

Perceptions of School Principals and Agriculture Teachers Towards Factors Influencing Initiation of Secondary School Agriculture Projects

M.K. Nyang'au, J.K. Kibett and F.U. Ngesa

Department of Agricultural Education and Extension,
Egerton University, P.O. Box 536, Njoro, Kenya

Abstract: The purpose of the study was to determine the perceptions of school principals and agriculture teachers towards factors influencing initiation of the Kenya certificate of secondary education (KCSE) agriculture projects. A total of 30 school principals and 30 agriculture teachers from selected provincial, district and private school categories from Kisii district of Kenya were selected to participate in the study using purposive sampling procedure. The study was done using an ex-post-facto design. Data on perceptions were collected by questionnaires and analysed using means and a t-test. Results showed that school principals and agriculture teachers had positive perceptions towards all the 11 factors considered to influence initiation of KCSE agriculture projects. A statistical significant difference existed in the mean perceptions of school principals and agriculture teachers towards the factors. The positive perceptions of the secondary school principals and agriculture teachers confirms that the factors that were being investigated in the study indeed influence the initiation of secondary school KCSE agriculture projects. The factors were: security of the project, suitability of the project to local ecological conditions, availability of land for project initiation, project options provided by the Kenya national examination council (KNEC), availability of inputs, cost of the project, availability of tools and equipment, financial resources, interest of the agriculture teacher in the project, student interest in the project and the school's interest in the project. The differences in perceptions between the secondary school principals and agriculture teachers towards the factors meant that there is a possibility that the respondents do disagree on some of the factors that influence the initiation of the projects. This might lead to poor initiation process of the projects which is undesirable. From the findings, it was recommended that the Ministry of Education should organize regular workshops to improve and maintain the positive perceptions of school principals and agriculture teachers towards the factors for continued smooth initiation process of the agriculture projects and to enhance the process for success.

Key words: Perceptions • Initiation • Secondary school agriculture projects

INTRODUCTION

In order to make the youths self-reliant, agriculture subject was made compulsory in both primary and secondary schools of Kenya in 1985, following recommendations by the Mackay commission [1-3]. School agriculture is therefore an attempt to inculcate values, attitudes, knowledge as well as practical skills in learners which are needed to improve agricultural production [4]. The hope was and still is that the subject will enable the youth to get exposed to the basic principles and practices of agriculture thus making a

critical mass of the population knowledgeable in agriculture. This would enable majority of the future farming population to participate effectively in national development. The decision targeted the youth in schools that make up more than 55 % of the national population. According to [5] there is hope that pupils would apply their agricultural knowledge and skills learned in agriculture after school. According to Kenya's 2002-2008 National Development Plan, human development is the key to sustained economic growth. Skilled human resource is an asset for the effective management and utilization of resources for increased productivity [6-8].

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. In an effort to introduce practical lessons in agriculture, a practical paper for assessment involving the actual production of an agricultural product was introduced in Kenya Certificate of Secondary Education (KCSE) examination in 1989 by the Kenya National examination council (KNEC). The KCSE is the national examination done in Kenya by students in the fourth year of secondary education, while KNEC is the body that is charged with the responsibility of evaluating students on completing the secondary curriculum course after four years. The agriculture projects Paper (443/3) involves initiation process that is usually done by the school principals and the agriculture teachers before the learners implement the project [9]. The KCSE agriculture projects initiated by schools test the knowledge, attitudes and psychomotor skills of learners in a given enterprise either in crops or livestock production. Project approach as a method of instruction has been recommended over the years as being an appropriate means of imparting core skills in learners for self reliance, due to its holistic approach [10-12].

The initiation of a project refers to identification of the project and preparation processes. A successful project requires to be planned by the learner with the guidance of the teacher. The learner should be allowed to select a project in the area of interest so that time is devoted enthusiastically to the project. However, according to [13], the large number of students with varied interests makes it difficult for schools to allow learners to choose their own projects for initiation. Learners are therefore assigned projects by their school principals and agriculture teachers. The project chosen must be worthwhile and the skills required by the learners should be demonstrated before project commencement [11]. When individuals are permitted to engage in the planning and executing of the project activities, they tend to become highly motivated, especially if they are allowed to say what they think and criticize suggestions made by the teacher [14]. The criteria for choosing a project are that it may fall within or outside the syllabus, for instance, learners may carry out a project outside the syllabus if time permits as long as it: consists of real learning activities whose aim should not be just to keep the learners busy; is feasible and practicable in terms of availability of inputs, cost of materials, equipment, land,

