UNIVERSITY OF CAPE COAST

FACTORS INFLUENCING THE CHOICE OF AGRICULTURAL SCIENCE BY STUDENTS IN PUBLIC COLLEGES OF EDUCATION IN THE NORTHERN REGION OF GHANA

PAUL ABOWEN AYEKOROK

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BY

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Thesis submitted to the Department of Agricultural Economics and Extension of College of Agriculture and Natural Sciences, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Philosophy Degree in Agricultural Extension

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate Signature……..Date:……..

Name: Paul Abowen

Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature…… Date…….

Name: Mr. Samuel Akumoah Boateng

ABSTRACT

The main objective of the study was to examine the factors affecting the selection of agricultural science by students in public colleges of education in the Northern Region of Ghana. As a quantitative study, a descriptive cross-sectional survey design was adopted and a questionnaire was used, as the principal tool to collect data. The data were collected from 316 students who were chosen randomly from the four teaching colleges in the Northern Region of Ghana. The data were then analysed based on descriptive and inferential statistics aided by (SPSS version 21) software. The study revealed that the number of students pursuing agricultural-related programs was 80 (25.3%) as compared 236 (74.7%) who were studying other programs. The findings of the study found out that student attitudes, college-related factors, and college tutors influence students' choice in selecting agricultural science as their major. Finally, it was discovered that there were equal career opportunities for both men and women studying agricultural science-related programs in the colleges of education. It is recommended that the public colleges of education in the Northern Region should frequently organize education fairs and invite agricultural science experts to speak to students on the need to pursue a career in agricultural science.

KEY WORD

Agricultural Science

College of Education

Influence

Northern Region

Performance.

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I am grateful to Mr Samuel Akumoah Boateng, my principal supervisor, for taking the time, despite his busy schedule, to guide me to complete this work successfully. He really provided me with the necessary scholarly advice, valuable input and inspiration that helped make this thesis a reality.

DEDICATION

To my wife Mrs Abowen

TABLE OF CONTENTS

	Page
DECLARATION	ii
ABSTRACT	iii
KEY WORD	iv
ACKNOWLEDGEMENTS	v
DEDICATION	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	xiii
LIST OF FIGURES	xiv
CHAPTER ONE: INTRODUCTION	
Overview	1
Background to the Study	1
Statement of the Problem	5
Objectives of the Study	8
General Objective	8
Specific Objectives	8
Research Questions	9
Hypotheses of the Study	10
Hypothesis 2	10
Significance of the Study	10
Limitations of the Study	11
Delimitation of the Study	11
Definition of Terms	12
Organization of the Study	12

CHAPTER TWO: LITERATURE REVIEW

Introduction 14

Theoretical Framework 14

Theory of Reasoned Action 15

Theory of Planned Behaviour 16

Critiques of the Theory of Planned Behaviour 17

Rational Choice Theory 18

Africa Agricultural Sector 20

Global and Ghana's Concept of Agricultural Education 22

Impact of Agriculture on the Economy of Nations 27

Role of Agricultural Education in Socio-Economic Development 30

Perspectives Inducing Lack of Interest in Agricultural Science Education or Professions in Agriculture 33

Employment and Remuneration 34

Prestige and Status of the Agricultural Profession 35

Access to Information and Credit 36

Decision making in selecting programme in higher Education 37

Youth and Graduate Unemployment in Ghana 38

Factors influencing the selection of Agriculture as programme choice 40

Factors that Influence Students' Choice of Tertiary Institutions 41

Location of the School 41

Environmental Factors 42

School Factors 42

Reputation of Institution 43

Teaching and Learning Materials 43

Personal Factors 43

Financial Factors 44

Media Influences 44

Influence of Family members 44

Personal Interests 45

Career Opportunity 45

School Influence 46

Peer Influence 46

Conceptual Framework on Factors Influencing the Choice of Agriculture 47

Influence of demographic and psychographic characteristics on students' choice of course major 49

External Influences of other People 50

Personal Interest in the Agriculture as a Major 51

Job-related and Salary beliefs 52

Image-related beliefs 53

Experiential beliefs 53

CHAPTER THREE: MATERIALS AND METHODS

Research Design 56

Study Area 56

Target Population 58

Sampling techniques and Sample Size 58

Research Instruments and structured questionnaire 60

Validity and Reliability of Research Instruments 61

Pilot Testing 62

Data Collection Procedures 63

Data Analysis 63

Ethical Considerations 64

CHAPTER FOUR: RESULTS AND DISCUSSIONS

Introduction 66

Demographic Characteristics of Respondents 66

Objective 1 : Effects of demographic characteristics of students in the choice of agricultural science 66

Objective 1: Effects of demographic characteristics of students in the choice of agricultural science 71

Objective 1: Effects of demographic characteristics of students in the choice of agricultural science 72

Discussion on effects of demographic characteristics of students in the choice of agricultural science? 73

Objective 2: Influence of student attitude in their choice of agricultural science as a major. 74

Discussion on how do students' attitude influence their choice of 77

agricultural science as a major? 77

Objective 3: Influence of interpersonal factors on students' choice of agricultural science as their major. 78

Discussion on the influence of interpersonal factors on students' choice of agricultural science as their major? 79

Objective 4: Influence of college-related factors on students' choice of agricultural science as their major. 80

Discussion on influence of college-related factors on students' choice of agricultural science as a major 81

Objective 5: Influence of students' career aspirations on their choice of agricultural science as a major? 82

Discussion on how the extent of students' career aspirations influence the choice of agricultural science as a major 83

Objective 6: influence of gender on students' choice of agricultural science as a major. 84

Discussion on the factors that influence female students' choice of agricultural science as a major which are different from that the male students. 85

Objective 7: Strategies that could be used to help increase students' enrolment in agricultural science in the colleges of education. 85

Discussion on strategies that could be used to help increase students' enrolment in agricultural science in the colleges of education 87

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATION

Overview 88

Summary of the Research 88

Summary of Key Findings 89

Conclusions 90

Recommendations 90

Areas for Further Studies 91

REFERENCES 92

APPENDICES 112

APPENDIX A: Questionnaire for Principals 112

APPENDIX B: The Influence of Interpersonal Factors on Students' Choice of 116

APPENDIX C:The influence of college-related factors on students' choice of agricultural science 117

APPENDIX D: The Influence of Career Aspirations on Students' Choice of Agricultural Science 118

APPENDIX E: The Influence of Gender on the Choice of Agricultural Science as a Major 119

APPENDIX F: Strategies to Improve Students Enrolment in Agricultural Science 120

APPENDIX G: Descriptive Statistics 131

Appendix H: Ethical Clearance 153

LIST OF TABLES

Table		Page
1	Population of Four College of Education (level 200 only)	60
2	Individual College Population Sample Size	60
3	Age of respondent	66
4	Statistical test of individual predictors	71
5	Overall model evaluation and goodness-of-fit statistics	72
6	Model Summary	72
7	Influence of students' Attitude	74
8	Wald Test	77
9	Influence of interpersonal factors	78
10	Influence by college-related factors	80
11	Influence by Career aspirations	82
12	Influence by Gender	84
13	Descriptive statistics of strategies used to increase enrolment	86

LIST OF FIGURES

Figure		Page
1	The theory of Planned Behaviour	18
2	Conceptual Framework Model	48
3	Northern of Ghana	58
4	Showing the age range of respondents at last birthday	67

CHAPTER ONE

INTRODUCTION

Overview

Chapter one of the study presents the general background to the study, the statement of the problem, general and specific objectives, research questions, and justification of the study. Also, presented in this chapter is the delimitations and limitation which defines the scope of the inquiry and the potential setbacks. The definition of key terms is also discussed

Background to the Study

Agriculture has had a huge positive influence on humanity in terms of food supply, economic expansion, employment creation, and, most crucially, the reduction of world hunger (Shennan, Downey, & Thomas, 2013). Thus, its growth has turned into the pivot on which Africa's economic change, stability, and security are based (Miller & Shinn, 2012). Food production finally appears to have turned into the primary attention of Agricultural Education and Training Institutions due to the numerous challenges with food security in the majority of Africa (Bassey, Ime, & Shirley, 2012). In Ghana, agriculture continues to be the industry that employs the most people, with more than 10.8 million (36.1%) working in the production of food and fibre while others are involved in the retail sale of agricultural goods. A large portion of the economy—an average of one-fifth (21.2%) of Ghana's GDP in 2017—came from this sector (Ghana Statistical Service, 2020). Therefore, it is impossible to overstate the value of agriculture to the development of Ghana's economy as well as to the subsistence and well-being of the Ghanaian people. However, the rate of population growth per annum stands at 2.5 percent together with

the high volume of students that are churned out of the educational institutions. The demand for graduates, particularly individuals from the Northern Region, in this sector continues to surpass supply **(**Ministry of Food and Agriculture, 2018). Despite not being documented, the bulk of undernourished people (over 50%) are believed to be Africans. Similarly, the Ghana Demographic and Health Survey (GDHS, 2014) revealed that 11% of children under the age of five were underweight, 5% were wasting, and 19% were stunted. It is crucial to stress that by educating people about the prospects in agriculture, they will feel deserving of engaging in agriculture as a lucrative endeavour. This can be done by creating regulations based on information already available and addressing concerns influencing students' decisions to pursue jobs in agricultural science.

Even though agriculture is the cornerstone of any society and its prosperity, there is very little involvement of literate or graduate individuals in agriculture and its related professions in Ghana. Looking at the situation in Ghana's Northern Region makes this clear. To ensure that Ghana is competitive in the global economy, more graduates must be drawn to work in a variety of agricultural industries given the expanding graduate population suggested by demographic trends. According to the American Society for Horticultural Science (2013), agriculture comprises a wide range of academic fields, including agricultural economics, plant, animal, and food sciences, as well as agricultural engineering to develop and produce qualified personnel to provide services in the agriculture industry, it is essential to strengthen capacity through formal agricultural literacy. Agricultural education is typically involved in the delivery and preservation of high-quality instruction

and training to sustainably maintain the environment through sustainable agriculture, which in turn contributes to the overall economic development of the nation (Mutambara, Zvinavashe, & Mwakiwa, 2013; Pingali, 2007). Agricultural education aims to prepare young people and adults to pursue jobs and opportunities in the field of agricultural education as well as to provide a successful record of students' career accomplishments and educational goals (Sundstol, 2004). Additionally, the issue of a lack of trained experts in the agricultural industry will be addressed through continuing agricultural education (Bajema, Miller, & Williams, 2002). Agribusiness education and training provided via outreach initiatives can increase agricultural productivity. Aside from developing cultivating frameworks and innovations, suitable and useful agricultural knowledge and skills are also required for processing, product promotion, and the implementation of solid agricultural programs in the nation. The purpose of agricultural education at public colleges of education is to lay the groundwork for further study in various engineering and science related fields related to agriculture (Emami, Almassi, & Bakhoda, 2018; Vandenbosch, 2006).

