

Attitude of Students in the Formal Educational Sector towards Agricultural Education and Training in South Africa

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ABSTRACT The purpose of this study was to determine the attitude of students towards agricultural education and training (AET). The sample population of the study was 375 high school agricultural science students in KwaZulu-Natal province in South Africa. A five-point Likert-type scale was used. Cronbach's alpha coefficient was found to be 0.8, which indicated the internal consistency of the scale. Over 90% of students had a positive perception towards farming, agricultural education, high school agricultural knowledge impartation and the importance of practical lessons, but responded negatively ($P \leq 0.001$) to the delivery process, especially regarding agricultural sessions. A higher percentage (75%) of the respondents showed that they are acquiring agriculture knowledge to target the public institutions. The majority of students had high favourable attitude towards AET. There was significant ($P \leq 0.001$) attitude score difference between dedicated, urban and rural high schools students' perception towards AET. The provision of fields for practical experience, laboratories and libraries to facilitate the learning is also recommended. The responsible body should focus on the impartation of the agri-business concept in order to create awareness in learners about the potential of agriculture for job creation.

INTRODUCTION

Agricultural Education and Training (AET) plays a major role in agricultural development and is concerned with the provision and maintenance of quality education and training to support environmentally and economically appropriate and sustainable agriculture (DoA 2005; Pingali 2007; Mutambara et al. 2013). It is obvious that agricultural productivity can be improved through AET research and outreach. Thus, sufficient and relevant agricultural knowledge and competence is required, not only to improve farming systems and technologies, but also for processing, marketing of produce and for the implementation of good agricultural policies in the country (Bawden 1992; Sundstøl 2004).

Primary education together with other enabling factors contributes significantly to increasing the productivity of agriculture (Lockheed et al. 1980; Cabraal et al. 2005). At present, in South Africa, Agricultural Science as a subject has been excluded from the primary school curriculum, but is included indirectly through other sciences that are in the curriculum (DOE

2008). In secondary schools, the objective of AET is to provide the required background for further studies in various agricultural education areas of science, engineering and technology (Vandenbosch 2006; Ozge and Omer 2012). Conversely, AET at post-secondary levels of education is important for advancing agricultural productivity and the processes that move agricultural produce from farm-gate to markets, and thereby sharpen the competitive edge of the agriculture sector in the country (Rezaei et al. 2008; Shenaifi 2013).

A successful completion of high school education is the basis for students' future achievements in education, their careers and in life (Lashgarara 2011). This will be accomplished if the system assesses the implementation process, the attitude of the participants on delivery and curriculum of AET at secondary schools and up to tertiary levels of education in the context of local and current global development in agricultural sciences (Kidane and Worth 2012). Also, teaching and learning are dynamic processes, which regularly need adjusting to meet the rapidly changing needs and opportunities in a given area (Creemers and Kyriakides 2009; McGrath 2012).

Research in other regions showed that the majority of agricultural science students had a

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positive attitude towards AET, but their positive interest towards agriculture science depends on their experience of agriculture (Dyer et al. 1996; Osborne and Dyer 2000). Students also believed that high school agriculture science plays a key role, as students' progress to tertiary level of study and this in turn helps them to develop a positive attitude towards agriculture as a career (Dyer et al. 1996; Osborne and Dyer 2000). Student willingness to pursue agriculture as a career depends on student attitudes towards agricultural education and science (Ilenloh et al. 2012; Radhakrishna et al. 2003). Some recent work has indicated that student' decisions to pursue agriculture as a field of study or career, and their involvement and success there in, may be predictable by investigating students' attitude towards AET (Bassey et al. 2012; Ilenloh et al. 2012). However, in South Africa, AET at secondary school level, National Qualification Framework level 2-4, is delivered poorly and the learners' failure rates are reported to be high (DoA 2005). Moreover, agriculture has a poor image as a career choice in the eyes of most unprivileged youth in the region (DoA 2005). Thus, investigation into the attitude of learners to AET in local conditions is recommended.

