Novelty Journals

ISSN 2394-9686

International Journal of Novel Research in Education and Learning
Vol. 4, Issue 6, pp: (68-73), Month: November-December 2017, Available at: www.noveltyjournals.com

Quality of Effective Field Trips in Learning Agriculture in Secondary Schools in Rarieda Sub-County, Kenya

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Abstract: **Field trips must be well planned, for students to realize their cognitive and affective benefits as well as the opportunity to enjoy and explore an outdoor environment. Literature has shown that there are challenges of outdoor educational activities. Thus, the purpose of this study was to establish the perceptions of agriculture teachers and students towards quality of effective field trips in learning agriculture in secondary schools. A total of 22 agriculture teachers and 380 agriculture students from Boys Boarding, Girls Boarding, Mixed Day/Boarding and Mixed Day secondary schools from 17 secondary schools in Rarieda Sub-County of Kenya were sampled to participate in the study. Cluster sampling procedure was employed. Data on perceptions were collected using questionnaires. Data was analyzed using descriptive statistics (mean and standard deviation) and analysis of variance (ANOVA). The results showed that the respondents had a positive perception towards all the items. The positive perceptions implied that the components of field trips investigated has an influence on an effective agricultural field trip. Majority of the respondents had a view that agricultural field trips should involve active student engagement and evaluation of the students after the trip. There was no statistically significant difference in teachers' perceptions on quality of effective agricultural field trip and selected characteristics: professional qualification and years of teaching experience. The study recommends that agriculture teachers should embrace the quality indicators established in order to maximize learning during the field trips.**

Keywords: **Agricultural Field Trips, Effective, Learning, Perceptions, Quality, Secondary Schools.**

I. INTRODUCTION

Agriculture is a natural and a practical subject which is taught both in the outdoor and classroom setting. In Kenya, in order to make youth self-reliant, teaching of agriculture was made compulsory in both primary and secondary schools in 1985, following recommendations by the Mackay commission (Republic of Kenya, 1984). The aim was to instill values, attitudes, knowledge as well as practical skills in learners, which are required to improve agricultural production (Nyangau, Kibet and Ngesa, 2011). Studies from around the world over the past forty years have highlighted ways in which field trips to museums, zoos, science centers, and other informal learning institutions positively affect student learning and engagement (Davidson, Passmore and Anderson, 2010; Nielsen, Nashon and Anderson, 2009). When teachers take students out on the field trips, it allows the students to have eyes and hands-on experience on how things discussed in class are in real life (Mauli and Mwangi, 2005). Teacher preparation and strategies for field trips, such as pre-visit orientation, active involvement during the field trip, and implementation of post-visit activities, can powerfully affect student attitudes and learning (Davidson *et al.*, 2010).

Agricultural field trips have the potential of improving the performance of students in agricultural science, hence the recommendation that studies of agriculture be supplemented by visits to agriculture research institutes, commercial farms, farmers' training centres and other agricultural related institutions (West African Examination Council, 2006). This

recommendation is in tandem with the Kenya Institute of Curriculum Development that learners develop basic principles of agricultural production and agricultural skills by acquiring experience both in and out of the classroom (K.I.E, 2002). The teachers play an important role in the outdoor activities such as field trips by guiding and monitoring students' activity. However studies have shown that many teachers tend to shy away from outdoor activities when they do not know the philosophy, techniques and organization of field trips (DeWitt and Hohenstein,2010; Msuya *et al.*, 2014; Vandenbosch 2006). Thus, the purpose of this study was to establish the perceived quality of effective agricultural field trips so as to effectively address the knowledge gap of increased use of field trips as an instructional method of teaching and learning agriculture in secondary schools.

Studies by Jones and Myer (2012) and McLoughlin (2004), purports that for a field trip to be effectively used as a learning tool, it must be considered in three steps: preparation prior to the trip, activities during the trip and evaluation after the trip. Pre-trip stage involves administration and building readiness. Administration involves the logistical arrangements made by the field trip organizer e.g. organizing transportation and verifying with the field trip site concerning the schedule and activities. Building readiness involves providing participants with prior exposure to the field trip site. This substantially lowers individual anxiety and increases overall trip effectiveness. Participants should also be given verbal clues on what to look for during the trip. Any workable suggestion by the students should be put into consideration. Teachers can equally add additional questions from among those raised by the students to make the discussion more effective while on the trip or provide questions for a post-trip quiz. The trip stage entails the roles played by the organizer and the participants. Participant's roles is accomplished by giving individuals some time to tour the field trip site by themselves to satisfy their basic curiosity, followed by whole-group guided tour and finally, a small group learning activity done in pre-assigned groups of 2-3 participants which are the most effective. The role of the organizer includes facilitating and monitoring participants learning, and interacting with them. The post-trip stage comprises of debriefing and culminating activity which should be conducted immediately after the trip is over. During the debriefing session, participants share and discuss data or results of assigned small group activities. The culminating activity helps the participants to relate what they learned during regular classroom sessions to what they learned during the field trip. This is reflected by the report participants have written and submitted.