other resources and not too ambitious; is within the learners' interest, educational level, physical capabilities and appropriate for the age group of learners; stimulates creativity such as new ways of using locally available materials efficiently; help learner to discover new knowledge especially how to solve problems that confront them and the community; it helps to integrate theory with practice and with clear objectives in mind [14]. In the case of KCSE agriculture projects the KNEC identifies projects to be undertaken by the form four agriculture learners every year. It may be a crop or a livestock enterprise [15]. The agriculture teacher and the school principal select a suitable project to be undertaken from those already identified by KNEC. The choice of the project for initiation is done based on a number of factors such as its suitability to the local environmental conditions, availability of inputs, tools and equipment, security and financial resources of the school [15]. The agriculture teacher then draws up a budget for the project and hands it to the school principal for provision of resources so as to initiate the project. And then provide the required materials such as: plots measuring 4 metres by 3 metres, tools and equipments, inputs, security, structures such as animal houses, cages and guidance, [9].

The following authors [16; 17; 18] define a project as hands on activity undertaken by students either singly or in a group, with the intention of solving a problem and thus contributing to knowledge. They advocate that the project should be planned by the learners and it should fall within their interest and that it should have a time frame within which it should be completed. However [13] notes that many factors influence project initiation, some of which include: (i) the large number of students who have got varied interests, this makes it difficult for schools to allow them choose projects of their own interest. Learners are therefore assigned projects, (ii) Concentrating energies and attention of learners over a long duration on a single and continuous activity. This distracts learners from other school programmes; (iii) Projects for assessment involve carrying out activities some of which learners are inadequately prepared for, due to lack of prior experience; (iv) Some projects are costly in terms of supervision, materials and equipment.

Purpose of the Study: The purpose of the study was to investigate and document the perceptions of secondary school principals and agriculture teachers towards factors

influencing initiation of KCSE agriculture projects in secondary schools. Also to determine if there is a difference in the mean perceptions of school principals and agriculture teachers towards the factors influencing the initiation process in schools

Objectives of the Study:

- To determine the perceptions of school principals and agriculture teachers towards the factors influencing the initiation of KCSE agriculture projects in secondary schools.
- To compare the perceptions of school principals and agriculture teachers towards the factors influencing the initiation of KCSE agriculture projects in secondary schools.

Method: The research employed an-ex-post facto research design. The design was adopted because the cause, that is independent variables (factors influencing initiation of KCSE agriculture projects) were studied after they had exerted their effect on the dependent variable (perceptions of respondents towards factors). According to (19; 20; 21) this is referred to as after the fact (retrospectively). The effects of a naturally occurring treatment were examined after they had taken place. The secondary schools principals and agriculture teachers have been initiating the KCSE agriculture projects in schools since 1989 and the factors have been influencing the initiation process. Therefore the perceptions of the respondents towards factors influencing initiation of KCSE agriculture projects were measured without any manipulation by the researcher.

Population and Sample: The population frame for the study consisted of 30 school principals and 30 agriculture teachers from 30 secondary schools that were proportionately sampled from the 96 schools offering agriculture as an examinable subject in Kisii district. The 30 schools comprised of three categories, that is provincial and district government schools and private schools. It is suggested by [22] 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. Proportionate stratified random sampling procedure was used to select 6 school principals from provincial, 21 from district and 3 from private school categories to make the

sample size of 30. The same process was applied to pick the 30 agriculture teachers who participated in the study from the three school categories. It is recommended by [19] that the use of this procedure is appropriate when the population from which to sample is not homogenous in terms of certain required characteristics because it leads to representative samples.

Data Collection Tool: Questionnaires were developed as the attitude instrument and used to obtain the perceptions of school principals and agriculture teachers towards the factors influencing initiation. The questionnaires had 11 statements on factors that influence project initiation and a rating scale of five point type response, where (1 = not important, 2=least important, 3=important, 4=very important and 5=extremely important) which the respondents used to perceive the factors. Two expert academicians in agricultural education department of the Egerton University, Njoro Kenya examined the instrument for content validity. Piloting of the instrument was done to ascertain its reliability and on analyzing the data a Cronbach's Alpha coefficient of 0.79 was obtained. The reliability was considered high enough for the internal consistency of the instrument.

The Analysis of the Data: Data collected were analyzed with the aid of Statistical Package for Social Sciences (SPSS) version 11.5. The findings were reported using descriptive and inferential statistics. Means were used to describe the perceptions towards the factors by school principals and agriculture teachers. A t-test was used in testing the null hypothesis that was generated from objective two of the study to test for significant differences between the mean perceptions of school principals and agriculture teachers towards factors influencing the initiation of KCSE agriculture projects for examinations. The null hypothesis was tested at $\alpha = 0.05$ significance level.