One of the several factors that have a significant effect on AET is the attitude of the participants in the delivery process of the AET curriculum. Attitude is important and is often used to understand and predict people's reactions to an object or change and how behaviour can be influenced (Fishbein and Ajzen 1975). Attitude is the liking or disliking of an object based on what is known about it (Rameela 2004) People's interest to participate or not in an activity could be based on the person's knowledge, observations, or other relevant information about the issue or occasion (Fishbein and Ajzen 1975). This study examined the attitudes of students towards AET as offered by the formal educational sectors at high school (grade 10, 11, and 12) in South Africa.

Purpose

The primary purpose of the study was to determine the attitude of students in formal educational sectors, at high school levels 2-4 (grade 10, 11, and 12), towards AET in the context of their interest in the subject, their attitude towards jobs in the agriculture sector and the implementa-

tion of sessions that are in the system. The question that was used to guide the study was: What is the attitude of the agricultural science students towards AET in the formal educational sector at high school level?

METHODOLOGY

Source of Data and Sampling Design

The study area, KwaZulu-Natal Province, is one of the nine provinces of South Africa. The province is located in the eastern part of South Africa. Agriculture is significant economic activity in the province ranging from homestead and smallholder farming for home consumption to large-scale capital-intensive market-orientated production. Out of the total population, a sample comprised of 375 agricultural science students was selected from 10 schools (Johnson and Christensen 2012).

In South Africa there are a number of agricultural high schools that specialize in providing agricultural science modules as a main part of their curriculum. These dedicated Agricultural Schools are established specifically to teach agricultural science within the context of the normal high school curriculum. Several rural and urban high schools also offer agricultural science subjects. The study refers to them as urban agricultural high schools (UAS) and Rural Agricultural Schools (RAS) are regular public high school that offer agricultural science subjects as a part of the standard high school curriculum; not all students in these schools take agricultural science. Based on this reality, ten high schools offering agricultural science including four RAS, four UAS and two DAS were selected.

A Nested Concurrent Mixed Sampling Design (NCMSD) is used in this study. The quantitative and qualitative data were collected approximately at the identical occasion (i.e. concurrently), but the qualitative sample was employed as a subset of the quantitative sample (that is, nested relation) (Johnson and Christensen 2012). A multi-stage random purposeful sampling procedure was implemented to select the 375 students from the total of 69552 students studying agriculture at high school. The sample students were registered to study Agricultural Science in grades 10-12 during the 2012 academic year. The response rate of this sample was 97%.

Data Collection and Analysis

This study was carried out in two stages using qualitative and quantitative data collection methodologies. Both qualitative and quantitative data were collected from the 375 respondents from the selected high schools.

Quantitative data were collected using a pre-tested structured interview schedule. For the collection of quantitative data a structured interview schedule was prepared. Pre-testing of the structured interview schedule was performed before data collection, as a preliminary study, in order to check its validity and consistency, and to make refinements. The questioner used structured and unstructured questions in line with the objective of the study.

The supplementary qualitative information was collected from the same agricultural science students. Qualitative data were collected from both categories of respondents using an open ended questionnaire, observation and interviews.

The quantitative data was analysed using descriptive statistics, such as percentage and chi-square. The survey data were analysed using the SPSS v19 statistical software computer package (Bryman and Cramer 2012). The qualitative data were coded, described and interpreted to supplement the quantitative data. The qualitative data was analysed using a spiral content analysis (Grbich 2012).

Attitude Measurement

Attitude was defined in this study as the degree of positive or negative feeling of students towards AET. Student's attitude towards AET was measured through surveys structured questionnaires using Likert scales. Attitude scales for this study attempted to determine what an individual student believes, perceives or feels towards the attitudinal objects. Attitudes can be measured towards self, others, and a variety of other activities, institutions, and situations. This scale is selected due to its strength, simplicity and ease of administration (Neuman 2000).