Unfortunately, it has been noted that many students across all educational cycles, particularly at public colleges of education, have a negative perception of agriculture as a career choice (Anamuah et al, 2000). By examining how students feel about agricultural education and agriculture in general, it may be possible to predict whether they would consider agriculture as a career or subject of study. Ilenloh, (2012) revealed a variety of factors that significantly affect agricultural education and training. These include attitude and impression of individuals. There is a circulating notion

among students living in rural and urban environments that sets to present agriculture and related fields as areas that are meant to be occupied by “peasant” individuals and that the profession is unfulfilling, laborious, dusty, poorly paid, and best suited to non-academic individuals (Garwe, 2015). Agriculture, and especially agricultural studies, are unattractive because of the stigma and "ideologies" that characterize farming or farmers in society. To keep themselves engaged while they wait for a "better" employment chance, students who didn't meet the requirements for more prestigious and profitable disciplines like medicine, pharmacy, or engineering often choose agricultural science as a study course or vocation.

Radhakrishna, Leite and Domer (2003) also asserted that students’ readiness to seek after agriculture as a career is linked to their attitudes toward agricultural science education and training. In view of that, the plant sciences community in America, over the decade, has become progressively aware of the need to educate people about the significance of phytology and to encourage people to seek out plant science professions out there (American Society for Horticultural Science, 2013). To improve and sustain agriculture, the recruitment of outstanding individuals must be enhanced through the implementation of a more effective recruitment strategy. For an effective strategy to be developed, it is essential to probe the decision-making processes of students and eventually their opinions or dispositions towards agriculture.

Although such a change has been introduced and practised in Ghana, most students, and people, in some parts of the north, still see agriculture and its practices, including opportunities in the field as they existed in the early 20th century (Ministry of Food and Agriculture, 2018). As such, the interest

of most students is still low in the sector. Agricultural science as a subject in educational curricula aims to broaden students' understanding of fundamental tenets and practices in the field of agricultural science. It has been reported that students learning agriculture are more likely to become self-reliant, creative, abreast with issues related to poverty reduction and environmental protection (Mwiria, 2002; Garwe, 2015).

From precolonial times to today, agriculture, which is largely occupied by people with little or no educational background, has been the major economic activity in Ghana (Darko et al., 2015). However, considering the earlier discussion on the background information about the enormous impact of agriculture on Ghana's economy (Ghana Statistical Service, 2020) as well as students' awareness of agriculture and related fields (Vivian, 2016), it may be maintained that the overall purpose of agriculture education and training has not been duly emphasized or if any, it is so little.

Statement of the Problem

The total student body pursuing agricultural programmes in the various Colleges of Education in Ghana is gradually diminishing (ESAR, 2006). The situation is more pronounced when it comes to colleges of education in the Northern Region of Ghana where fewer students are found to pursue agricultural programmes (Anamuah-Mensah, 2010). Further checks in this part of the country reveal that the intake of female students, for agricultural programmes has even worsened as only one female out of twenty students could be seen in some colleges (ESAR, 2006). This situation may not be peculiar to only Ghana, as similar trends were reported in Nigeria (Amadi & Eze, 2018).

Owing to the perception of students toward agricultural activities such as farming, males are generally associated with farming than females. This subsequently had some impact on the choice of students toward agricultural programme in the colleges of education. This challenge has led to lack of skilled personnel to fill the various sectors of agriculture in the country. However, there are no studies that have reported on the proportion of students reading agricultural related programmes in Northern Region of Ghana. Therefore, this study seeks to discover the issues that affect the selection of agricultural science by students in public colleges of education in the Northern Region of Ghana. In addition, the number of students pursuing agricultural related programs would be explained.

Even though, in Africa the agricultural sector, on average, contributes 40 percent to GDP, 15 percent of exports, and provides about 70% of employment, many countries reported decreasing enrolments in agricultural programs (Beintema & Stads, 2011). In Egypt and Nigeria for instance, the public universities are reportedly struggling to contain an increasing number of student enrolment in many subject areas while in the case of agriculture it is the reverse thereby undermining the ability to provide training and human resources for research and development in agriculture (Khaled, 2008; Adebo, & Sekumade, 2013; Vivian, 2016). This trend of declining enrolments in agricultural degree programs relative to total enrolments has also been reported in other sub-Saharan countries. (Kruijssen, 2009).

In Ghana's Senior High Schools and Colleges of Education, students have been enrolling in agriculture less frequently than in other subjects over the previous few years. According to statistics from the and the Ghana

Tertiary Education commission (GTEC) and the Ghana Education Service, there are less agricultural students enrolled in colleges of education than there are in other subjects. This necessitates research on the variables that affect students' decisions to choose agricultural science as their major at colleges of education. The wellbeing and standard of living of Africans, notably Ghanaians, depend heavily on addressing these issues. In contrast to the expected 9.7 billion world population in 2050, the FAO of the United Nations estimated that 795 million people worldwide are undernourished, and that food production will need to be doubled by that time (FAO, 2015). Even though it hasn't been stated, the bulk or almost 50% of these malnourished people are probably African.(FAO, 2015)

Some studies have been conducted on the attitude of students to certain disciplines and their subsequent enrolment in them (Alston, Roberts, & Warren, 2019; Ngesa, 2006; Sherry, 2010; Orodho, 2014). Some of these authors have put forward inputs on factors affecting students in the school setting. Some of the factors included the students' attitudes, the school environment and lucrativeness of the profession (Broughton, 2013; Namale 2012; Orodho, 2014). Vandenbosch (2006) conducted a similar study considering some countries within the Sub-Saharan Region and elsewhere in the world. However, due to cultural and geographical differences, the results of the research may not be applicable for policy development in Ghana. Furthermore, factors that affect the study of agricultural science may be unique to a given location (Ramdwar and Ganpat, 2001); therefore, a local study is required.

Additionally, most of the research on this topic in Ghana was done at post-secondary institutions or at the high school level in southern Ghana (Okorley, 2001; Anamuah-Mensah, 2000). The analysis of past studies (Garwe, 2015; Alston et al., 2019) also shown that there are few studies that look at the factors impacting course selection or major in institutions of education, notably in Ghana. However, in other nations, the causes of the declining enrolment trend had been thoroughly investigated and documented in the literature (Garwe, 2015; Klein & Washburn, 2012; Carter, 2008). The problem addressed in this study is the declining student enrolment in agricultural programmes in colleges of education in Ghana, particularly in the Northern Region. This issue has implications for the availability of skilled personnel in the agricultural sector and requires an understanding of the factors influencing students' choices to pursue agricultural science as their major. By investigating these factors, the study aims to bridge the knowledge gap and provide insights to inform policy development and address the declining enrolment trend.

Objectives of the Study

General Objective

The overall objective of the present study is to ascertain the factors influencing students' decisions to select agriculture as their major discipline in Colleges of Education in the Northern Region of Ghana.

Specific Objectives

The specific objectives of the study are to:

1. Determine the effects of demographic characteristics on students' choice of agricultural science as their major.

2. Determine the influence of students' attitude on the choice of agricultural science as a major.
3. Determine the influence of interpersonal factors on students' choice of agricultural science as a major.
4. Determine the influence of college-related factors on students' choice of agricultural science as a major.
5. Determine the influence of students' career aspirations on the choice of agricultural science as a major.
6. Compare the factors influencing females with that of males in the choice of agricultural science as their major .
7. Identify strategies that could be used to help increase students' enrolment in agricultural science in the colleges of education.

Research Questions

The following questions were asked in the research:

1. What are the effects of demographic characteristics of students on the choice of agricultural science as their major?
2. How does students' attitude influence their choice of agricultural science as a major?
3. What is the influence of interpersonal factors on students' choice of agricultural science as their major?
4. How do college-related factors influence students' choice of agricultural science as their major?
5. To what extent do students' career aspirations influence their choice of agricultural science as a major?

6. Are factors influencing female students' choice of agricultural science as a major different from that of male students?
7. What strategies could be used to help increase students' enrolment in agricultural science in the colleges of education?

Hypotheses of the Study

H_0: There is no significant association between student's demographic characteristics and choice of agriculture as their major

H_1: There is significant association between student's demographic characteristics and choice of agriculture as their major

Hypothesis 2

H_0: There is no significant association between males and female in choosing agriculture as a major

H_1: There is significant association between males and female in choosing agriculture as a major

Significance of the Study

The findings of this study will contribute to a better understanding of the factors that affect students' decision to select agriculture as their major discipline in colleges of education. Once these factors are known, then colleges can utilize them to help focus implementation. In addition, the findings of this study may provide other institutions with new insight into their student enrolment efforts.

Also, this study will help the Ministry of Education to restructure the agricultural curriculum to attract and increase the enrolment of students into agricultural programmes in educational institutions in the country. Eventually,

an adequate workforce with the requisite skills in agriculture will be produced in agriculture and agricultural related industries.

Limitations of the Study

Undeniably, some difficulties were experienced in the course of the study. Nonetheless, measures were put in place to alleviate the difficulties. These challenges included difficulty in getting free space on the teaching timetable to administer and retrieve the questionnaires.

Some of the participants considered the study as an additional task on, hence, felt reluctant to accept the questionnaires. Also, some participants provided answers, which were inaccurate. Furthermore, it was difficult getting related secondary data, like past admission records from some of the colleges concerned.

However, the findings were generalizable because the selection process was well-thought out and the sample was representative of the study population examined.

Delimitation of the Study

Mugenda (2009) explained delimitations as narrowing the scope and boundaries of the study consciously excluding or including some decisions taken while developing the research.

This research focused on factors affecting students' enrolment in agriculture education as a major area of study in four Public Colleges of Education in the Northern Region of Ghana. The study was carried out in four colleges in the Northern Region. Also, the target population was only level 200 hundred students, because in some of the colleges, students only select their elective courses when they enter level 200. The respondents to the

questionnaire were students, agricultural science tutors, and the principals of the four colleges.

The learning of agricultural science in the selected public Colleges of Education was the focus for this research.

Definition of Terms

The terms used in this study include the following:

Environment: External factors which affect decision-making**.**

Interpersonal: individual perceptions that have an impact on a student's decision-making process.