Other studies by Noel (2007) on elements of an effective field trips in New York highlighted that, teachers placed great value on materials produced particularly for pre-trip lessons. The study revealed that teachers preferred to have all the materials before the planned trip and rarely used the materials provided by the sites in the course of the trip. Shakil, Faiza and Hafeez (2011) points out that, educational field trip enables progressive learning as the learner goes through the necessary learning experiences while being led, guided and supervised by the teacher to enable them do a proper and systematic work. Empirical studies by Tal, Alon and Morag (2014) in Israel generalized that, the factors that make outdoor learning to be of good quality are: collaboration between the guide and the teacher which enhances psychomotor activity for students, actively involved teachers during the field trip as a mediator connecting the curriculum with experiences encountered at the sites, planning field trips in connection with the school curriculum to make ideas visual and real, making more use of the environment to allow students explore and interact with it thus resulting in students' discoveries and learning from such interactions. Furthermore field trips should be student centered learning activity achieved as students explore and carry out investigations, share findings or thoughts.

The objectives of this study were to: establish the perceptions of agriculture teachers and students on quality of effective agricultural field trips in learning agriculture in secondary schools and determine the differences among teachers' perceptions on quality of effective agricultural field trips and selected characteristics: teacher's professional qualification and years of teaching experience.

II. METHODOLOGY

The study used descriptive survey design. Orodho (2009) states that a survey is a method of collecting information by interviewing or administering questionnaires to a sample of individuals. The target population comprised of 967 form four agriculture students and 48 agriculture teachers in 36 public secondary schools in Rarieda. Cluster sampling procedure was used to select schools for the study. Since there are only 2 boys boarding, 3 girls boarding, 3 mixed day/ boarding schools (out of 36 schools in total) all of them were included in the sample. 9 other schools were selected randomly from the remaining 28 schools to form a total sample of 17 schools. All the agriculture teachers and form four agriculture students were respondents. This gave a total sample of 380 agriculture students and 22 teachers. According to Borg and Gall (2003) at least 30% of the total population is a representative sample size.

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Questionnares were used to collect data from agriculture teachers and students. This was used to measure their perceptions on quality of effective agricultural field trips. The instrument consisted of two sections. Section A consisted of demographic characteristics of the respondents whereas section B had 15 statements on the quality of effective agricultural field trips. A 4-point Likert scale rating items was used to find the perceived opinion of the respondents. The scale was rated as 4-strongly agree, 3-agree, 2-disagree and 1-strongly disagree. Respondents were asked to rate the extent to which they agreed or disagreed with the statements. Piloting was done to test reliability of the instrument. A Cronbach's coefficient alpha of 0.742 for agriculture teachers and 0.783 for agriculture students was obtained. Reliability coefficient of 0.7 is recommended (Mugenda and Mugenda 2003). Both instruments were therefore considered reliable.

Means and standard deviation were produced using SPSS version 20 to describe teachers' and students' perception on quality of effective agricultural field trips. The maximum and lowest score from the Likert means were 4 and 1 respectively. ANOVA was used to test the hypotheses that teachers differed in their perceptions according to their level of professional qualification and teaching experience. Significance level was set at $\alpha = 0.05$.

III. RESULTS AND DISCUSSION

The first objective of the study investigated the perceptions of agriculture teachers and students on quality of effective agricultural field trips. The teachers and students responded to 15 Likert type of statements on a 4- point scale ranging from strongly agree through to strongly disagree. If the mean rating score was below 2.5 the perception was considered negative and positive if it was above 2.5. The results of analysis was presented in Table 1.

Table 1: Perception Scores of Agriculture Teachers and Students on Quality of Effective Agricultural Field Trips

Statement	Teachers Mean	N=19 SD	Students Mean	N=359 SD
Be aligned with skills students are expected to acquire in curriculum	3.58	0.507	3.24	0.827
Continuous supervision of students by teachers during field trips	3.42	0.507	3.09	0.788
Teachers to function more as facilitators or guide during field trips	3.32	0.671	2.77	1.027
Students to write a report after a given field trip	3.32	0.671	3.67	0.470
Field trip should focus around specific educational objectives	3.53	0.513	3.29	0.839
Field trips should involve active student engagement	3.63	0.496	2.99	1.061
Materials produced for pre-trip lessons are the most valuable	2.58	0.692	2.84	0.844
Materials obtained from site during or after the trip are the most valuable	2.90	0.315	3.16	0.803
Field trips should fit logically with content of the study	3.00	0.000	2.93	0.710
Familiarize the students with the field trip site and expectations prior to the trip	3.42	0.507	3.36	0.885
Provide students with multiple experience in natural settings	3.42	0.507	3.15	0.644
Students be consulted on questions to be answered during field trips	2.84	0.898	3.04	0.901
Teachers to give verbal clues to students regarding what to look for during the field trips	2.90	0.315	3.31	0.572
Field trip should be compulsory for all agriculture students	3.21	0.787	3.28	0.881
Field trips should revolve around current classroom topic	2.79	0.787	2.51	1.024
Overall scores of teachers' and students' view on quality field trips	**3.18**	**0.545**	**3.11**	**0.818**