Attitude were measured by adding the total scores obtained for the attitude statements by attributing 5 score for 'strongly agree' 4 score for 'agree', 3 score for 'undecided', 2 score for 'disagree' and 1 score for 'strongly disagree'

responses in the case of positive items. In the case of negative statements the scoring pattern was reversed. The scale covered eight Statements were developed after being reviewed by a panel of experts and pre-tested for relevance before the actual data collection. Pre-testing was done using Cronbach's alpha. Out of the ten attitude statements the Corrected Item-Total Correlation scoring less than 0.40 was excluded from the survey (Gliem and Gliem 2003). Based on these analyses, eight items were identified and were used in the survey.

The total scores were calculated by adding individual scores that each respondent obtained for all statements. For pooled data the total scores of attitude varied from 8 to 40. For the descriptive analysis three categories were employed: Low (8-18), Medium (19-29), and High (30-40). For the grouped data category, Low is equal to the number of attitude statements in that group and High is equal to the number of attitude statements times five (5) which is the highest score on the Likert scale. Low, Medium and High were calculated by dividing the gap between High and Low by three and grouping accordingly. This study used four groups each with two statements resulting in the following categorization: Low (2-4), Medium (5-7) and High (8-10). The Cronbach's alpha reliability coefficient was 0.8. This shows that the scale has good internal consistency of the items in the scale (George and Mallery 2003).

The standardized Cronbach's alpha can be defined as (George and Mallery 2003):

$$\alpha_{\text{standardized}} = \frac{K\bar{r}}{1+(K-1)\bar{r}}$$

Where

K = is the number of components (K -items),

$\bar{r}$ = the mean of the $K(K-1)/2$.

α =alpha is a coefficient of reliability

RESULTS AND DISCUSSION

Descriptive Analysis of Survey Data

The survey was conducted using the total sample number of 375 agricultural science high school students.

Demographics

The sample population consisted of 70.7% (265) males and 29.3% (110) females. 80.0% (193) was African, 18.2% (68) was White, 0.81% (3) was Coloured and 0.27% was Indian. In terms of gender, the racial background of the selected male students population comprised 72.8% (193) African, 26.0% (69) White, 0.8% (2) Coloured and 0.4% (1) Indian. The female population was 99.1% (109) African and 0.9% (1) Coloured.

Access to Fields for Practicals

68% (253) of the students had access to practical fieldwork; 32% (122) had no access.

Family Monthly Income

The majority (about 60%) of the students had family income between R 500-5000 per month with the following further breakdown:

- ♦ 47.2% (177) had family incomes from R500 to R2000;
- ♦ 13.1% (49) fell between R2000 and R5000;
- ♦ 13.9% (52) ranged between R5000 and R10000; and
- ♦ 25.9% (97) had a family monthly income in excess of R10000.

Family Farm Land

57.1% (214) of the sample students' families had no farming land from which the majority (83.6%) of these were African, 15.9% were White, and the remaining 0.5% was Coloured. Conversely, 42.9% (161) of the students out of the total sample population have access to farming land. From those who own or have access to land, the majority (76.4%) (123) of these were African, 21.74% (35) were White, 1.24% (2) were Coloured and 0.62% (1) was Indian.

Extracurricular Discussions about Agriculture

79% of the respondents had discussions with others about agricultural science and education, including its future prospects.

Parental Care

The study found that:

- ♦ 36% (133) of the students were receiving care from both their parents (mother and father);

- ♦ 40% (148) were in the care of their mothers only, and
- ♦ 8% (31) indicated that they were receiving basic care only from their fathers.
- ♦ 17% (63) have no parental care, but were cared for by extended family members, in most cases from grandmothers.

Attitude of Students towards Farming and Studying Agricultural Sciences

Table 1 present the summary of the respondents' attitude towards farming and studying agricultural science at high school. The results indicate that 6.4% (24), 7.7% (29) and 12.3% (46) of the students strongly disagreed, disagreed, or were undecided, respectively, regarding the statement, "I love farming". On the other hand, out of the total sample of students, 37.1% (139) and 36.5% (137) of the students agreed and strongly agreed, respectively, to the statement, "I love farming". Out of the total sample population, about 73.6% (276) of the students positively agreed with the statement, "I love farming", which is significant at $P \leq 0.01$ level when compared to the percentage (14.1%) of the respondents who unfavourably agreed to the attitude statement. Based on the above statistical implication, the majority of the students have favourable attitude towards farming which is in agreement with the findings of Shenaifi (2013).