Personal factors: these are subjective factors, including the individual's personal characteristics. For example, interest in the topic, skills, professional values, past experiences, and personality traits.

Psychographic factors: is a study of individuals' opinions, values, personality, interests and lifestyle.

Organization of the Study

The thesis consists of five main chapters. The first chapter deals with the background to the study, the presentation of the problem, the purposes of the study. It also includes the importance of the study, the limitations and delimitations, and the definition of key appropriate used in the study.

Chapter two provides a review of important literature, including factors affecting students' choice of a course major, demographic characteristics of students, strategies to improve student enrolment in agriculture and finally the development of a conceptual framework that will guide the study. Chapter three provides an overview of the research methodology used. This includes study areas, research design, population,

sampling techniques, research tools used, pilot study to test instruments, data collection and analytical procedures. Chapter four presents the findings and analysis of the data analysed in relation to the specific objectives of the study. Chapter five provides an overview, conclusions and recommendations based on the results of the study

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter covers existing theoretical review, conceptual frameworks and the review of relevant literature that provides the necessary standpoints which form the basis for this study. In particular, it examines the literature in the field under headings like the concept of agricultural education in relation to Ghana and other countries, the impact of agriculture on economic growth, the role of agricultural education in socio-economic development, achieving agricultural sustainability and food security through agricultural education, the determinants of students' choice of tertiary institutions, and students' perspectives on agricultural education. The chapter also makes an effort to compile research on topics including interpersonal, private, and environmental influences on decision-making while selecting a major course of study.

Theoretical Framework

The attitudes, socialization, and aptitudes for majoring in a field have been evaluated using the theories of reasoned action, planned behavior, and rational choice theory (Leon & Uddin, 2016; Zhang, 2007). These theories were chosen because they emphasize a social science perspective on decision-making (Meece, Parsons, Kaczala, Goff, & Futterman, 1982). Due to its multidimensional perspective, the theory of planned behaviour was adopted (Leon & Uddin, 2016). Planned behaviour theory serves as the foundation for the theory of reasoned action (Leon & Uddin, 2016). The rational choice theory makes use of economics to comprehend decision-making and choices

(Eriksson, 2011). The theories are commonly accepted ideas that provide an explanation for human sociological behaviour (Ajzen, 1991).

Theory of Reasoned Action

The concept of reasoned action, a decision theory that is widely used in statistical analysis, is the cornerstone of behavioral and social sciences. (Weiruch, 2013). Each choice is framed in terms of possibilities and potential outcomes; the best choice is the one that maximizes utility (Wisner et al., 2016). The select of a major and a career takes time to mature, according to Meece et al. (1982). These options assess behaviour and cognition, both of which are frequently involved in decision-making (Crano & Prislin, 2008). Understanding models of human behaviour relies on the principle of reasoned action (Weiruch, 2013).

Decision theories come in several forms. Like the idea of reasoned action, normative decision theory explains how decisions are produced by taking into account aspects that people value highly (Sage, 2014). Several paradigms were looked at in the current study, including those that affect a student's decision on a major, such as interest, aptitude, educational knowledge, and lifestyle impacts. Descriptive decision theory, such as the notion of reasoned action, serves as a demonstration of decision-making processes. (Sage, 2014). Finally, empirical decision theory focuses on the process of making decisions and examines the risks involved as well as predicted and actual profits and losses from decisions (Blackburn, 2016). People place different amounts of emphasis on decisions (Sage, 2014). The theory of reasoned action places emphasis on a person's purpose to carry out a particular action since this can be used to anticipate future conduct (Ajzen &

Madden, 1986). Over a reaction to outside factors, such as personality and values, the attitude toward the activity is highlighted (Fishbein, 1979). Behaviours are created by logical thought processes that weigh the pros and drawbacks of potential courses of action before choosing the one that makes the most sense (Fishbein & Ajzen, 1975).

Theory of Planned Behaviour

The theory of planned conduct is based on the principle of reasoned action. The theory of planned conduct is a choice theory that places more emphasis on beliefs, attitudes, socialization, and behaviour than the theory of reasoned action does (Ajzen, 1991). The main distinction is that the theory of reasoned action focuses more on understanding the students' mental processes while the former places more emphasis on actions. The choice of major is completely up to the student. The most desirable course of action is decided using logical processes, implications are considered, yet the person may not be able to make decisions free of restrictions (Ajzen & Madden, 1986). Ajzen (1991) asserted that a individual's intention to carry out a particular conduct foretells the amount of effort they will exert. The theory looks at circumstances where a person can regulate their actions.

From the beliefs that people hold come their attitudes. According to Ajzen and Madden (1986), behaviour can be predicted using logical intentions. According to Ajzen (1991), people's intentions and actions might diverge, and actions' difficulty and controllability also influence the kinds of behaviours that they will choose to engage in. People are more likely to carry out their plans when they believe they have control over the situation. According to Bandura (1977), people act based on their perceptions that they

can carry out behaviours and that doing so will result in a particular consequence. The theory has a flaw in that it ignores emotions, which frequently have an impact on beliefs and actions (Ajzen, 1991). People need to believe that they have control over their action and that it will result in the outcomes they want, according to Bandura (1977). People's actions are influenced by their conviction that they have some degree of control over the results of their decisions. People are more likely to carry out their decision the more positive their mood is and the additional control they believe they have over a situation. By examining people's perceptions about their activities and their sense of control over those behaviours and consequences, this theory strengthened the current study. It is critical to comprehend how individuals feel about agricultural science major.

Furthermore, it is critical to know whether students believe they can successfully complete their major, enjoy their classes, and find rewarding employment. The survey used in this study gathered information on the actions students took when deciding on their degree. The behaviours of students who chose agricultural science as their major and those who chose other courses majors were compared. The variables associated with individual interest, competency, value and utility, and influences of other people and experiences were investigated in order to determine which student activities were influenced by each component.

Critiques of the Theory of Planned Behaviour

One type of criticism focuses on the sufficiency of the theory, which asserts that attitudes, subjective norms, and perceptions of behavioural control are sufficient to predict intentions and conduct.

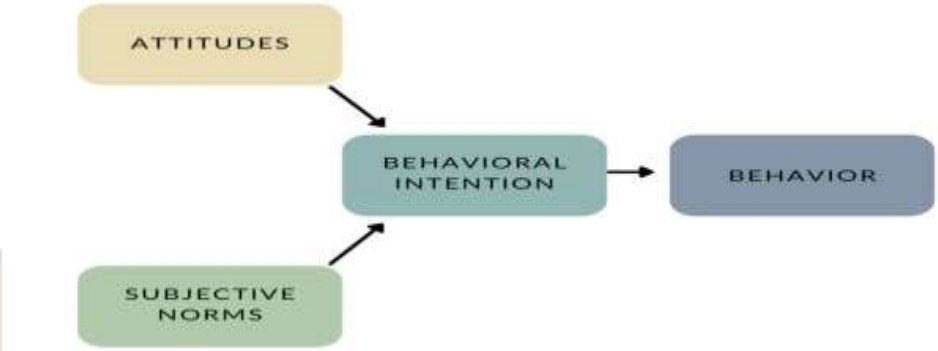

Figure 1: The theory of Planned Behaviour

Source: Fishbein, (1975) Theory of Planned Behaviour

Rational Choice Theory

Rational choice theory is a recent development in decision theory. It is used to sway people's decisions and is founded on economic logic (Eriksson, 2011). When making decisions, people rank possibilities according to utility (Eriksson, 2011). The hypothesis has its roots in Adam Smith and Karl Marx's social interaction studies (Scholtz, 2015). Rationality examines an individual's ability for rational decision-making (Weiruch, 2013). According to the rational choice theory, people intentionally engage in goal-oriented behaviour while making the right choice (Darity, 2008).

According to Boudon (2003), rational choice theory describes decisions made by an individual that are understandable and motivated by factors that are known to them. According to this theory, judgments are made based on an awareness of the effects of actions and the costs and rewards of those acts (Boudon, 2003). Students who make rational choices are those who are aware of the reasons behind their decisions as well as the consequences of those choices (Scholtz, 2015). He believes that with the rational choice theory,

people typically consider their own outcomes and the cost involved their actions, including opportunity cost. People frequently act in a way that will best serve their personal interests. The decision will ultimately depend on the advantages and drawbacks of the individual, even when social norms and expectations are taken into account.

The rational choice theory is based on five propositions (Muntanyola-Saura, 2014). The first is that each person only has a limited number of clearly defined preferences. Second, decisions are founded on thorough research and the presumption that the decision-maker is acting logically. Third, to make decisions that would maximize benefit, people obtain information from a variety of sources. Fourth, rational choice theory implies that decisions will be made using common sense. Fifth, individuals will constantly seek to maximize their utility.

In applying the rational choice theory, Boudon (2003) discovered that people do not always choose decisions that will maximize their personal utility. According to Martinas and Reguly's (2013) definition of costs-versus-benefits, a rational individual will always pick the course of action that allows them to maximize their own personal profits. According to Eriksson (2011), decisions should consider social or human behaviour, and these decisions are not necessarily based on logical cognitive processes. There are instances when people do not behave in their own best interests and make poor decisions based on personal ideas that may not be supported by the evidence. There are also times when people make comments that are not supported by accurate information (Boudon, 2003). Decisions are not always evaluated from a cost-benefit standpoint (Eriksson, 2011). Assumptions are involved in rationality

decisions (Lehtinen & Kuorikoski, 2007). When one comprehends and concentrates on a reason, only then it becomes motivating (Dietrich & List, 2011). The rational choice theory has proved effective at forecasting behaviour in which external decisions are made (Ostrom, 1998).

Ostrom (1998) discovered that while people do not always have a strategy in mind for every circumstance they confront, they do employ general guidelines or techniques they have honed over time to achieve a desirable result. If students are thinking about the results and benefits of their choice, understanding the advantages and disadvantages of rational choice theory might shed light on the decisions they make while choosing their major. Eriksson (2011) claims that choices are always made with an economic viewpoint, weighing costs and benefits, and under the presumption that they may not be the best option. It is presumed that people will make decisions based on societal standards. This study was able to better understand how economic factors affected major choice in connection to individual interest, student competency, value and utility, as well as external impacts from peers and academic experiences through the use of rational choice theory. Despite the fact that the rational choice theory usually takes financial factors into account because a reasonable person would do so, not all factors that affect a student's major have anything to do with how much money they will make after graduation.