Findings

Findings on the First Objective: Results in Table 1 show that, school principals and agriculture teachers perceived the following 5 out of the 11 factors as very important in influencing initiation of KCSE agriculture projects: suitability of the project to local ecological conditions, availability of land, project options provided by KNEC, availability of inputs and cost of the project. The factors had mean ratings of above 3.50 but less than 4.50.

Table 1: Mean perception scores of school principals and agriculture teachers towards factors influencing initiation of KCSE agriculture projects

Factors influencing initiation	Mean Perception scores of principals and teachers	
	School Principals (n = 30)	Agriculture Teachers (n = 30)
Security of the project	3.57	4.53
Suitability of the project to local ecological conditions	3.87	4.37
Availability of land	3.83	4.17
Project options provided by KNEC	3.83	4.07
Availability of inputs	3.97	4.03
Cost of the project	3.80	4.03
Availability of tools and equipment	3.33	3.97
Financial resources of a school	3.47	3.87
Agriculture teacher's interest in the project	3.00	3.70
Students' interests in the project	3.10	3.37
School's interest in the project	2.97	3.17
Total mean perception scores (\bar{x})	3.52	3.93

Table 2: T-test of mean perception scores of school principals and agriculture teachers towards factors influencing initiation of KCSE agriculture projects

Respondent	n	Perception mean score	(Std Dev.)	Df	t-value	P - value
School principals	30	3.5270	0.6778	58	-2.708	0.009*
Agriculture teachers	30	3.9606	0.5567			

*Significance level =0.05

Further the respondents perceived students' interest and the school's interest in the project as being important factors. However, the two respondents varied in the way they perceived the following 4 factors: availability of tools and equipment, financial resources of the school, security of the project and agriculture teacher's interest in the project. School principals perceived security of the project as very important while agriculture teachers perceived it as extremely important. On the other hand school principals perceived availability of tools and equipment, financial resources of the school and agriculture teacher's interest in the project as important but agriculture teachers perceived them to be very important.

On their own, school principals perceived 6 of the 11 factors as very important in influencing project initiation namely: suitability of the project to local ecological conditions, availability of land, project options provided by KNEC, availability of inputs, cost of the project and security of the project with means of between 3.50 and 4.50. They perceived the other 5 factors as important in influencing the initiation process. These were: availability of tools and equipment, financial resources of the school, agriculture teacher's interest, students' interest and the school's interest in the project as being important. The factors had mean scores of between 2.50 and 3.50. On the other hand, agriculture teachers perceived 8 of the 11 factors influencing project initiation as being very important with mean perception scores of between 3.50 and 4.50. These were: suitability of the project to local

ecological conditions, availability of land, project options provided by KNEC, availability of inputs and cost of the project, availability of tools and equipment, financial resources of the school and agriculture teacher's interest in the project, they perceived security of the project as extremely important with a mean perception of 4.53. Students' interest and the school's interest in the project were perceived as being important factors influencing project initiation with mean perception scores of 3.17 and 3.37 respectively. The perceptions of the factors by the two respondents were positive as shown in Table 1.

Findings on the second objective: In order to determine if a significant difference exists between the perceptions of school principals and agriculture teachers towards the factors influencing initiation of KCSE agriculture projects an inferential statistical tool, t-test was applied, Table 2. A t-test is commonly used to determine if there is a significant difference between the means of two unrelated samples, in this case it was between the mean perceptions of school principals and agriculture teachers. The results reveal that a significant difference exists between the mean perceptions of school principals and agriculture teachers ($p = 0.009$ at 0.05 significant level) towards factors influencing initiation of KCSE agriculture projects. The agriculture teachers had higher mean perception scores ($t = -2.708$, $p = 0.009$) than the school principals towards factors influencing initiation of KCSE agriculture projects. The result is summarized in Table 2.

RESULTS AND DISCUSSION

Determining the Perceptions of School Principals and Agriculture Teachers Towards Factors Influencing Initiation of Kcse Agriculture Projects: The study objective one aimed at determining the perceptions of school principals and agriculture teachers towards factors influencing initiation of KCSE agriculture projects in secondary schools. Data for this objective were obtained from questionnaires that were administered to school principals and agriculture teachers. In order to measure perception, the respondents were asked to react to the statements of factors that influence initiation of the KCSE agriculture projects in schools by rating the factors appropriately using the rating scale that was provided. In the questionnaire, each factor was rated by the respondents using a five point rating scale, (1-not important, 2- least important, 3- important, 4-very important and 5- extremely important). The maximum and minimum mean rating an individual factor would have, was five and one respectively. These mean scores reflected the respondents' perception of the factor. Depending on the mean scores, the factors were then described as either not important if the average score was less than 1.50, least important if the mean rating was between 1.51 and 2.50, important if the mean rating fell between 2.51 and 3.50, while a factor whose mean score was between 3.51 and 4.50 was described as very important and extremely important if the mean rating was between 4.51 and 5.00. The responses of school principals and agriculture teachers on the extent to which they perceived the factors influencing initiation of KCSE agriculture projects is presented in Table 1.