As can be seen from the results presented in Table 1, 4.3% (16), 4.5% (17) and 9.6% (36) strongly disagreed, disagreed or were undecided, respectively, regarding the statement, "I love studying agricultural sciences". However, a far higher percentage (81.6%) of the respondents had a positive perception of this statement. It was found to be highly significant at $P \leq 0.01$ levels (Table 1). There was a favourable positive attitude of students towards farming and studying agricultural science at secondary school.

Similar results have been observed in the earlier studies that were conducted by Dyer et al. (1996) and Onuekwusi and Ijeoma (2008). This indicates that students have a positive and high attitude towards farming and agriculture. The data also clearly indicated that taking high school agriculture science as a subject of choice has given students a positive and high attitude towards farming.

This finding was in agreement with the results reported by Dyer et al. (1996). This de-

Table 1: The attitude of high school agricultural science students towards AET (n = 375)

Items	Attitude							χ^2
	SD	DI	UND	AG	SA	Total		
<i>Attitude of Students Towards Farming and Studying Agricultural Sciences</i>	<i>f</i>	24	29	46	139	137	375	179.3***
I love farming	%	6.4	7.7	12.3	37.1	36.5	100	275.1***
I love studying agricultural science	<i>f</i>	16	17	36	149	160	375	
	%	4.3	4.5	9.6	38.9	42.7	100	
<i>Attitude of Students Towards Secondary School AET Knowledge Importance</i>								
High school agricultural education is important in order to acquire knowledge of agricultural science	<i>f</i>	8	10	7	141	209	375	75.3***
	%	2.1	2.7	1.9	37.6	55.7	100	524.4***
The agriculture I am currently studying at high school is not helpful for my future carrier	<i>f</i>	19	43	48	100	165	375	
	%	5.1	11.5	12.8	26.7	44.0	100	
<i>Student Attitude Towards AET Session</i>								
I don't like the agricultural sessions	<i>f</i>	13	18	24	145	175	375	327.9***
	%	3.5	4.8	6.4	38.7	46.7	100	517.3***
Practical lessons in agriculture are important in order to understand the content of subject	<i>f</i>	7	9	14	113	232	375	
	%	1.9	2.4	3.7	30.1	61.9	100	
<i>Students' Attitude Towards AET Career Prospects</i>								
I plan to apply the agricultural knowledge I am learning to my future career	<i>f</i>	16	28	64	137	130	375	169.1***
	%	4.3	7.5	17.1	36.5	34.7	100	
Studying agriculture is important to secure a public/ government job	<i>f</i>	22	31	42	168	112	375	
	%	5.9	8.3	11.2	44.8	29.9	100	211.4***

SD: strongly agree; DI: Disagree; UND: Undecided; AG: Agreed; and SA: Strongly Agreed. ***significant at $P \leq 0.001$.

scribed students' positive attitude towards the field of agricultural science and could possibly indicate that their interest to agricultural science could contribute positively towards their future academic achievement and success in their area of study.

Table 2 presents the summary of attitude of students toward AET which was categorised in to Low, Medium and High attitude levels. There was a significant ($P \leq 0.01$) difference between percentages of respondents in each attitude categories (i.e. low, medium and high) for all the three different school types (Table 2).

Regarding the comparison of percentages of students between the three different schools,

64 (51.2%), 106 (84.8%) and 97 (77.6%) of dedicated, urban and rural high school agricultural science students have favourable attitude at high level towards farming and studying AET, respectively (Table 2). The attitude of students in the urban schools was slightly higher when compared to the attitude of respondents in dedicated and rural schools. However, there was no significant difference between the attitude of students towards farming and studying AET between dedicated, urban and rural agricultural schools. The attitude of students in the urban schools was favourably higher when compared to the attitude of respondents in dedicated and rural schools which was in the high attitude level.