Africa Agricultural Sector

Even though, in Africa the agricultural sector, on average, contributes 40 percent to GDP, 15 percent of exports, and provides about 70% of employment, many countries reported decreasing enrolments in agricultural

programs (Beintema & Stads, 2011). In Egypt and Nigeria for instance, the public universities are reportedly struggling to contain an increasing number of student enrolment in many subject areas while in the case of agriculture it is the reverse thereby undermining the ability to provide training and human resources for research and development in agriculture (Khaled, 2008; Adebo, & Sekumade, 2013; Vivian, 2016). This trend of declining enrolments in agricultural degree programs relative to total enrolments has also been reported in other sub-Saharan countries. (Kruijssen, 2009).

Over the past few years, students have been enrolling in agriculture less frequently than in other topics in Ghana's Senior High Schools and Colleges of Education. There are fewer agricultural students enrolling in colleges of education than there are in other fields, according to statistics from the National Commission for Tertiary Education and the Ghana Education Service. This calls for investigation of the factors influencing students' decisions to major in agricultural science at schools of education. Addressing these problems is crucial for the welfare and standard of living of Africans, especially Ghanaians. The FAO of the United Nations projected that 795 million people are undernourished globally and that food production will need to double by 2050 in order to feed that population, which is predicted to be 9.7 billion (FAO, 2015). Although it hasn't been specified, it is likely that the majority of these malnourished people roughly 50% are African.

Studies on students' attitudes toward particular fields and their eventual enrollment in them have been done (Alston, Roberts, & Warren, 2019; Ngesa, 2006; Sherry, 2010; Orodho, 2014). Some of these authors have made suggestions regarding elements influencing kids in a school

environment. Student attitudes, the educational environment, and the profession's financial viability were some of the variables (Broughton, 2013; Namale 2012; Orodho, 2014). A similar analysis was carried out by Vandenbosch (2006), taking into account several nations in the Sub-Saharan region as well as other nations. However, the research's findings might not be relevant for Ghana's policy development due to cultural and regional disparities. A local study is necessary because factors that affect the study of agricultural science may be particular to a particular location (Ramdwar and Ganpat 2001).

Additionally, the majority of the research on this subject in Ghana was conducted in southern Ghana at post-secondary institutions or at the high school level (Okorley, 2001; Anamuah-Mensah, 2000). The review of prior research (Garwe, 2015; Alston et al., 2019) revealed that there aren't many studies that examine the variables influencing course or major selection in educational institutions, particularly in Ghana. The reasons for the trend of diminishing enrollment, however, had already been well researched and recorded in other countries (Garwe, 2015; Klein & Washburn, 2012; Carter, 2008).

Global and Ghana's Concept of Agricultural Education

Today, education is broadly accepted by all countries and international organizations as the most effective way to invest in development for any country (Garwe, 2015; World Bank, 2007). It is certainly essential to improving life and the state of the world and is among the most important strategies for fostering social and economic growth (Emami et al., 2018). Thus, the development of human resources through education (formal or

informal) is key for the strengthening of human capacities and the opening of job opportunities. For a country to become industrialised and self-sufficient in economic terms, it needs highly qualified professionals with the skills and personal qualities needed for economic growth (Vivian, 2016).

Prior to the first half of the 19th century during which some schools throughout the world (particularly America and Britain) began to offer instructions in agriculture, parents were the principal teachers of agriculture who provided their children with the skills and knowledge necessary to take over the family farms or manage the farms.

A similar scenario accounted for in pre-colonial Ghana. The organization of agricultural education in precolonial Ghana, just as any other African country was a practical and ongoing process, from childhood to adult. For instance, children on the shoreline of pre-colonial Ghana, as per the account of the Pieter de Marees in 1602, were put at risk of the sea the moment they began walking (van Dantzig & Jones, 1987). Before the kids reach adulthood, they learned how to spin thread from tree bark and weave it into nets, as well as how to dive and swim well. Children also living in the woodland and the savannah areas worked with their relatives on the farms and progressively developed competencies from their parents: when and how to sow crops and when to harvest, as well as the science of reading the moon and stars to predict the weather (Kuupole & De-Valera, 2010).

After the Morrill Act was passed in the United States in 1862, an increase in the formalization of agricultural education became apparent throughout the world (Moore, 1987). To increase agricultural production in the Legitimate Trade by increasing the supply of raw materials from Gold

Coast, the then Ghana as a British Colony in 1874, the British saw agricultural education as important machinery to achieving that goal. Consequently, administrative structures were institutionalized to manage the improvement of agricultural education and training in colonial Ghana at the time. Later, the country's agricultural education was classified as "agricultural bias", professional training, vocational training, and agricultural extension. Except for the latter, which was regarded as belonging to the non-formal sector, the three aspects were retained in the formal sector (Adu Boahen, 1987; Howard, 1978; Kwarteng & Towler, 2000; Amedzro & Yaoudeowei, 2005).

The aspect of agricultural education that concentrated in building students "agricultural bias" was designed to ensure that students were ready to work on the farm once they completed their studies. This strategy was designed to counter a perceived popular dislike of professional vocations, including agriculture in Ghana at the time. For this cause, the study of Agriculture as a main subject was integrated in the education programme and, college farms were created to provide the practicality of agricultural theories (Amedzro & Yaoudeowei, 2005).

The professional training provided students with improved techniques in farming to become farmers. It was designed to make farming a vocation for students once they left school. Most graduates of agricultural vocational training were enrolled in agricultural colleges by the colonial administration to be trained as employees of the Ministry of Agriculture as well as other farm organizations (Kwarteng & Towler, 2000). Training for agricultural officials, agricultural teachers and agricultural supervisors in schools was the purpose of the third category of agricultural education, making agriculture profession

during the colonial regime. The final category for agricultural extension, was engineered to train farmers outside the domain of the classroom type of education. This involved the dissemination of information or skills from agricultural extension agents to farmers (Twum-Barima, 1977). Agriculture-related sectors have increased the variety and quantity of occupations available, and agricultural education has undergone significant reform as a result of changes in technology and organizational structure. Now, education in agriculture does not only involve vocational agriculture, but also agricultural literacy.

Vocational agriculture: Simply agricultural education has a long educational background where most of the programmes consist of three components: classroom and laboratory instruction, supervised work practices, and membership in a farm organization (Swanson, 2000).

National Research Council of America later argued that Agricultural Education should be capable of providing students with the skills required to enter and progress in a career including agricultural production, agribusiness management and marketing, agricultural research, food science, banking, processing and retail, landscape architecture and urban planning, to name a few (National Research Council, 2000). In this respect, the definition of agricultural education has extended beyond traditional vocational programmes to include the concept of agricultural literacy - which is the objective of agriculture education. This definition includes some understanding of food and fibre production, handling, and marketing at home and abroad.

Swanson, (2000), as well as Taylor & Howard, (2005), also reiterated that an understanding of the fibre and food system by someone with a sound

knowledge of agriculture includes its current economic and its history, social, and environmental importance to all nations. Reaching the goal of farm literacy will result in informed citizens capable of participating in policymaking that will reinforce the local and internationally competitive agricultural industry. Also, agricultural literacy complements the teaching of other academic subjects. For example, where knowledge of nutrition is included, it will help individuals to make informed personal decisions about nutrition and health (National Research Council, 2000).

After obtaining its independence in 1957, Ghana, and likewise other African nations, have made significant progress towards access to higher education, which saw an increase in the number of secondary schools, colleges of education and universities (Taylor et al., 2015). The focus was greatly directed toward the speedy extension of educational systems to achieve self-sufficiency in high-level personnel for the Africanisation of the civil service and the private sector. However, the gravities of obtaining quantitative expansion excluded major structural reforms in the country. In the mid-1960s, educators focused on the issue of the relationship between school systems and the needs of rural societies. As a result, agricultural science was added as a subject to all secondary schools and training institutions in Ghana that were not agricultural. The plan also called for the students to be exposed to and involved in crucial hands-on activities that will equip them with the knowledge and skills necessary for agricultural productivity.

The incorporation of agriculture into the Ghanaian educational system—primarily through teaching and learning—aims to ensure that students are adequately exposed to and taught the fundamental ideas that are

crucial to the nation's agricultural productivity. A national and household understanding of agriculture and its advantages will be promoted as a result of the students' ability to develop interest in and awareness of the potential in the agricultural sector through their studies. More importantly, they will also prove that agriculture is a profitable and worthy profession.

Moreover, the emphasis on agricultural education is not solely directed toward the provision of a successful roadmap to help students establish and achieve career and academic objectives, but also to prepare young people and adults for careers in agricultural education (Sundstøl, 2004) and on top of that, alleviate the predicted shortage of trained professionals in agriculture (Bajema, Miller, & Williams, 2002). At public colleges of schooling in Ghana, for instance, the goal of agricultural education is to give the necessary foundation for more in-depth studies in different fields of science and technology (Emami, Almassi, & Bakhoda, 2018).

Impact of Agriculture on the Economy of Nations

The effect of agriculture on the economies of countries is unquestionably the pillar of much of the developing world, including Ghana. The agricultural sector would have contributed significantly to the economic prosperity of many industrial nations. This contribute to Ghana's Gross Domestic Product (GDP). It is clear from the history of Britain that the agricultural revolution predated the industrial revolution there. In the United States and Japan, agricultural development has also made a significant contribution to the process of industrialisation. Several developing countries around the world have also realized the limits of looking down on industrialization as a means of achieving a higher real income per capita

(World Bank, 2007**).** Lessons learned from the economic history of many advanced economies indicate that agricultural prosperity has been an important driver of economic growth. The main developed countries of today observably were once largely into agriculture. Agriculture is still dominating in the economics of developing nations and contributing largely to their national income. In India, for instance, 28% of national income is still derived from the agricultural sector. This sector serves as the backbone of an economy by providing basic ingredients like foods, fibres, and fuels to mankind and raw materials for industrial use. At the beginning of the 1960s, during the oil boom, Nigeria relied on agriculture for its economic livelihood, **(**Vandenbosch, 2006). Agricultural progress is required to improve the supply of raw materials to agribusiness industries. Shortage of agricultural products remarkably affects industrial production and a consequent hike at the general level of prices for goods and services which can subsequently impede the growth of the country's economy.

Countries that are making progress in their agriculture sector have the potential to generate a surplus to increase agricultural exports. These gains are most desirable in view of the increased pressure on the monetary situation necessary to finance imports of basic equipment goods critical capital equipment. Most developing nations in the world export primary commodities. These products contribute over 70% of their total export gains. Thus, the import capacity of equipment goods and machinery for industrial development is essentially dependent upon the export earnings of the agricultural sector. Countries that cannot increase their export earnings from

agricultural products will have a balance of payments deficit, which will lead to a serious exchange problem.

