]. In an effort to impart skills in learners KCSE agriculture projects were introduced as a practical examination in agriculture subject (agriculture paper 443/3) in 1989. This practical examination requires form four learners who register for agriculture subject for KCSE to implement a project in either crops or livestock. The KCSE agriculture projects implemented test the knowledge, attitudes and psychomotor skills learners have acquired over the four years of learning agriculture [8]. Therefore, a well organized and progressive school agriculture which is comprehensive in terms of knowledge, skills and attitude is necessary in ensuring that improved farming techniques are used [7]. According to the [3, 9,10] increased knowledge and skills through agricultural education will enhance the introduction of efficient farming practices to the traditional farmers.

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Over time, the youth from schools who cannot get paid employment soon join farming as a means of generating income [11]. Therefore determined efforts should be made through school agriculture to prepare the youth for this kind of life [12]. The teaching of school agriculture puts emphasis on the use of projects since they provide a link between theoretical knowledge learned in class and real-life agriculture experience. As noted by [13] agriculture projects as students' hands–on activity lead to better understanding of concepts by providing students with meaningful concrete experiences. Not only do agriculture projects enhance the acquisition of skills in agriculture alone, but in other subjects as well [14]. Project method allows students to develop abstract principles from practical applications and see connections between their studies and the larger community. In this way, learners are brought into contact with their environment and find link between classroom work and experience in life [15]. On the other hand projects provide a scope for a degree of cooperation among students in an atmosphere of emulation rather than restraint implied by private work. The method therefore, affords a learner a measure of independence, choice and responsibility [16].

The duration of a project is variable. As stated by [17] a project may last from a day to one year or more, while [18] observes that it may proceed for a whole term or may be completed in 4 to 5 weeks. The KCSE agriculture projects proceed from January to September of a calendar year [19]. The learners implement the project in specified plot sizes of 4 metres by 3 metres or rear small livestock such as rabbits or poultry in specified cage sizes. The agriculture teachers and the school principals play the roles of providing resources and supervising the learners respectively. The KNEC provides guidelines on how the agriculture projects should be implemented by schools all over Kenya. It may be a crop or a livestock enterprise [19]. The form four agriculture learners implement the project suited to their environmental conditions from the choices provided by the KNEC with the guidance of the agriculture teacher.

As described by [18] implementation is the carrying out of the routine activities of a project by the learner. The learner plays several roles during project implementation such as: identifying a problem, establishing a hypothesis, planning and organizing data, testing hypothesis on the basis of data collection, presentation of results and drawing of conclusions, summary and recommendations. However, regular consultation and evaluation during the implementation of the project is encouraged, so as to ensure that project activities are taking place as planned. Such consultations with the agriculture teacher help to iron out any problems experienced in time. In implementing the KCSE agriculture projects the learner is charged with the following responsibilities: preparation of plots, carrying out field practices like planting, weeding, pest and disease control, harvesting and weighing in the case of a crop project. For animal projects the activities involve, animal husbandly practices, such as feeding, cleaning, parasite and disease control and weighing of the animal.

**Purpose of the Research:** The main purpose of the research was to compare the perceptions of secondary school principals, agriculture teachers and form four agriculture learners towards factors influencing implementation of KCSE agriculture projects in schools.

**The Objective:** To compare the perceptions of secondary school principals, agriculture teachers and form four agriculture learners towards factors influencing implementation of KCSE agriculture projects in schools.

**Method:** An-ex-post facto research design was employed. That is the effects of a naturally occurring treatment were examined after they had taken place without any manipulation. The KCSE agriculture projects have been implemented in secondary schools since 1989 when they were introduced in the examination system and the factors have been influencing the process of implementation. This means after the fact or retrospectively [20, 21, 22]. The design was preferred because the cause, that is the independent variable (factors influencing implementation of KCSE agriculture projects) were studied after they had exerted their effects on the dependent variable (perceptions of the respondents towards the factors). The researcher measured the perceptions of the respondents towards the factors that influence KCSE agriculture projects in schools during implementation without any manipulation.