Table 2: Comparison of the attitude of students in dedicated, urban and rural agricultural science schools towards farming and studying AET (n = 375)

Category	Dedicated schools		Urban schools		Rural school		Total		χ^2 (between schools)
	<i>F</i>	%	<i>F</i>	%	<i>f</i>	%	<i>f</i>	%	
Low	24.0	19.2	1.0	0.8	3.0	2.4	28.0	7.5	5.9 ^{ns}
Medium	37.0	29.6	18.0	14.4	25.0	20.0	80.0	21.3	
High	64.0	51.2	106.0	84.8	97.0	77.6	267.0	71.2	
Total	125.0	100.0	125.0	100.0	125.0	100.0	375.0	100.0	
χ^2 (between categories)		20.0***		152.5***		116.0***			

***significant at $P \leq 0.001$.

Attitude of Students Towards Secondary School AET Knowledge Importance

Table 1 also displays the attitude of high school agricultural science students towards high school AET knowledge importance. The result indicates that only 2.1% (8), 2.7 % (10) and 1.9% (7) of the student population strongly disagreed, disagreed or were undecided, respectively, towards this attitude statement, "High school agricultural education is important in order to acquire knowledge of agriculture sciences". By contrast, 93.3% (350) of the total student population agreed with the statement that explains the importance of high school agriculture in acquiring knowledge of agricultural science. The percentage of the sample student population who showed either an unfavourable attitude or remained undecided regarding the statement was found to be significantly ($P \leq 0.001$) lower when compared to those who showed a favourable perception towards the statement.

The total attitude scores for the two statements such as "high school agricultural education is important in order to acquire knowledge of agricultural science" and "their future career / job prospects" was statistically analysed and presented as in Table 3. Supporting the frequency distribution data presented in the earlier in this section, the response in terms of positive attitude category low, medium and high levels have significant $P \leq 0.001$ differences towards agricultural science student's response towards high school AET knowledge importance and their future career prospects.

62.4%, 72.0%, and 78.4% of dedicated, urban and rural high school agricultural students have favourable high attitude towards AET knowledge importance and its limitation in their future career prospects Table 3. Rural agricul-

tural school students have slightly higher attitude than Urban and dedicated agricultural high school students. 34.4%, 27.2% and 21.6% of dedicated, urban and rural agricultural schools students have a favourable medium attitude towards AET knowledge importance, and its limitation in their future career prospects Table 3. These results indicate that some sort of awareness creation and information sharing platform should be created between students and informant people about AET knowledge importance and future career opportunities. Talbert and Larke Jr. (1995) elaborated that most students were less likely to see opportunities for themselves in agricultural careers or to perceive agriculture as diverse, which is in agreement with the current study.

Student Attitude Towards AET Session

The percentage data presented in Table 1 shows that 3.5% (13), 4.8 % (18) and 6.4% (24) of the respondents strongly disagreed, disagreed or were undecided, respectively, to the statement, "I don't like the agricultural sessions". The majority of the students (85.4%) (320) either agreed or strongly agreed with the statement, "I don't like the agricultural sessions", which was found to be significant at $P \leq 0.001$ level. Furthermore, 92% (345) of the students agreed with the attitude statement, "Practical lessons in agriculture are important in order to understand the content of the subject".