The 11 factors influencing KCSE project initiation were perceived as important and very important by the school principals and agriculture teachers. These positive perceptions of the factors suggest that the respondents are in agreement on the level of influence by the factors in project initiation in terms of importance. The school principals and agriculture teachers are likely to be in consensus when considering the factors at the initiation stage. The positive perceptions of the principals towards the factors may be attributed to their responsibility in their schools. As administrators they would want the projects to be successfully initiated so that their schools can excel in KCSE agriculture examinations. The implication of the finding is that the school principals are likely to support the initiation of the KCSE agriculture projects and this might enhance project quality leading to the acquiring of knowledge and skills on the principles and practices of

agriculture by learners for self reliance. The agriculture teachers on the other hand, had positive perception of the factors possibly because; being the subject specialists and the ones in charge of the KCSE agriculture projects in their respective schools, they would also want the initiation process to succeed. As such, they might strive to ensure the factors are considered during planning to avoid learners experiencing problems when it comes to implementation stage.

Suitability of the project to local ecological conditions determines the performance of crops and livestock. This would be the reason the school principals and agriculture teachers perceived it as very important and hence the outcome is within expectation. Their perception is in agreement with the annual instructions by KNEC that schools should select projects that are suited to the local ecological conditions of the school to ensure their success [9; 23]. Security of the project on the other hand was perceived as very important and extremely important by school principals and agriculture teachers respectively. The result suggests that the respondents are aware of the importance of securing the project. For instance the selected project may have the potential to succeed, however it may fail due to destruction by human beings and animals. Project failure emanating from insecurity might frustrate agriculture teachers and the learners because of the time and efforts they have put in it. School principals and agriculture teachers perceived project options provided by KNEC as very important with mean ratings of 3.83 and 4.07, respectively. This is an indication that the options from KNEC provide schools with a list from where to select a project for initiation, instead of each school coming up with its own choice. Probably it is due to the uniformity that the options accomplish nationally that they were perceived positively. The KCSE agriculture projects are offered for national examination. It is therefore important that KNEC decides on the project options to be undertaken by schools. The perception of the respondents is a conformation of the normal expectation.

The respondents perceived availability of land as a very important factor influencing project initiation with mean scores of between 3.50 and 4.50. The finding is not unique since land is a major resource for carrying out agriculture practicals in the form of demonstrations and projects and KCSE agriculture projects are not an exception. It would appear that availability of land determines the type of project selected for initiation. For instance, schools with adequate land may initiate crop projects since they require big land, while those with

limited area may opt for livestock projects because less space is required due to in door rearing. The reason of introducing livestock enterprise projects in the KCSE agriculture projects by KNEC was to cater for schools with limited land that can not sustain crop oriented projects [24]. On the other hand if the financial resources of such schools are scarce, the upkeep of a livestock project may turn out to be costly especially in availing the inputs, providing tools and equipment, construction of animal houses and securing the project. This possibly explains why the respondents perceived financial resources, availability of tools and equipment, security of the project and availability of inputs as important and very important factors. The result suggests that a school should consider the possibility of availing of for example inputs, tools and equipment when initiating a given project to avoid failure and frustration. For instance, a school may initiate a project whose inputs are not within the area or are expensive; this automatically makes the project to be costly. If a school is not financially well endowed it may not afford to purchase the inputs. It is thus worthwhile to consider the cost of the project during initiation so as to improve chances of success of the project. On the other hand, a school with enough financial resources can afford to avail the tools and equipment, inputs and provide security to the project with ease. Financial resources, therefore, determine the kind of project a school can initiate since the other factors revolve around it.

