

# ***THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES***

## **Factors Influencing the Choice of Agriculture Science Programme by Female Senior High School Students in Mampong Municipality of Ghana**

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**Abstract:**

*The study was a descriptive survey carried out to find out factors influencing choice of agriculture science programme by female students in Senior High Schools (SHSs) in Mampong Municipality of Ghana. A sample size of 169 students was selected from 302 female agriculture science students in three SHSs in Mampong Municipality. The sampling strategy adopted was proportional stratified sampling technique. A self-made questionnaire was administered on the respondents. Mean analysis, frequencies and percentages were used to analyze the data. It was found out that most female agriculture science students in SHSs in Mampong Municipality had background knowledge of agriculture prior to choosing the programme. Factors that influenced them most in their choice of the programme were interest in agriculture science, employment avenues in agriculture, high academic ability in agriculture, teachers and parents. They were less influenced by factors like parents' involvement in agriculture, importance of agriculture, nature of occupations in agriculture and job security in agriculture. The rest were lack of female involvement in agriculture and peer influence. They had positive attitude towards the agriculture science programme. It was recommended that teachers, school counselors and parents should reinforce female students' interest in agriculture. Again, female students should be encouraged to enroll in agriculture science programme since their perception towards the programme is good.*

**Keywords:** *females, senior high schools, influencing factors, agriculture science programme, choice*

### **1. Introduction**

Agriculture is the mainstay of Ghana's economy. It accounts for 51% of her Gross Domestic Product (GDP), 45% of all her export earnings and 12% of her tax revenue. It further employs 80% of Ghana's total population (Duncan, 2004). It employs a greater proportion of Ghana's female labour force. Data shows that women comprise about 43% of the agriculture labour force in Ghana (ESA working paper, 2011).

Agriculture with its importance to Ghana's economy is one of the academic programmes pursued at the Senior High School (SHS) level in Ghana. The programme focuses on training young men and women to be knowledgeable in the field of agricultural science to man various fields of agriculture in the country. According to the Government of Ghana (2004) white paper report on of the Education Review Committee, students who pursue agriculture science at the SHS level shall read the following core subjects: Mathematics, English language, Integrated Science and Social Studies. In addition they read the following elective subjects: General Agriculture, Physics, Chemistry and Elective Mathematics in preparation for university education or entrance to apprenticeship training.

Blickenstaff (2000) found that females are less represented in Science, Technology, Engineering and Mathematics careers in most countries around the world. Dlamini, Ngwenya and Dlamini (2004) also noted that females' participation in science related at both primary and Junior High Schools (JHSs) is similar to that of males as both are compelled to take these subjects. However, as they progress to SHS, few females choose to study science related programmes. Most female students in JHSs do not lack interest in science related programmes but as they reach adolescence, they develop negative attitude towards them. Ghana's statistics on

female enrolment in Agriculture and other science related programmes are not different. Thus despite the importance of agriculture to Ghana's economy, just a few students pursue Agriculture Science programme at the SHS and university levels (Ajayi and Buessing, 2013). According to Ajayi and Buessing (2013), over 25 percent of females applying to SHSs in Ghana choose Home Economics and General Arts while males normally dominate in programmes like Agriculture, General Science, Visual Arts, Business as Technical programmes. Thus females account for less than 20% of Ghana's students' population in Agriculture Science (Bientema&Marcantonio, 2009). This means that despite the high involvement of women in agriculture in Ghana, just a few of them enroll in Agriculture Science programmes in the SHS.

## 2. Review of Literature

Research indicates a number of factors that influence females to enroll in Agricultural Science programme in school. Reis and Kahler (1997) found out that parents, agricultural instructors, friends, former agricultural students, personal interest and possession of farming background are the factors that influence Agriculture science choice by Iowa secondary agriculture education students. Parental influence, interest in agriculture, personal factors and job opportunities were identified by Ester (2007) as most influencing factors of Agriculture Science choice decision at the secondary school level. Fizer (2013) found family and a rewarding career as factors influencing choice of agriculture science programme by college students. He however, found out that farming background did not play role in the choice. In a study by Schwartz (2009), personal curriculum interest, teacher influence and peer motivation were influencing factors for the choice of Agriculture Science programme in colleges in Chicago School District.

Wildman and Torres (2001) identified several sources that are considered influential in selecting agriculture major. The sources of influence were exposure to agriculture, family and friends, college of agriculture activities, professionals and job considerations. The findings indicated that prior experience in agriculture was identified as relatively most influential source, whereas working outdoors was identified as the strongest consideration for selecting agriculture major. Prior experiences in agriculture, relatives in agricultural work and literature were identified as significant influencing factors by Schuster and Costantino (1986) while exposure to agriculture and background in high school agriculture were identified by Donnermeyer and Kreps (1994) and Howard (1999) respectively. The above studies indicate that a number of factors influence choice of Agriculture Science programme in school and hence the study of the factors that influence Ghanaian students to choose the programme in SHS would be worthwhile.