**Population and Sample:** The population frame for the study consisted of 96 school principals and 96 agriculture teachers from 96 secondary schools offering agriculture as an examinable subject in Kisii district. From the 96 schools only 30 were proportionately sampled and they comprised of three categories that is provincial and district government schools and private schools. By extension 30 principals and 30 teachers were purposively sample to participate in the study. It is suggested by [23] that 30 cases is the least sample size that could be used if

some form of statistical analysis is to be carried out on the data obtained. The population frame for the learners consisted of 3451 learners from 96 secondary schools offering agriculture as an examinable subject in Kisii district. This was done in line with the guidelines provided by the table in Kathuri and Pals, therefore a sample size of 346 learners was selected [20]. Proportionate stratified random sampling procedure was used to select learners to participate in the study from the three school categories. The proportions of learners selected were 69 from provincial, 242 from district and 35 from private schools. This procedure is recommended for use by [20], when the population from which to sample is not homogenous in terms of certain required characteristics as this leads to representative samples.

**Data Collection Tool:** The researcher developed the attitude instruments for the study. Three questionnaires were developed and used for the three categories of respondents. The instruments had questions that would help in achieving the stated objective. The instruments for the school principals, agriculture teachers and learners were similar and had statements on factors that influence project implementation. The instruments had a rating scale of a five point type response (1 = not important, 2 = least important, 3 = important, 4 = very important and 5 = extremely important) which the respondents used to perceive the factors. Two academic experts in the department of agricultural education examined the instruments for content validly. The instruments were field tested and yielded Cronbach's Alpha coefficients of 0.71 and 0.79 for the instruments of school principals and agriculture teachers respectively, while that of the learners was 0.79. These reliabilities were considered high enough for the internal consistency of the instruments.

**The Analysis of the Data:** Statistical Package for Social Sciences (SPSS) version 11.5 was used to analyze the data that was collected. Descriptive and inferential statistics were used to report the findings. Means were used to describe the perceptions of the factors by the three respondents, while Analysis of Variance (ANOVA) was used in testing the null hypothesis that was generated from the objective of the study. The aim was to test for significant differences between the mean perceptions scores of school principals, agriculture teachers and form four learners from the different schools categories. The null hypothesis was tested at $\propto = 0.05$ significance level.

**Findings on the Objective:** From the results in Table 1, the respondents had cumulative mean perceptions scores of more than 3.00 of the 12 factors that were being investigated. This indicates positive perceptions towards the factors influencing the implementation of KCSE agriculture projects. However the form four agriculture learners had higher mean perceptions scores ($\bar{x}$= 3.7555, SD = 0.4716) towards the factors influencing implementation than the school principals and agriculture teachers whose mean perceptions scores were ($\bar{x}$= 3.5477, SD = 0.4921 and $\bar{x}$= 3.4722, SD = 0.5152) respectively.

In order to determine whether a significant difference exists between the mean perceptions scores of school principals, agriculture teachers and form four agriculture learners towards the factors influencing implementation of KCSE agriculture projects, one way analysis of variance (ANOVA) was carried out using the mean perceptions scores generated in Table 1. The ANOVA results in Table 2 show that a significant difference existed in the mean perceptions scores of the three respondents, *p* value (0.001) < 0.05.

Since the ANOVA result in Table 2 does not indicate which pairs of means differed, a Post Hoc Multiple Comparison test using Least Significant Difference (LSD)

Table 1: Cumulative mean perception scores of school principals, agriculture teachers and learners towards factors influencing implementation of KCSE agriculture projects

| | N | Mean | Std. Deviation | Std. Error | Minimum | Maximum |
|---|---|---|---|---|---|---|
| School principal | 30 | 3.5472 | 0.49212 | 0.08985 | 2.75 | 4.83 |
| Agriculture teacher | 30 | 3.4722 | 0.51525 | 0.09407 | 2.42 | 4.58 |
| Learners | 332 | 3.7555 | 0.47164 | 0.02588 | 2.33 | 5.00 |
| Total | 392 | 3.7179 | 0.48377 | 0.02443 | 2.33 | 5.00 |

Table 2: ANOVA of mean perception scores of school principals, agriculture teachers and learners on factors influencing implementation of KCSE agriculture projects

| | Sum of Squares | df | Mean Square | F | Significance |
|---|---|---|---|---|---|
| Between Groups | 3.155 | 2 | 1.577 | 6.945 | .001 |
| Within Groups | 88.351 | 389 | .227 | | |
| Total | 91.506 | 391 | | | |