The categorised attitude score result presented in Table 4 shows that there was a significant ($P \leq 0.05$) difference observed between dedicated, urban and rural agricultural schools students' attitude towards the statement that states practical lessons in agriculture are important in order to understand the content of subject and I

Table 3: The attitude of students in secondary schools towards high school AET knowledge importance (n = 375)

Category	Dedicated schools		Urban schools		Rural school		Total		χ^2 (between schools)
	F	%	F	%	f	%	f	%	
Low	4.0	3.2	1.0	0.8	0.0	0.0	5.0	1.3	
Medium	43.0	34.4	34.0	27.2	27.0	21.6	104.0	27.7	
High	78.0	62.4	90.0	72.0	98.0	78.4	266.0	70.9	
Total	125.0	100.0	125.0	100.0	125.0	100.0	375.0	100.0	
χ^2 (between categories)		65.8***			97.2***			40.3***	

***significant at $P \leq 0.001$.

Table 4: The attitude of students in dedicated, urban and rural agricultural science secondary schools towards the importance of practical lessons sessions (350)

Category	Dedicated schools		Urban schools		Rural school		Total		χ^2 (between schools)
	F	%	F	%	f	%	f	%	
Low	4.0	3.2	0.0	0.0	0.0	0.0	4.0	1.1	
Medium	42.0	33.6	6.0	4.8	5.0	4.0	53.0	14.1	
High	79.0	63.2	119.0	95.2	120.0	96.0	318.0	84.8	
Total	125.0	100.0	125.0	100.0	125.0	100.0	375.0	100.0	

 χ^2 (between categories)

67.5***

102.2***

105.8***

*,***significant at $P \leq 0.05$ or $P \leq 0.001$.

don't like the agricultural sessions. Also, there is significant ($P < 0.001$) difference between agricultural science students low, medium and high response category. This is in agreement with the results obtained by Onuekwusi and Ijeoma (2008). The quantitative and qualitative data confirmed that lack of practical sessions to implement an applied science in the teaching learning process could determine the attitude of students towards agricultural science sessions.

On the other hand, 63.2%, 95.2% and 96.0% of dedicated, urban and rural high school agricultural students have favourable high attitude towards the importance of practical lesson and agricultural session's Table 4. This indicates that agricultural science students in Rural and Urban high schools have slightly high favourable attitude towards the importance of practical lesson and aversion the existing agricultural science sessions compared to the dedicated agricultural science high school students. This clearly shows that students need a balanced delivery of theory and practice in agricultural sciences. This finding might have practical implication for the schools to consider agricultural science practicals during the delivery of the subject. This is in agreement with the qualitative results of this study. In the study area, except in the dedicated agricultural schools, the students in most rural and urban agricultural schools claimed the importance of practical lessons, laboratory work and libraries to reinforce the theory learned. Furthermore, in the study area, the majority of agricultural schools that are currently offering agricultural sciences have a shortage of laboratories, libraries and fieldwork for use in practical education.

Agricultural education is an applied science in which acquisition of skills is very crucial (McGrath 2012; McGrath and Akoojee 2009). It

is especially important to follow a pragmatic policy of presentation of theory mixed with actual field practice. Logan and Skamp (2008) and Hedjazi and Omid's (2008) found that in the teaching and learning process, educators' instruction approach and the classroom environment have an effect on the students' attitude and interest in lessons. Also, the majority of students dislike excessive note copying. In the school environment, the absence of student-centred practical work, fewer opportunities for independent exploration, and implemented pedagogy in secondary schools' classroom environment could have an important effect on the attitude of students towards the subject they are learning. Education should not centre on listing facts, depending on theoretical teaching, but in helping students to become critical and capable of exploring, judging and using information for real and powerful purposes through practical education. The method of instruction is one of the contributing factors for agricultural science student's future achievements in the area and created perception towards agriculture. Therefore, improving access to teaching infrastructure and support should facilitate and significantly strengthen teaching and improve student learning by changing students' perception towards agricultural science sessions (Motala et al. 2007).

Students' Attitude Towards AET Career Prospects

The results presented in Table 1 indicated that 4.3% (16), 7.5% (28) and 17.1% (64) of the students strongly disagreed, disagreed or were undecided, respectively, towards the attitude statement, "I plan to apply the agricultural knowledge I am learning to my future career". However,

er, 71.2% (267) of the students were found to either agree or strongly agree with the statement. The difference was found to be significant at $P \leq 0.001$ levels when compared to the total percentage of the respondents (11.8%) who disagreed with this attitude statement (see Table 1).