School principals and agriculture teachers perceived students' interest in the project and the school's interest in the project as important factors, with average scores of between 2.50 and 3.50. The result suggests that learners ought to be interested in the project initiated, to be able to direct their energies towards it during implementation. The finding is in line with [11kibet] who notes that students ought to be interested in any activity they are carrying out if they are to do it with enthusiasm. Ideally a school should initiate a project it will benefit from in terms of utilizing the products arising from it. This is due to the financial implications of the project. The perception of this factor as being important indicates that schools initiate projects whose products can be used in the school kitchen to supplement the students' diet and lower the school food budget. As noted by [25] school administrators use food products arising from students' agriculture projects in the school kitchen. This might be the situation in many schools. By eating what they have produced through involvement, learners derive satisfaction and motivation. Agriculture teacher's interest

in the project was also perceived to be important and very important in influencing project initiation by the school principals and agriculture teachers respectively. The perception is possibly from a motivational point of view. An individual should be interested in any activity being done and as such agriculture teachers are not an exception. The implication is that agriculture teachers are likely to guide and supervise the learners effectively

Comparison of Perceptions of School Principals and Agriculture Teachers Towards Factors Influencing Initiation of Kcse Agriculture Projects: The results in Table 2 show the overall t-test concerning the 11 factors that influence initiation of KCSE agriculture projects. The results reveal that a significant difference exists between the mean perception scores of school principals and agriculture teachers ($p = 0.009$ at 0.05 significant level) towards factors influencing the initiation of KCSE agriculture projects. Hypothesis one which stated that there is no statistically significant difference between the perceptions of school principals and agriculture teachers towards factors influencing initiation of KCSE agriculture projects in secondary schools is therefore, rejected. The agriculture teachers had a higher mean perceptions of the factors influencing initiation of KCSE agriculture projects at a mean perception score of () compared to school principals who had a mean perception score of () difference came from agriculture teachers.

The results conform to what would be expected. Agriculture teachers are professionals and masters of agriculture subject. Being agriculture specialists, the teachers are more knowledgeable on the effects of the various factors that were being investigated. Hence, they would be expected to perceive the factors differently from school principals. Also, agriculture teachers are in charge of the projects according to the instructions by KNEC. They are therefore more conversant with the factors than the school principals. They also have past practical experiences on project initiation and this may have influenced their perception of the factors. Moreover, most of the factors investigated in the study are those that are usually covered in the agriculture syllabus. It is therefore likely that teachers applied the same knowledge in the perception of the factors that were being investigated. Thus, the differences in their professional training and the different roles played by the school principals and agriculture teachers in the school, may have contributed to the variability in their perception of the factors. The results imply that school principals and agriculture

teachers differ in the way they perceive some of the factors influencing the initiation of KCSE agriculture projects. Thus they might disagree concerning certain factors during initiation. Such disagreement is likely to hamper the process of initiation and hence affect project quality.

The positive perceptions of school principals and agriculture teachers towards the 11 factors influencing initiation confirmed that the factors investigated in the study indeed influence initiation of the KCSE agriculture projects. The factors include: security of the project, suitability of the project to local ecological conditions, availability of land, project options provided by KNEC, availability of inputs and cost of the project. Other factors were: availability of tools and equipment, financial resources, interest of the agriculture teacher in the project, student interest in the project and school's interest. Agriculture teachers and school principals significantly differed in their perceptions towards the factors influencing KCSE agriculture projects initiation. The agriculture teachers had high mean perceptions than the school principals. The null hypothesis one was therefore rejected.

CONCLUSION

The positive perceptions of the secondary school principals and agriculture teachers confirms that the factors that were being investigated in the study indeed influence the initiation of secondary school KCSE agriculture projects. The factors were: security of the project, suitability of the project to local ecological conditions, availability of land for project initiation, project options provided by the Kenya national examination council (KNEC), availability of inputs, cost of the project, availability of tools and equipment, financial resources, interest of the agriculture teacher in the project, student interest in the project and the school's interest in the project. The differences in perceptions between the secondary school principals and agriculture teachers towards the factors meant that there is a possibility that the respondents do disagree on some of the factors that influence the initiation of the projects. This might lead to poor initiation process of the projects which is undesirable.

Recommendations: The ministry of Education should organize regular workshops to improve and maintain the positive perceptions of school principals and agriculture

teachers towards factors influencing the initiation of KCSE agriculture projects. The ministry should also encourage co-operation among the school principals and agriculture teachers during initiation to avoid differing on the way. This is necessary because if they have positive perceptions, they will support the initiation process in their schools and this will improve the quality and effectiveness of the project. The Ministry of Education should incorporate the factors that were perceived positively by the school principals and agriculture teachers in the training curriculum of agriculture teachers. This will make the teachers more knowledgeable on the influence of these factors on the initiation process.

ACKNOWLEDGEMENT

The first author thanks the Department of Agricultural Education and Extension of the Egerton University for the support given in carrying out this research.

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