*Significance level at 0.05

Table 3: LSD test of mean perception scores of school principals, agriculture teachers and learners on factors influencing implementation of KCSE agriculture projects

| (I) designation | (J) designation | Mean Difference (I-J) | Std. Error | Significance |
|---|---|---|---|---|
| School principal | Agriculture teacher | .0750 | .12305 | .543 |
| | students | -.2083(*) | .09086 | .022 |
| Agriculture teacher | School principal | -.0750 | .12305 | .543 |
| | students | -.2833(*) | .09086 | .002 |
| students | School principal | .2083(*) | .09086 | .022 |
| | Agriculture teacher | .2833(*) | .09086 | .002 |

* Mean difference is significant at the 0.05 level.

was applied to verify which pairs of mean perceptions scores differed as shown in Table 3. The LSD test result shows that the pairs of the implementation mean perceptions scores of form four agriculture learners and school principals and form four agriculture learners and agriculture teachers significantly differed at $\alpha = 0.05$ significance level. But the perception mean scores of school principals ($\bar{x}$= 3.5472) and agriculture teachers ($\bar{x}$= 3.4722) were not significantly different, as shown in Table 3.

## RESULTS AND DISCUSSION

Comparison of the Perceptions of School Principals, Agriculture Teachers and Learners on Factors Influencing Implementation of KCSE Agriculture Projects.

From the results in Table 1, the three respondents had positive cumulative mean perceptions scores towards the factors influencing implementation of KCSE agriculture projects. The implication of the results is that the factors that were being investigated in the study do influence the implementation of the KCSE agriculture projects. However the form four learners perceived the factors more positively as shown by their higher mean perceptions scores ($\bar{x}$= 3.7555, SD = 0.4716), compared to school principals ($\bar{x}$= 3.5477, SD = 0.4921) and agriculture teachers ($\bar{x}$= 3.4722, SD = 0.5152). The higher positive perceptions of learners compared to the school principals and the agriculture teachers may be attributed to the different roles played by the three groups of respondents in project implementation. During implementation of KCSE agriculture projects the school principals play the role of providing the resources needed for the process, while the agriculture teachers play the role of supervising, guiding and evaluating the projects on behalf of KNEC, thus they are not directly involved in implementing the various activities of the project. On the other hand, the learners do the actual implementation of the KCSE agriculture project activities, they are thus in touch with reality. They are therefore more likely to perceive the influence of the factors on the projects better than the school principals and agriculture teachers who play a peripheral role of overseeing the process. For instance, when a school hires land from the community for the implementation of the project and the project is interfered with due to lack of security, it is the learners who get affected and hence they will perceive the factor of security of the project a bit different from the principals and agriculture teachers. Similarly, when the inputs for the project are not supplied on time and in correct quantities, implementation may be delayed or the project may fail so the learners will perceive this factor different compared to the principals and teachers. On the other hand if the prevailing weather conditions are not favourable, for example lack of rainfall the learners will be forced to water and even mulch the crop in the case of a crop projects to make it succeed. In such a case it is the learners who are directly affected and by extension they will perceive this factor more positively than the principals and agriculture teachers.

A statistically significant difference exited in the mean perceptions scores of the three respondents towards the factors influencing implementation of KCSE agriculture projects, p value (0.001) < 0.05 as presented in Table 2. The LSD result in Table 3 indicate that the pairs of the implementation mean perceptions scores of form four agriculture learners and school principals and the learners and agriculture teachers were significantly different at $\alpha = 0.05$ significance level. However, the perception mean scores of school principals and agriculture teachers were not significantly different. The implication is that form four agriculture learners perceive the factors influencing implementation of KCSE agriculture projects more positively than school principals and agriculture teachers. This may be attributed to the different roles played by each respondent in project implementation. Since the learners are the ones who implementation the various activities of the KCSE agriculture projects they are in touch with reality and hence perceive the factors which influence the projects better than the school principals and agriculture teachers who play a peripheral role of overseeing the process.

## CONCLUSIONS AND SUGGESTIONS

The positive perceptions of the factors by the three respondents confirm that the factors investigated in the study indeed influence implementation of the KCSE agriculture projects. The high mean perceptions scores of learners towards the factors is due to their actual involvement in the implementation process unlike the principals and teachers who play the role of providing resources and supervising and guiding learners.

The Ministry of Education should organize for regular workshops to sustain and improve the observed positive perceptions of the principals and agriculture teachers towards the factors. The Boards of school Governors and school principals should avail what is required in their schools for smooth project implementation to maintain the positive perceptions of the factors by learners.

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