The agricultural sector has generally become a major tool to assist in the gradual elimination of the economic challenges. During the depression, industrial production may be interrupted or reduced, but agricultural production remains active and continues to produce the necessities of life. A classic example was during the recent 2020 COVID 19 pandemic that saw the drastic reduction or collapse of many industrial firms. In Ghana, revenues generated from the oil and minerals sector dropped sharply since the demand for such products were in shackles during the outbreak; thereby leaving the agricultural sector that provided the necessities, like food or cash crops, the main sustaining tool of the economy. In this way, agriculture continues to generate effective demand even under unfavourable economic conditions.

Agriculture is also becoming a major player in the provision of employment opportunities to large-scale rural populations in developing countries as well as under-developed states. It is a major source of livelihood. Farmers and fringe workers who do not own agricultural land are more often involved in non-farm occupations like furniture, textiles, handicrafts, processing industries, and other service industries. In Ghana, about 50.6% of the total labour force respectively depends on agriculture (Badu & Lee, 2020). It has been noted that an increase in agricultural production and productivity contributes significantly to the country's economic development. Consequently, it will be rational and appropriate, to focus more on the future expansion of the agriculture industry. Therefore, agricultural programmes or educations are needed for the continual advancement of sufficient human

resources for the agricultural industry and improve agricultural output (Kruijssen, 2009).

Role of Agricultural Education in Socio-Economic Development

Development and growth cannot take place without teaching and learning.. No known country has achieved economic growth and livelihood without significant investment in investment in people (Ozturk, 2001). Education increases the efficiency and creativity of people and promotes entrepreneurship and technological development. This is key to achieving greater economic efficiency and social cohesion.

Although previous neoclassical models have not seen education as an important factor of production, which resulted in its exclusion in the growth models (Harberger, 1998) the landmark work according to Schultz (1961) and Denison (1962) showed a range of growth accounting studies that point to the contribution of education to the unexplained residues of economic growth in Western economies. Similar findings were observed in Psacharopoulos, (1984) analysis of economic growth studies, which covered roughly 29 developing countries. Estimates of the influence of education ranged from less than 1% in Mexico to as high as 23% in Ghana. Of course, education cannot alone change an economy. Other significant factors influencing economic development include the type and volume of investments as well as national and international policies (Ozturk, 2001). Nevertheless, these elements are influenced by how far human evolution has progressed. In fact, the educational level of decision-makers and managers could influence the quality of the decision-making process.

Agricultural education is as necessary as agriculture serves as a source of livelihood to over fifty percent of the world's population and it's a key contributor to the economic prosperity of developing countries. Agriculture Science has been taught during colonial times and even after independence, with the only objective of developing basic agricultural skills necessary for Ghana's development (Mwangi & Mwai, 2002). The country's development is seen to be largely dependent on agricultural education. So as to increase the quality of teaching in agriculture for better learning outcomes, its reforms in Ghana have promised to make the issue of the quality of teachers and students significant (Emami, Almassi, & Bakhoda 2018; Vivian 2016).

A significant contribution to technological advancements and improvements in industry is made through agricultural education. According to empirical evidence, agricultural education increases the productivity of farmers who use contemporary technologies but has less of an effect on those who use traditional farming techniques. For instance, in Thailand, farmers who have received some form of agricultural education or training are more likely than less-educated or uneducated farmers to use fertilizer and other modern inputs (Klein & Washburn, 2012). Likewise, in Nepal, studies show that the completion of a minimum of 7 years of formal education with agricultural science as a minor subject increased productivity in wheat by more than 25%, while that of rice was increased by 13% (Jamison & Moock, 2004). The type and rate of growth of agricultural exports have an impact on the overall growth rate of the country's economy. Several studies have asserted that most countries having a good number of their farmers possessing a high level of knowledge or skills in agriculture easily averts challenges such

as post-harvest losses, poor yield, and pest invasion which in turn can affect the economic development of that country Ozturk, 2002; Garwe, 2015 & Klein 2012).

It is rapidly clear that expenditures made by advanced economies on agricultural education, i.e., schooling, on-job training, and other forms, have led to their continuing use of science to the development of new agricultural products and species like disease-resistant crops, or crops of desirable traits as well as more efficient methods of production which heavily contribute to their economic sustenance. The Middle East countries are becoming increasingly integrated into global markets to produce agricultural products such as sugar, rice, and wheat. Surely these nations experience greater increases in their per capita income. Their competitiveness in these markets and the globalization of services certainly will be driven by excellence in human capital in agriculture, which they will promote.

More so, within the framework of globalized markets and localized research centres, tertiary education becomes the major causes of facilitating economic performance. In terms of macroeconomics, the workforce's overall productivity of capital increases with its level of education since more educated people are more likely to be inventive, which affects everyone's productivity (Emami et al., 2018). People who are usually exposed to higher education, such as training colleges of education turn to generate externality as individuals' increased education increases productivity of the entire nationa, but also those with whom they interact to have total productivity rises as the average educational level rises (Amedzro & Yaoudeowei, 2005). Considering the enormous impact of education as well as that of agriculture on a country's

productivity, there is the likelihood of economic depression to visit any country that may fail or fall short in Agriculture education: both quality and quantity.

Perspectives Inducing Lack of Interest in Agricultural Science Education or Professions in Agriculture

Even though agriculture is an immense contributor to the economic prosperity or growth of a country's gross domestic product, various African states reported reduced enrolment in agricultural programmes. (Garwe, 2015; Adebo & Sekumade, 2013; Kruijssen, 2009). The purported low student enrolment in agriculture and related programmes at the various tertiary institutions across the continent could raise great threat because agriculture contributes to improving food security, poverty reduction, and economic growth (Khaled, 2008; Taylor & Howard, 2005). In other regions of the world, such as America, Australia, and New Zealand, a scenario akin to this one has been documented. For instance, the decline in agricultural enrolment was so significant in America that it raised great concern at the time when a shortage of trained professionals rose at the expense of increased opportunities in the agricultural profession (Scott & Laverge, 2004; Geocker, Smith, Smith, & Goetz, 2010). Klein (2012) likewise, indicated in his studies a huge decline in student enrolment in agricultural programs as one campus at the University of Western Sydney in Australia had only six students less than the usual 80 students per year.

The global downward trend of interest in careers in agriculture and related fields raised a great sense of urgency among educationalists and researchers alike. Thus, several studies were conducted to identify the

underlining cause of action. Baker et al., (2015) and Kruijssen (2009) asserted that Agriculture and its professionals are troubled by negative perceptions and surrounded by a lack of information and awareness.

According to Garwe (2015), students typically look up to a select group of mentors and role models who succeed in the field of agriculture. In the business world, the morale of those in the agricultural profession is low. The students further reiterated, according to the study, that most people with a lifelong career in agricultural programmes give up agriculture and become famous with other professionals such as banking, politics, or administration. Moreover, agriculture is most often associated with failure. At the family level, for instance, anytime a youth refuses to go to school, parents or guardians' reprimand and tell that child to get up better, otherwise he will end up ploughing the earth. Other works equally found some push and pull factors that influenced the lack of interest of students to pursue agricultural programmes.

Employment and Remuneration

According to studies, the primary reasons pushing students to choose study programs that are aligned with their intended career choices are the availability of jobs and the pay rate (Williams & Capuccino-Ansfield, 2007). Williams (2006) argued that earlier encounters, interest, and passion about a career could inform decision-making among the different study options that may be available to the student. Most students lack exposure to career development opportunities in agriculture and related field which in turn compel them to rely heavily on perceptions.

Regrettably, the employment prospects of graduates in agriculture were not high enough with most of these graduates being hired as extension agents for public services, research and development personnel, instructors and very few are absorbed into the private sector (Temu, Mwanje, & Mogotsi, 2003). Jones and Larke (2001) also discovered that due to the dearth of work prospects in the agricultural fields that matched their preferred occupation, students chose careers in other disciplines that were unrelated to agriculture. Both in the public sector and the private sector, compensation for those working in agriculture is low and uncompetitive. Students argued that poor investment in the agricultural industry makes it difficult for agricultural engineers to compete with their peers in other sectors or jobs for greater pay.

Prestige and Status of the Agricultural Profession

Occupational prestige, a measure that considers both the rating and attractiveness of a profession was examined with results showing that there are important differences among social status of the careers that comprise the labour market. Most of these studies suggest that alumni are generally aware of social perceptions and are encouraged to pursue a more prominent occupation (Pike, 2014; Klimek, 2019*).* However, in the view of youths, agriculture is not considered prestigious, economically meaningful, productive, and attractive: thereby the interest of youth in agricultural activities is globally decreasing. Agriculture is often perceived by youths as a low prestigious sector shrouded with low wages, poor living conditions, and limited cultural and recreational opportunities (Hofierkova, Bavorova, & Ponkina, 2019).

A relationship between a career's standing in society and its capacity to draw talent has been demonstrated by researchers researching professional reputation, position, and esteem (Klimek, 2019; Baker et al., 2015). The results of several studies indicate that low-status occupations tend to attract less talented individuals and therefore decrease the ability of this occupation to attract high-quality individuals (Wan, Wong, & Kong, 2014; Barber & Mourshed, 2007).

Access to Information and Credit

Young men and women prospective entrepreneurs, who want to venture into agriculture often face barriers, including limited access to information, technology, and financial services. Yalesi (2016) in its report revealed that young people in developing and transition countries generally have no interest in agriculture, largely because they feel that agriculture is outdated and unprofitable. Agriculture has always been more about sustenance; you produce enough to feed yourself. This is not considered a business. It is not seen as a business. Unfortunately, the report reiterated that young people who want to enter productive agricultural and non-agricultural activities are usually turned away by banks and other credit services because they view farming as an unviable business, and that land is not a sufficient source of guarantee. It reinforces the perception that agriculture is not an attractive enterprise (Rayfield, Murphrey, Skaggs, & Shafer, 2013).

Also, due to inadequate information on the existence and use of modern technology among the people, they still hold the belief that much of agriculture is inherently physically demanding or laborious. Poorly constructed equipment, exposure to extreme weather, and poor general health

due to work and life in rural and distant regions all enhance the likelihood of accidents. Meanwhile, there are the existence and practice of greenhouse farming or village which is a great innovation in tackling challenges such as extreme weather conditions, and pest invasion on farms (Ministry of Food and Agriculture, 2018).