Fourteen present 14.2% (53) of the students gave unfavourable responses to the statement, "Studying agriculture is important to secure a public/government job", while 11.2% (42) of the respondents remained undecided towards this statement. Conversely, 44.8% (168) and 29.9% (112) of the students agreed and strongly agreed with the statement, indicating that 74.7% (280) of the students were positive about the importance of studying agriculture to secure future public/government job.

In terms of attitude score as shown in Table 5, 49.6%, 72.0% and 73.6% of dedicated, urban and rural high school agricultural science students have favourable high attitude towards agricultural knowledge applicability in their future career prospects to secure a public/government job. Slightly lower percentage of dedicated agricultural high school students have favourable high attitude towards agricultural knowledge applicability in their future career prospects to secure a public/government job than rural and urban agricultural high school students. The rural and urban agricultural science high school students have a plan to apply the agricultural knowledge on their future career but they are targeting public/government job. This indicates that agricultural science students at rural and urban high schools lack agricultural entrepreneurial perspective except public/government job.

As presented in Table 5, there was a significant ($P \leq 0.001$) difference observed between

dedicated, urban and rural agricultural schools students' perception towards agricultural knowledge applicability in their future career prospects to secure a public/government job. Also, there is significant ($P \leq 0.001$) difference between agricultural science students low, medium and high response category. These indicate that agricultural science students have favourable but different perception based on the school type.

The majority of agricultural science students indicated that their concern regarding agricultural career and job prospectus. They indicated that having private farm and commercial agriculture enterprise could be unthinkable due to the required huge resource to operate. They indicated that government job opportunity is their expected career source. This is in agreement with the quantitative data presented in this section. The agricultural science students during qualitative data collection also indicated that in most cases their families are not involved in farming even at small scale levels of production. It was also observed that in the study area, the rural communities that surround the respective agricultural schools are not practising agriculture well or even considering small backyard gardening to produce vegetables for personal consumption. The reason for this was attributed to the fact that the society in the study area considers that undertaking agriculture at that level shows the low economic status of a person. Parents know how about agriculture and AET could influence the attitude of agricultural science students towards agriculture and agricultural career (Udoukpong et al. 2012).

Those students studying agricultural science at high school that are located around large scale commercial farms responded that they have difficulty in seeing the future prospects of study-

Table 5: The attitude of secondary schools students towards agricultural knowledge applicability in their future career prospects to secure a public/government job (n = 375)

Category	Dedicated schools		Urban schools		Rural school		Total		χ^2 (between schools)
	F	%	F	%	f	%	f	%	
Low	18.0	14.4	0.0	0.0	3.0	2.4	21.0	5.6	
Medium	45.0	36.0	35.0	28.0	30.0	24.0	110.0	29.3	
High	62.0	49.6	90.0	72.0	92.0	73.6	244.0	65.1	
Total	125.0	100.0	125.0	100.0	125.0	100.0	375.0	100.0	

χ^2 (between categories)

23.6***

24.2***

100.0***

***significant at $P \leq 0.05$ or $P \leq 0.001$

ing agriculture as a career opportunity. This could in turn be due to the fact that their parents were working on the farm as farm labourers and these students seem to consider other options for further studies other than agriculture. Most of the interviewed students indicated that they were studying agricultural education in order to work in any governmental or public organization with a reasonable salary. This implies that the respondents had a very low awareness of the existing opportunities to become entrepreneurs in one of many aspects in the agricultural sector.

Generally, the attitude of students towards the importance of AET in their securing future government career/job prospects was favourable. This is consistent with the results obtained by Osborne and Dyer (2000) in which students displayed positive attitudes towards careers in agriculture in a public/government job. However, the respondents in this study were not planning to use their knowledge acquired in agriculture for private job creation and entrepreneur in the agriculture sector. This could be one of the reasons why, on the African continent, there are limited, well-qualified, skilful agricultural specialists involved in farming businesses.