### 2.1. Statement of the Problem

The problem therefore is what factors influence female SHS students in Ghana to opt for agriculture Science programme despite its unpopularity and perceived difficulty among female students? It is based on this that the researchers undertook this study in the Mampong Municipality to find out factors that influence female Agriculture Science students to choose that programme in SHS.

### 2.2. Research Questions

In order to achieve the purpose of the study, the following research questions were formulated:

- To what extent do female SHS students in Mampong Municipality have knowledge of Agriculture Science before enrolling in the programme?
- What factors influence females in SHSs in Mampong Municipality in their choice of Agriculture Science programme?
- What is the perception of female SHS Agriculture Science students in Mampong Municipality towards the Agriculture Science Programme?

### 2.3. Significance of the Study

It is hoped that findings of this study will contribute to knowledge on factors that are significant and which ones are not when it comes to female students' choice of Agriculture Science Programme. This will aid school counselors and policy makers in their work. Researchers may also replicate the study in other subject areas in the SHS to find out factors that influence choice of such programmes in school. It will also be useful to stakeholders and policy makers in education in their review of the curriculum in SHSs. Findings will generate interest on choice of programmes in the SHS level of education and hopefully lead to further research to improve programme choices in schools. Furthermore, it will add to literature on students' choices of programmes in schools.

### 2.4. Limitations of the Study

The researchers could have used interviews in addition to know the reasons behind the students' choices. Again, the study should have been conducted in more than one school district but for time.

## 3. Methodology

### 3.1. Research Design

The design adopted for the study was descriptive survey design. According to Aggarwal (2008), descriptive survey design is devoted to the gathering of information about prevailing conditions or situations for the purpose of description and interpretation. Descriptive survey is useful for investigating a variety of educational problems including assessment of opinions and attributes. This design was adopted because the study sought to find out from female SHS Agriculture science students in Mampong Municipality the factors that influenced their choice of that programme for appropriate conclusions and recommendations to be made on their choice.

### 3.2. Population, Sample and Sampling Procedure

The population of the study was all female Agriculture Science students in the three (3) SHSs in the Mampong Municipality that offer Agriculture Science programme. They are Amaniampong SHS, Saint Monica's SHS and Saint Joseph SHS. The total number of Agriculture Science students in these SHSs was 302. A sample size of 169 was selected for the study. This was based on Krejcie and Morgan (1970) recommendation on selection of population sample. Females were purposively selected for the study because the study sought to find out factors that influence female students' choice of Agriculture science programme. The proportional stratified sampling technique was used to select the sample.

### 3.3. Research Instrument

The instrument employed to collect data was a questionnaire, which was designed and validated by the researchers. It consisted of two parts. The first part consisted of biographical information of respondents. They were to respond by checking or supplying the appropriate information. The second part consisted of some perceived factors that influence students' choice of programmes. Part two required respondents to choose on a four-point likert scale, Strongly Agree= 4, Agree=3, Disagree=2 and Strongly Disagree=1. The critical point is  $2.5(4+3+2+1) = 10/4 = 2.5$ . The coefficient alpha reliability of the part two of the instrument was 0.80 which was calculated using the crumbach alpha technique. This confirms the internal consistency of the instrument (Whitly, 1996). Part 2 of the questionnaire again contained an item which required respondents to indicate their perception of the Agriculture Science Programme.

### 3.4. Method of Data Analysis

Frequencies and percentages were calculated to answer research questions one and three. Descriptive data analysis (mean ratings) was used to answer research question two. A mean of 2.50 and below indicated agreement with the stated item on the questionnaire while a mean of 2.5 and above indicated disagreement with the statement.

## 4. Results and Discussions

Table 1 and 2 contain analysis of data for answering research question 1. Research question 1 sought to find out if the students pursuing Agriculture Science programme had prior knowledge in agriculture before choosing the programme. This was ascertained by asking them to indicate yes or no to the question: did you have any prior knowledge in agriculture before choosing the programme in SHS?

Response	frequency	%
Yes	102	60.4
No	67	39.6
Total	169	100

Table 1: Indication of prior knowledge in agriculture science

Table 1 shows that 60.4% of the respondents indicated that they had background knowledge in agriculture science while 39.6% had no background knowledge in agriculture science prior to choosing the programme. This indicates that a greater number of the respondents had prior knowledge in agriculture before choosing the programme.