Decision making in selecting programme in higher Education

One of life's most significant decisions is choosing which higher education program to enroll in at some point (Leach & Zepke 2005; Taylor & Harris-Evans 2018). According to Namale et al., (2012), every student on the verge of adulthood needs to have a satisfactory response to the question, "What am I supposed to accomplish with my life?" How good are my chances? The success and future happiness of the student depends on a satisfactory answer to these questions. Additionally, recent studies have shown that choosing a higher education program can be considered as an interest-based decision (Holmegaard, 2015). Interest can inform future choices for students as they consider who they want to become according to their interests. Students can start making choices in elementary school and throughout their academic and professional lives (Sharp & Coatsworth, 2012).

However, the choice of career or a major at some point in time becomes subject to certain realities and influences such as peer pressure, parental preferences, societal prestige and status, job security, or economic freedom. In most rural communities in developing countries, parents or guardians turn to sponsor children through education so that they may help alleviate poverty or take care of the other kids in the family once such children become successful.

Therefore, regardless of whether the student is qualified or has an inclination for the career, parents frequently choose a vocation for their child based on the noble or profitable nature of the profession. It is noteworthy that while selecting a career, students should take the task of finding their true inclinations and aptitudes to select the appropriate career. In certain universities, information is made available to aid students in selecting a specialization (Begs, Bentham & Tyler, 2008).

Youth and Graduate Unemployment in Ghana

Compared to the adult population, young people are more likely to bear the brunt of every country's unemployment problem. For instance, according to a report by the International Labour Organization (ILO) on the trend of youth employment worldwide in 2010, the unemployment rate for young people was 12.6%, compared to 4.8% for adults. This is not promising for the long-term and coordinated growth of the economies of the various countries. Though Ghana's economy has expanded significantly over the past ten years (ISSER, 2013, ISSER, 2010, 2012 Budget Statement, and NDPC, 2010), unemployment has persisted as one of the country's biggest development challenges (Otoo et al, 2009; Asante, 2011; Business Guide, 2011; Owusu-Ansah et al, 2012 and Mensah, 2012).

According to estimates, the unemployment rate among Ghanaian youth doubled during the course of 20 years, rising from 14.8% in 1992 to 16.4% in 2000 and over 29% in 2009. (ISSER, 2010). The National Youth Employment Programme (NYP), which is now the Ghana Youth Employment and Entrepreneurial Development Agency (GYEDA), the Youth in Agriculture Project, and the Skills Training and Job Placement Programme, among others,

were all implemented by the government despite the fact that youth unemployment appeared to be on the rise. The "state of the nation's economy report" from the Institute for Social Statistics and Economic Research (ISSER) in 2009 revealed that while approximately 250,000 young people enter the labor force each year, the formal sector can only hire 2% of them, leaving the other 98% to either struggle to survive in the unorganized sector or remain unemployed (ISSER, 2010). The informal sector is the only one that can provide job searchers with any opportunities because the formal sector has shown itself unable to handle the throngs of young people flooding the employment market each year. Since Ghana's largest informal sector is comprised of businesses tied to agriculture and agribusiness, the government's employment policies have highlighted the sector as essential to efforts to generate employment and create jobs. As a result, the National Young Policy seeks to encourage youth involvement in agriculture by pursuing the following goals: (1) Encouragement of young people's involvement in contemporary agriculture as a viable professional option, as well as an economic and commercial one. (2) Providing resources to encourage young people to work in modern agriculture (MYS, 2010). Regardless of educational level, Ghana's young unemployment crisis has affected all youth groups, endangering national security, sustainable development, and efficient use of the nation's human resource base. Ransford (2012) bemoaned the fact that the Unemployed Graduates Association of Ghana, which was founded in 2011 to protest the increasing incidence of youth unemployment in Ghana, was established for the first time in the country's history.

The introduction of entrepreneurship education in some tertiary institutions like the Universities and Polytechnics as a way to raise awareness and encourage graduates to pursue their passions for entrepreneurship is just one of the many policies and programs aimed at entrepreneurship training and orientation of tertiary graduates. These programs include the Internship for Skills and Entrepreneurial Training and Youth-in-Agribusiness modules of the Ghana Youth Employment and Entrepreneurial Development Agency (Ransford, 2012). Owusu-Ansah (2012) has been put into practice. Graduate unemployment appeared to be increasing despite these admirable policies and programs designed to encourage tertiary graduates to consider starting their own businesses as a feasible employment alternative. For example, graduate unemployment rates climbed from 14.7% in 1987 (Boateng et al., 2002) to above 40% in 2011 as seen by Business Guide, (2011) and Mensah, (2012) despite a decrease in the national unemployment rate from 11% in the early 2000 to 5.8% in the late 2000.

Factors influencing the selection of Agriculture as programme choice

Factors influencing the selection of a college major programmes are influence by factors such as attitude, subjective norms, and planned behaviour, (Fishbein & Ajzen, 1975). Chapman's (1981) model indicates that decision-making in choosing a subject as a principal subject depend on the student characteristics, combined with other external factors. Student characteristics relate to their ambition and performance at Senior High School. The external effects comprise of college factors, significant or influential persons, and the extent to which information is communicated to students.

The major components of the Hodges and Karpova (2010**)** model that define the choice of a subject as a major include personal characteristics, interpersonal and environmental factors. Interpersonal characteristics concern perceptions of people in certain colleges. These can affect the student's decision to choose a course as their major area of study. Individual characteristics comprise demographic components such as socio-economic status, gender, and psychographic characteristics, including values, aptitude, or interests. Environmental factors are attributes associated with the institution. They include prestige, cost, wages, job prospects and industrial dynamism. According to Base on Meece (1982), the major and professional options are developed within a long period. These choices analyse the behaviours and cognitions that often play a important part in the decision-making process (Crano & Prislin, 2008). The theory of reasoned action allows us to understand patterns of human behaviour (Weihrauch, 2013).

There are various types of decision theories. Normative decision theory, such as the theory of reasoned action, explains how decisions are made to include what people believe is important**.** Lastly, the empirical theory of decision-making emphases on how decisions are made and reviews the dangers associated with the decisions and the gains and losses resulting from the planned and actual decisions (Blackburn, 2016).

Factors that Influence Students' Choice of Tertiary Institutions

Location of the School

According to a 2014 study by Kohn, Manski, and Mundel, a student's decision to continue their education was significantly influenced by a low-cost, local university. According to Development et al., (2020), students'

decisions on which higher institution to attend will be influenced by both the location of the institution and its surroundings. Similar to this, a research by de Jager and du Plooy (2006) claims that a school's location matters to South African kids. Further, a study by Kusumawati (2013) found that students place a high value on the distance between their home and college since doing so allows them to maintain closer ties with their families by increasing the frequency of their visits and phone calls.

Environmental Factors

According to Kuh, Kinzie, Schuh, and Whitt (2011), choosing a tertiary institution heavily depends on the university's environment. Students spend a lot of time in their surroundings, according to Oldfield and Baron (2014), thus they would prefer one that is welcoming and supportive of learning. The decor, layout, furniture, lecturing and learning materials, lighting system, and cleanliness of the lecture halls are all factors that affect whether or not a classroom is conducive to learning for students (Peng et al., 2022).

School Factors

The following factors, according to Abubakar (2017), had an impact on learners' choices to enrol in the Faculty of Natural Resources and Environment: residency status, educational environment quality, work-related concerns, spouse considerations, financial aid, academic reputation of the offered programs, comparison of academic programs, accessibility to effective tutoring services, accessibility to academic advisory/counselling services, and subject-matter knowledge.

Reputation of Institution

The reputation of the institution has a greater impact on the choice of tertiary education. Academic standing and the institution's reputation are related (Koren & Gutierrez, 2018). Fernandez (2010) asserts that students should select a higher institution based on the brand's credibility and reputation as well as the programs offered. The university's reputation adds legitimacy to the degree obtained, making it easier for the graduate to get employment. Reputation and international rankings of the university are important factors in attracting students (Kaplan, Pucciarelli, & 2016).

Teaching and Learning Materials

The learning resources offered on campus had an impact on students' decisions to attend a certain college, according to a 2017 survey by Pimpa. This demonstrates the value of the library to students in terms of enhancing their learning as well as the availability of printers, computers, and internet access. This research supports the findings of de Jager and du Plooy's (2017) study, which revealed that learning materials are crucial for South African students since most of them lack a suitable study space at home and may resort to using the resources provided by libraries. According to Development et al. (2020), the relevance of factors that influence students' tertiary decision include the provision of individual hygiene, electronic equipment, high-tech learning, libraries, and computer facilities.

Personal Factors

According to the theory put forth by Aurum, Svahnberg, and Wohlin (2012), students should choose their own tertiary education. (Hsieh & Huang, 2014) discovered that students make their own decisions while choosing their

university of study. Additionally, they discovered that students choose their college based on their potential and level of awareness. parental influences Parental influences play a proactive and motivational role, claims Fernandez (2010). On a motivational level, parents motivate their children to achieve high academic goals, and they actively engage in educational matters. Johnston (2010) cited parents as the most significant individual sources of knowledge for decision-making regarding higher education.

Financial Factors

According to a study by Fagence & Hansom - Youthsight (2018), students' financial worries had no significant impact on their choice of school. Similarly, families of students consider the cost of living and tuition (Bodycott & Lai 2012). He opined that students' choices of colleges may be negatively impacted by the cost of attending the college.

Media Influences

According to a study by Fagence & Hansom - Youthsight (2018), choosing a school was not primarily influenced by financial considerations for pupils. In a similar vein, Bodycott and Lai (2012) discovered that families of students give tuition and living expenditures consideration. He suggested that the college's tuition charges might have an adverse effect on students' decisions about which institution to attend.

Influence of Family members

The goals of the parents are a factor in students' program selection. Ibrahim, (2017) conducted a survey and found out that that because families frequently assist their members financially, they had the greatest influence on students' decisions to pursue careers in medical laboratory science. Similar to

this, a study discovered a considerable parental influence over their child's decision regarding a higher education program. It makes sense that parents have such a strong influence over their children's decisions given the reverence for elders that is deeply engrained in Filipino society (Dagang & Mesa's 2017). According to Sheng et al. (2020), fathers and mothers do have an impact on students who decide to specialize in accounting in business. The majors that students select may also be influenced by the parent's profession. Furthermore, Kaneez and Medha (2018) argued that parental influence has a significant impact on the programs that children choose to watch.

Personal Interests

The choice of program by students is also influenced by their personal interests. According to Nwobi, et al., (2020), the primary factor influencing someone's decision to enroll in a certain program is that person's inherent interest in it. Furthermore, Dynan and Rouse (2016) stated that students' primary selections are influenced by their interest in the program.