Student Attitude Towards AET Using Pooled Data

Table 6 presents the statistical summary of the attitude score of student's attitudes towards AET. The results show that the majority of students' attitude scale was fall in the high attitude category. 82.4% (103), 63.2% (79) and 84% (105)

of dedicated, urban and rural schools have favourable high attitude towards AET. As shown in Table 6, there was a significant ($P \leq 0.001$) difference observed between dedicated, urban and rural agricultural schools students' perception towards AET. Also, there is significant ($P \leq 0.001$) difference between agricultural science students low, medium and high response category. The result is in agreement with the results reported by Dyer et al. (1996).

The perception variances among dedicated, urban and rural agricultural science student regarding AET are significant ($P \leq 0.001$). The data shows that all agricultural science students have favourable high attitude towards AET, but there is an observed attitude difference between dedicated, rural and urban agricultural science school.

As shown in Table 6, 16.8 % (21), 33.6 % (42) and 13.6 % (17) of dedicated, urban and rural schools have favourable medium attitude towards Agricultural Education and Training. Slightly higher percentage of urban agricultural science school students have favourable medium attitude towards AET compared to dedicated and rural agricultural schools students.

The urban agricultural high schools need to make more effort to shift the attitude of students from medium to high attitude category. Otherwise, the significantly higher percentage of students in rural and dedicated schools falls in the favourable high attitude category. This is in agreement with (Shenaifi 2013; Dlamini 1997). Looking at the overall respondent's population highly significant frequency of students is in favourable high attitude category.

Table 6: Comparison of the attitude of students in dedicated, urban and rural agricultural science schools towards AET using pooled data

School	Frequency/Percentage	Attitude total				χ^2 (between schools)
		Low	medium	High	Total	
Dedicated agricultural	<i>f</i>	1.0	21.0	103.0	125.0	19.7***
	%	0.8	16.8	82.4	100.0	
Urban schools	<i>f</i>	4.0	42.0	79.0	125.0	
	%	3.2	33.6	63.2	100.0	
Rural schools	<i>f</i>	3.0	17.0	105.0	125.0	
	%	2.4	13.6	84.0	100.0	
Total	<i>f</i>	8.0	80.0	287.0	375.0	
	%	2.1	21.3	76.5	100.0	

χ^2 (between categories)

335.7***

***, significant at $P \leq 0.001$

CONCLUSION

The vast majority (90%) of the respondents had a positive perception of high school AET, indicating that AET is important to acquire the knowledge of agricultural sciences. Moreover, the study identified that agriculture practical sessions are highly recommended in order to understand the content of the subject acquired during classroom lectures and interactive discussion sessions. However, the majority of the students indicated that they are studying agriculture to work in government and are not for private employment. The results show that the students seemed not to have sufficient awareness of the link between knowledge in agricultural disciplines and the possible opportunities in agricultural production or processing as private job creation or entrepreneurship. Similarly, above 80% of the students indicated that they love studying agriculture sciences as a subject, but 85% also indicated that they have an aversion to the school agriculture sessions. Except for the students in dedicated agricultural schools, most of the students in rural and urban schools offering agriculture science suggested that agricultural practical lessons, laboratories and libraries are vital as a good link between theory and practice. Hence, students seemed to have a strong interest in combining practices with more theoretical lectures in the classrooms. The majority of students have a positive perception of the overall importance of agriculture sciences, although they do have some problems regarding accessibility and practical implementation of the knowledge acquired. In summary, the data shows that in general agricultural science students are having favourable attitude towards AET, but there is an observed attitude difference between dedicated, rural and urban agricultural science schools and there is generally an unfavourable perception towards private job creation in agriculture.

RECOMMENDATIONS

It is recommended that agricultural business-related entrepreneurship concepts be introduced into the high school agricultural science curriculum to create awareness in learners of the potential of agriculture for job creation. There is a clear need to establish and appropriately resource libraries, laboratories and land for practical

lessons in agricultural science in high schools. Further research is recommended to identify factors that could affect the attitude of learners towards agricultural education.

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