Results in Table 1 shows that, agriculture teachers and students agreed with all the quality statements as all the items scored a mean above 2.50. An overall quality score was computed and a mean of 3.18 and 3.11 obtained for agriculture teachers and students respectively. Most teachers strongly agreed that field trips should involve active student engagement

(Mean = 3.63; SD = 0.496). This concurs with Tal *et al.,* (2014) that field trips should be student centered, producing significant learning through activities that include exploration, carrying out investigations and sharing of findings and thoughts. Most of the students strongly agreed that students to write a report after a given field trip (Mean = 3.67; SD = 0.470). This is consistent with Jones and Myer (2012) and McLoughlin (2004) that evaluation should be done as a post trip activity to find out if the learning objectives of the trip have been met. Evaluation can take various forms such as report writing, group or class discussion, quiz among others.

The teachers also strongly agreed that field trips should be aligned with skills students are expected to acquire in curriculum and focus around specific educational objectives with a mean of 3.58 and 3.53 respectively. Majority of the students agreed these views with a mean of 3.24 and 3.29 respectively. This corroborates with the findings of Tal *et al.,* (2014) that there is need to plan field trips in connection with the school curriculum to make ideas visual and real. The varied opinions imply that agriculture teachers are professionals and masters of agriculture subject and therefore uphold professionalism acquired during their training.

Majority of the teachers and students agreed with the following three items: field trip should be compulsory for all agriculture students with a mean of 3.21 and 3.28 respectively; provide students with multiple experience in natural settings with a mean of 3.42 and 3.15 respectively and familiarize the students with the field trip site and expectations prior to the trip with a mean of 3.42 and 3.36 respectively. Similarly, Jones and Myer (2012) and McLoughlin (2004) emphasized that teachers need to apprise the students of the destination and what is expected of them as this substantially lowers individual anxiety and increases overall trip effectiveness.

The teachers least agreed with the item on "materials produced for pre-trip lessons are the most valuable" with a mean of 2.58 and standard deviation 0.692. Thus materials for pre-trip and those obtained during or after the trip are both valuable. This is inconsistent with the study by Noel (2007) which highlighted that teachers considered pre-trip specific lesson materials as most valuable and rarely used the materials provided by the sites in the course of the trip. The students least agreed with the item on "field trips should revolve around the current classroom topic" with a mean of 2.51 and standard deviation 1.024. This is an indication that students are well informed that during the trip, topics previously covered or yet to be covered can be included as long as it is within the syllabus.

Difference in Teachers' Perception on Quality of Effective Agricultural Field Trips According to Level of Professional Qualification:

The agriculture teachers were asked to state their level of professional qualification. These were categorized into three levels. These were: diploma in agriculture education, degree in agriculture related field and degree in agriculture education. To determine whether there was statistically significant difference in agriculture teachers perceptions towards quality of effective agricultural field trips according to their level of qualification, analysis of variance (ANOVA) was run between the teachers summated scores on the perception on quality to produce a comparison according to the levels of qualification. The findings are presented in Table 2.

Table 2: Analysis of Variance of Quality Construct by Teacher Qualification

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	86.526	2	43.263	1.430	.268
Within Groups	484.000	16	30.250		
Total	570.526	18			

There was no statistical significant difference in mean perception on quality of effective agricultural field trips based on academic qualification of the teachers as F (2, 16) = 1.430 with p- value = 0.268 (p- value > .05). This implies there is no statistically significant difference in teachers' perception on quality of effective field trips according to their qualification. The implication that agriculture teachers' perception of quality components of an effective field trip when entering the profession are not likely to change as they gain experience in teaching.

Differences in Teachers' Perception on Quality of Effective Agricultural Field Trips according to Teaching Experience:

To determine whether there was statistically significant difference between agriculture teachers' years of experience and their perception towards quality of effective agricultural field trips, analysis of variance ANOVA was run between the teachers summated scores on the perception on quality scale and self-reported years of teaching experience categorized into three groups. The findings are presented in Table 3.

Table 3: Analysis of Variance of Quality Construct by Teaching Experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	40.649	2	20.325	.614	.554
Within Groups	529.877	16	33.117		
Total	570.526	18			

There was no statistical significant difference in mean perception on quality of effective agricultural field trips based on years of teaching experience as F (2, 16) = 0.614 with p- value = 0.554 (p- value > .05). This implied that there is no statistically significant difference in teachers' perception on the quality of effective field trips according to their teaching experience. The implication is that agriculture teacher's perception regarding quality components of an effective field trip are not changing overtime.

IV. CONCLUSION AND RECOMMENDATION

Majority of the responses shows that, an effective agricultural field trip should entail the following key qualities: familiarize students with field trip site and expectations prior to the trip, be aligned with skills students are expected to acquire in curriculum, focus on specific educational objectives, involve active student engagement, evaluation of the students after the trip and field trips should be compulsory to enable students uniformly acquire practical skills.

The perception of the teachers regarding quality of effective agricultural field trips was independent of their level of professional qualification and years of teaching experience. Agriculture teachers should embrace the quality indicators established in order to maximize learning during the field trips.

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