Career Opportunity

According to Hewitt (2010), the majority of pupils are impacted by the professions that their parents want in order to avoid disagreements at home. The curriculum students decide to pursue had an effect on the job alternatives available (Geiger and Ogilby's (2000). The potential of employment is students' main concern while choosing a university course (Pascual 2014).

The findings of Rababah (2016), who discovered that opportunities and career opportunities had an impact on students' decisions about their university majors, are in line with those of Pascual's (2012) study.

School Influence

Baloch and Shah (2014) asserted that high school play a vital role in assisting students in making program decisions since they act as a link between higher education institutions and the real world. Dodge and Welderufael (2014) pointed out that if students are overwhelmed with curriculum opportunities to choose from, school career guidance can be helpful in guiding them toward the study program of their choice and in determining their potential talents to boost their competitiveness for possibilities. Similar to this, Lapan, et al., (2013) pointed out that educational leaders should help students choose a course of study as the transition from high school to college has been identified as one of their biggest issues. According to Ferreira and Lima (2010), making a decision is a complex process that is frequently difficult and confusing for many students. In general, career guidance interventions in American schools focus on assisting students in acquiring skills, knowledge, and attitudes that will help them make better program choices and transitions, so addressing the issue of program decisions rather than instructing them what to do (Marwan & Ali, 2019). Kimiti and Mwova (2012) intimated that inadequate career guidance may cause students to make poor choices and enroll in classes they have little to no knowledge about as a result (Kimiti & Mwova, 2012). Similar to this, students select their programs before enrolling in institutions. Shumba and Naong (2012).

Peer Influence

How pupils view themselves is greatly influenced by their relationships with their peers (Mtemeri, 2020). He stated that encounters between students

and classmates with diverse backgrounds, races, and interests have the ability to inspire thought, knowledge, and views that could result in new ways of viewing the world.

Conceptual Framework on Factors Influencing the Choice of Agriculture

The choice of agriculture as the response variable is related to some independent variables, including interpersonal factors such as parents, peers, Senior High School Teachers, College Instructors. Other independent variables include personal factors such as gender, age, socioeconomic status, aptitude, interest, and work values. Also, some environmental factors such as the quality of instructions, the status of school or program, job prospects, industry dynamics, and media are all part of the explanatory variables which influence the response variable, choice of agriculture. Moreover, there are a few foreign variables, which can affect academic performance, and this can influence students' decision to choose agriculture as a major. These include college management, facilities, and the quality of instructions among others.

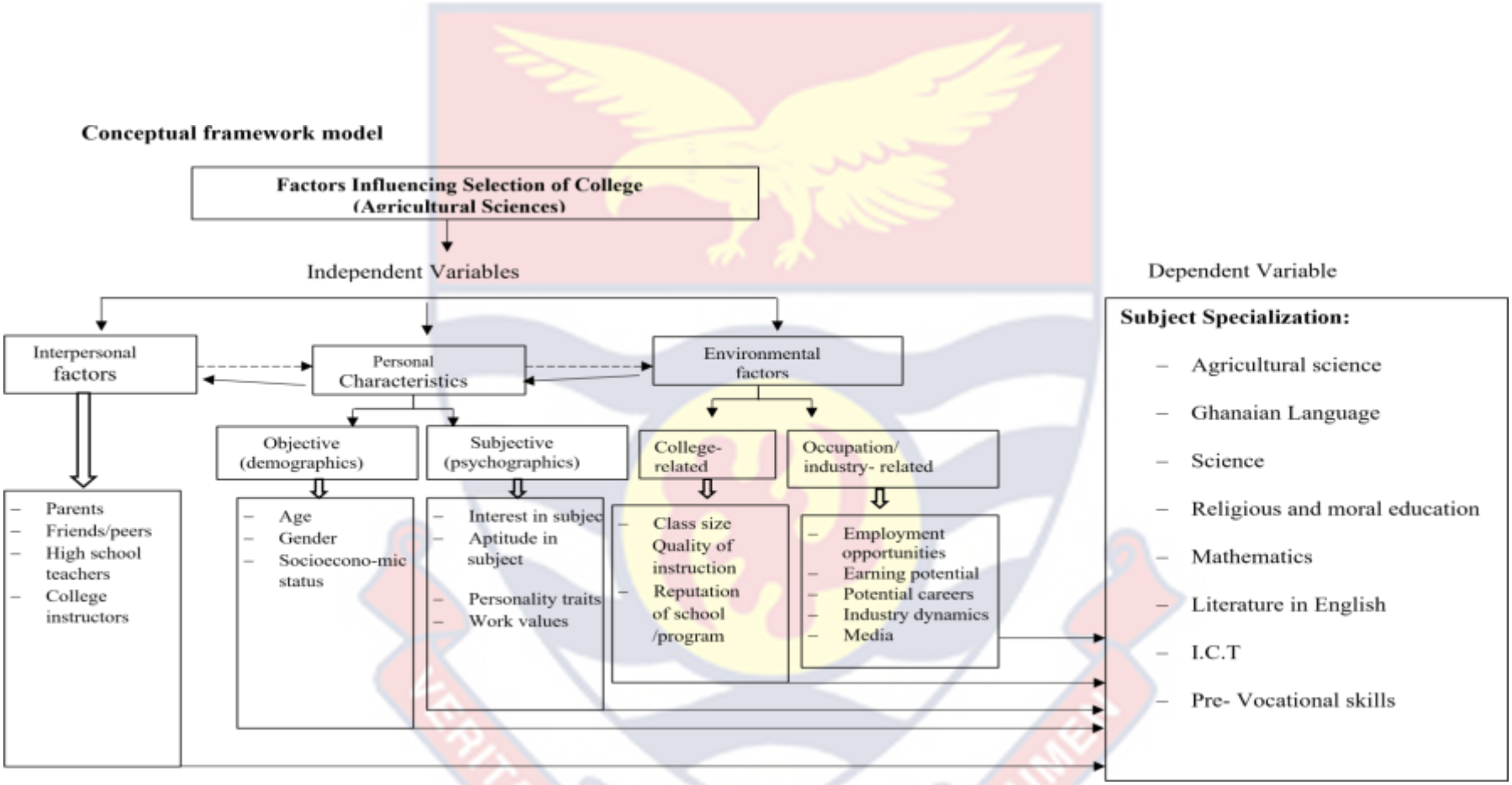

Figure 2: Conceptual Framework Model

Source: Karpova (2010)

Figure 2 shows the linkage between different factors and the choice of a major (agriculture). It shows that the choice of agriculture as a response variable is related to the explanatory variables, which include interpersonal factors such as, parents, peers, Senior High School Teachers, College Instructors. Other independent variables include personal factors such as age, gender, socioeconomic status, interest, and aptitude, and work values. Also, some environmental factors such as the quality of instructions, the status of school or program, job prospects, industry dynamics, and media are all part of the explanatory variables which impact the response variable, choice of agriculture. However, any extraneous variables, which include college management, facilities, and the quality of instructions among others, may affect academic performance and this could impact learners' choice to choose agriculture as a major.

Influence of demographic and psychographic characteristics on students' choice of course major.

According to Malgwi, (2010), choice of a specific major is associated with personality traits, values, and interpersonal characteristics are reconciled by gender differences. Though factors vary depending on the precise major choice generally, learners look to be strongly influenced by their interest in the subject and aptitude for the subject. Another study carried out by Braz, (2015) indicated that the demographic and socioeconomic profile of the respondents, including factors like gender, parents' level of education, family income, and mental capacity, was found to be important in influencing students' choice of major. The behaviour and attitudes of the students

significantly influence their choice of a major. Factors influencing the choice of selecting Agricultural science, in literature, included the following:

External Influences of other People

There are many external influences on major choices, like agricultural science. They are those that originate outside the student's place of control (Joelson, 2017). The external influences most often discussed involve influential persons and educational experiences. These people are also referred to as significant persons. A wide range of individuals has the potential to effect academic choices made by college students. According to Ezekiel et al., (2019), families, teachers, and parents can all play a significant role in selecting agricultural science by students. Among these people, guardian effect was shown to be significant to students in selecting a major (Workman, 2015). The influence of some important individuals on students' choice of major course area in institutions has been so high. These people influence students decision, including: making comments about the college, which turn to shape the student's ideas, they may offer suggestions about where the student should where the students should attend college and close friends of the students may encourage them to attend the same college with them (Chapman, 1981).

Several studies indicate that it is the parents or guardians who have the greatest influence, no matter the major or the college. Foreman, Retallik & Smalley, (2018) and Rayfield et al. (2013) revealed that parents are the greatest effective persons in a learner's decision to attend an institution and specialize in an agricultural field. Several studies indicate that it is the parents or guardians who have the most influence, no matter the major or the college.

Griffith (2014) explained that it is role models that are most influential on learners' choice of agriculture as a major, followed by parents. He said role models play a very significant role in major choices for female students, and thus should be formulated as a major policy instrument. But economic studies are yet to find strong evidence to back up this conviction.

In another study, Esters (2005) found that the mother was regarded as the greatest influential but was mistakenly assessed as a weak influence while the male relative was third in the very weak influence ranking. Peers are another crucial influence in the decision-making process of college selection.

Personal Interest in the Agriculture as a Major

Learners who specialize in agriculture, typically have an interest in science and enjoy taking science courses in secondary school. Pritchard et al. (2018) conducted a comprehensive study on personality and major selection with a variety of majors outside of agricultural science. They concluded that choosing a major by a student and his contentment with that major is partly due to the student's intrinsic motivation and not so much of the academic aspects of the major itself. Matusovich, Streveler, and Miller (2010) contend that a student's personal interest in a major acknowledges their aptitude for a particular field. According to Downey et al., (2011), self-interest is defined as having a curiosity for and a want to learn more about the subject matter of one's major.

Students search for environments that correspond to their welfares and feelings of belonging in the selection of a major Walsh (2001). Some studies show that interests, capacities, and personalities grow around the same period

of exposure to a major (Kuechler, McLeod & Simkin, 2009; Lee & Lee, 2006). This is because certain learners who specialize in a topic may be more sensitive to personal interests. Walstrom et al., (2008) undertook a survey to gather information on the influences that affect the way science students choose their major. The researchers found that interest was the biggest factor, followed by advanced wages, job security and job opportunities.