Table 2 indicates how respondents acquired knowledge in agriculture prior to choosing the programme in SHS

How knowledge was acquired	frequency	%
Following parents to farm	60	58.8
Owning a farm	20	19.6
Working on others farms during vacation	11	10.8
Reading on agriculture science issues	11	10.8
Total	102	100

Table 2: How respondents acquired knowledge in agriculture prior to choosing the programme

Table 2 indicates that most of the respondents had prior knowledge in agriculture science before choosing the programme. They acquired the knowledge through following their parents to farm (58.8%) and owning a farm (19.6%). The rest are working on other people's farm during vacation (10.8%) and reading on agriculture science related issues (10.8%). The information in table 2 indicates that agriculture science is not new to most students at the time they choose it in SHS. This gives students a fair idea of the programme and hence they choose the programme knowing what it is about. This realization disagrees with Fizer (2013) that background in agriculture has no effect on agriculture science choice in school but confirms Reis and Kahler (1997), Estambale, Nderitu&Njoroge (2013), Wildman and Torres (2001) and Donnermeyer& Kreps (1994) that possession of farming background and exposure to agriculture influenced their choice of agriculture science programme in school.

Influencing factors	Mean	Remarks
Interest in agriculture	1.60	Agree
Employment avenues in agriculture	1.80	Agree
Parents involvement in agriculture	2.80	Disagree
Importance of agriculture	2.84	Disagree
High academic ability in agriculture	1.40	Agree
Nature of occupations in agriculture	3.53	Disagree
Job security in agriculture	3.40	Disagree
Lack of female involvement in agriculture	3.52	Disagree
Peers influence	2.64	Disagree
Teachers' influence	1.42	Agree
Parents influence	1.51	Agree

Table 3: Mean ratings of factors that influence choice of Agriculture Science Programme

The mean analysis of the factors that influence the choice of agriculture science programme in table 3 above indicates that factors that were significant in influencing the choice of agriculture science programme among SHS students in Mampong municipality were interest in agriculture, employment avenues in agriculture, high academic ability in agriculture, teachers' influence and parents' influence. Factors that played less significant role in the choice were parents' involvement in agriculture, importance of agriculture, nature of occupations in agriculture and job security in agriculture. The rest are lack of female involvement in agriculture and peer influence. The findings agree with Reis and Kahler (1997), Schwartz (2009) and Esters (2007) that interest in agriculture and teacher influence play key role in choice of agriculture science programme in school. The findings agree with Esters (2007) that job opportunities in agriculture influence choice of agriculture science programme in college. The findings however, disagrees with Schwartz (2009) that peer motivation is a significant factor influencing choice of agriculture science programme in school.

Table 4 below indicates the perception of the respondents towards the Agriculture Science Programme. Respondents were asked to indicate whether the programme was very difficult, difficult, not difficult at all.

Perception	Frequency	%
Very difficult	10	5.9
Difficult	10	5.9
Neutral	13	7.7
Not difficult	70	41.4
Not difficult at all	66	39.1
Total	169	100

Table 4: Perception of students towards agriculture science programme

Analysis in the table above indicates that majority of the respondents have positive perception of the agriculture science programme in SHS. This is because most of the students see the programme as either not difficult 70 (41.4%) or not difficult at all 66(39.1%). This might probably be due to the high interest of students in the programme and their high academic ability. This finding agrees with Fizer (2013) finding that students had positive attitude towards agriculture science programme.

## 5. Conclusion

Female students in the SHSs in the Mampong Municipality are mostly influenced by interest in agriculture science; employment avenues in agriculture; high academic ability in agriculture; and teachers and parents, in choosing the agriculture science programme. They were less influenced by factors like parents' involvement in agriculture; importance of agriculture; nature of occupations in agriculture; and job security in agriculture. The rest were lack of female involvement in agriculture and peer influence. They had positive attitude towards the agriculture science programme. Most of the students had background knowledge in agriculture.

## 6. Recommendations

In order to encourage more female students into agriculture science programme, the following recommendations are made based on the findings of the study.

- Teachers, school counselors and parents should reinforce female students' interest in agriculture.
- Programmes like practical agriculture sessions, vacation employment in agriculture science related activities should be encouraged in our schools to give more female students exposure to agriculture science.
- Career guidance and counselling should be organized for female students to expose them to the agriculture science programme.
- Female students should be encouraged to enroll in agriculture science programme since their perception towards the programme is good.

- Pre-SHS students should be encouraged to read more on the field of agriculture science to develop more interest in that area.

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