Job-related and Salary beliefs

Several studies have shown that the choice of agriculture by students is affected by the employment opportunities available on the ground (Lee & Lee, 2006; Malgwi et al., 2005). If students find that they have plenty of job opportunities available in the field after graduation, they are more likely to choose agriculture or related fields. Employment beliefs also include perspectives on compensation and security of employment. Montmarquette, Cannings and Mahserejian (2002) conducted a study examining the impact of compensation factors on employee selection. Monetary factors were found to be more significant for men than for women.

Success in a high-paying field was more important for men who specialized in business and engineering than it was for women (Malgwi et al., 2005; Matsuovich et al., 2010; Montmarquette et al., 2002).

Granitz et al. (2014) conducted a survey on why high school students chose cases as important. The potential monetary rewards associated with a career have proven to be an important determining factor in why students choose a particular subject.

Image-related beliefs

According to some earlier studies, learners' visual perceptions can influence their decision to study a particular field. Other research has noted that students have some perceptions and images associated with the major. For example, students saw the accounting major as a tedious topic related to numbers Cohen and Hanno (1993). Similarly, IT students are perceived as "nerds" (Zhang, 2007). Noland and Case, Francisco, (2003) found that the prestige of the profession influence selecting majors such as accounting and information systems.

Experiential beliefs

Experiential beliefs are the anticipation of the psychological benefit that will come from engaging in behaviour Zhang (2007). Students frequently choose their majors because they think they will gain from them and because they have an interest in the area. Research has repeatedly revealed that genuine interest in a field is one of the most important selection factors for important fields (Zhang, 2007).

Moreover, in the context of EMR (Theory of Reasoned Action), subjective norms are influenced by key benchmark opinions, such as family, friends, classmates, teachers, and counsellors (Zhang, 2007). There are two main categories of considerations that students might make while selecting a major: internal considerations and extrinsic considerations (Jackling & Calero, 2006). With intrinsic motivation, "people's self-esteem depends on their capacity to do well, which makes them think they should do well.". Intrinsic factors are identified as being of interest, intellectual competence in one area,

and personal worth and usefulness (Savolainen, 2018; Soria and Stebleton, 2013).

Interest can be described as a desire to learn more about a subject and may be perceived as an appreciation of a subject (Soria and Stebleton, 2013). The intrinsic interest is that students like to learn subjects, because they feel they could possibly look for a career in these fields of study in most of their adult years. Competence in one area recognizes that students can succeed at an academic level (Soria & Stebleton, 2013). With competence, students get good grades or have a sense of mastering a major. Value and utility are associated with the labour market and salary (Savolainen, 2018). Extrinsic factors are external influences that may affect a student's major selection decision and include influential people and exposure to specialized courses (Soria & Stebleton, 2013). Leon and Uddin (2016) looked at factors that affect major choices. These external factors include people who influence students, exposure to subject-related courses in secondary school, impressions of college courses, including introductory courses, and other sources of information. According to Amao and Gbadamosi, (2015), research a student's decision to choose agricultural science courses is influenced by their gender and socioeconomic background. These fundamental variables include the parents' professions, the neighborhoods, cities, or towns where they reside, as well as the teaching methods and equipment utilized in agricultural education. Peers, parents, and guardians have all reportedly had a big impact on students' decision-making when it comes to course majors. The study also found that agricultural outlet as a vocation and the terminal nature of agricultural

colleges are significant considerations. It is important to note that interns still receive agricultural certificates from the agricultural colleges.

Agricultural science as a study or career is always held in low esteem by students and relatives. The subject, both in the colonial era and today, is view as preparing for farm work as well as keeping children economically behind. This perception continues to negatively impact the economic growth. This, therefore, makes it imperative to investigate the status of agricultural education in the Colleges of Education in Northern Ghana. An in depth understanding of the student's perception and attitude towards the subject could help improve the delivery of the agriculture program.

CHAPTER THREE

MATERIALS AND METHODS

This chapter provides detailed procedures that were utilized in the collection and analysis of data. The procedures used included, the research design, study area, target population, sampling techniques and sample size, the research instruments, pre-testing of instruments, data collection procedures, and data analysis.

Research Design

The study employed a descriptive survey design with correlational approach. A descriptive survey is a data collection procedure to provide answers to questions about the current state of the topic (Cohen, Manion, & Morrison, 2017). This type of research design describes the issues, as they exist**.** According to Orodho (2009), a survey design uses an interview or questionnaire to gather data.

This is the most used strategy to take data concerning educational perceptions, attitudes, opinions, habits, and other social issues. (Cohen, Manion, & Morrison, 2017). A survey design was appropriate for this research work because it permitted the researcher to ascertain accurate data from the respondents to establish the issues influencing the choice of agriculture in the Colleges of Education in the Northern Region of Ghana.

Study Area

The Northern Region is one of the sixteen regions of Ghana. It is located between latitudes 1040 N and 2 0 45 N, and longitudes 9 32 W and 10 0 20 W. It is located in the north of the country and was the largest of the

sixteen regions, covering an area of 70,384 square kilometres or 31 percent of Ghana's area until December 2018 when the Savannah Region and North East Region were created from it. The Northern Region is divided into 14 districts. The region's capital is Tamale. The dry season in the Region is lengthy, windy, and hot, followed by a brief, stormy wet season (MoFA, 2015).

The municipality has a total population of 2,310,939 people, with a 7.5 percent growth rate (GSS, 2017). Agriculture remains the major economic activity of the Northern Region. It continues to be the greatest single contributor to the local economy, employing over 70% of the working population. However, in term of education, Tamale is the principal centre of education in Northern Ghana. In terms of various level of education, the Northern Region have a list of primary schools, junior high schools, senior high school, universities and colleges of education. The various colleges of education includes Tamale College, Evangelical Presbyterian College, Bimbilla St. Vincent College, Yendi College and Bagabaga College.

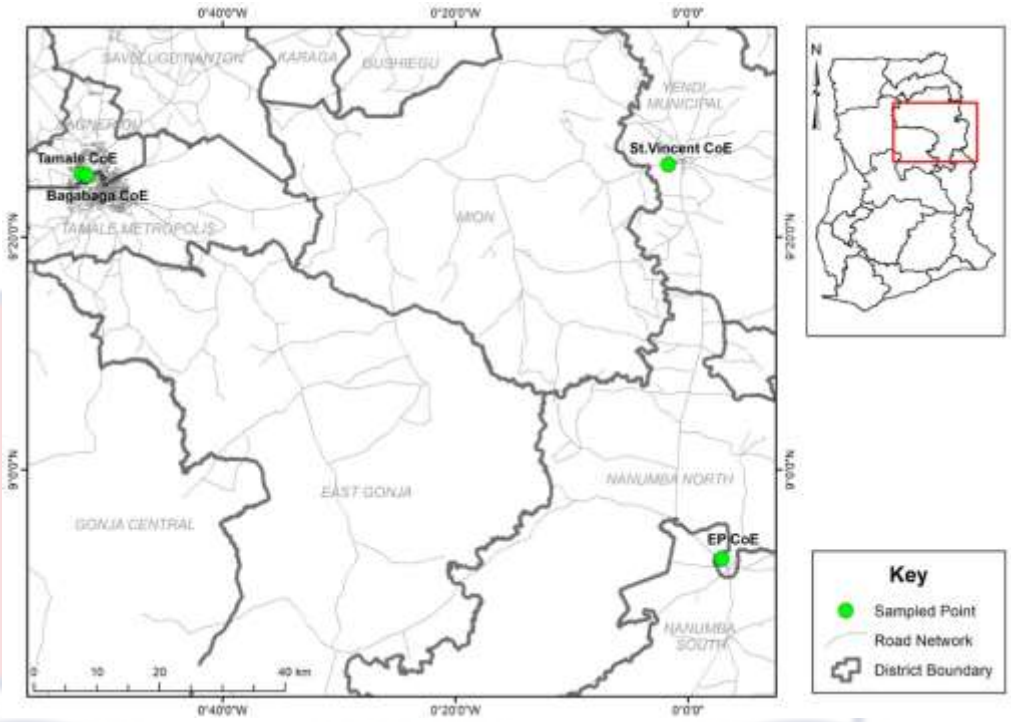

Figure 3: Northern of Ghana

Target Population

The population of the study included students, agricultural science tutors, and the principals of the four (4) Colleges of Education, namely: Tamale College of Education in Tamale, Evangelical Presbyterian College of Education at Bimbilla, St. Vincent, College of Education at Yendi, and Bagabaga College of Education at Tamale. The target population for the study was 1,502.

Sampling techniques and Sample Size

According to Cohen, Manion, and Morrison (2017), it is unrealistic to study all members of a target population in research, especially when the target population is enormously large, hence the need to draw a sample from this interesting population. If the sample is reflective of the population, the findings from the analysis could be used to represent the whole population (Cohen et al., 2017). On the other hand, Sekaran (2001) suggested that the

population is a large collection of individuals to be studied or investigated scientifically.

This study combined the population of all the four colleges of education in the Northern Region of Ghana. A multi-stage sampling technique was used in selecting the respondents. Firstly, the cluster sampling method was used to group the colleges. Cluster sampling was necessary to ensure good representation and distribution of characteristics in the population. It also meant to save time, money and reduce the difficulty of getting information among the whole population.

Finally, stratified sampling was used to group the various categories of the population within each college, namely: principals, tutors, and students. Simple random sampling was used to select students while a census of all principals and agricultural science tutors was taken. To ensure representation of males and females, simple proportion was used to determine male and female percentage in each stratum. The formula by Yamane (1964) (as shown in equation (1) below) was used to calculate the sample size from the total population of the four colleges of education.

$$n=\frac{N}{1+N(e)^2}$$

Where: **N** is the Population (1502), **1** is the constant, **e** is the margin of error (0.05) and **n** is the sample size.

As show in the table, the total population of all the four colleges is **1502(N)**

$$\therefore \quad n=\frac{1502}{1+1502(0.0025)} \quad 1502 \quad =316$$

$1+1502(0.05)^2$ $n=316 \times 10\% attrition=31.6$ $n=316+31.6$ $n=347.6$

Determination of sample size from the individual college population using the

formula: n= ^{N} × n1, n= sample size of individual college n1= sample of size of all four colleges

N=population of individual colleges

Table 1: Population of Four College of Education (level 200 only)

College	Male Population	Female Population	Total
Tamale College of Education	322 (62.2%)	196 (37.8%)	518
Bagabaga College of Education	253 (58%)	183 (41.9%)	436
Bimbilla College of Education	305 (71.5%)	121 (28.4%)	426
St. Vincent College of Education	62 (50.8%)	60 (49.2%)	122

Source: Field Survey,

Table 2: Individual College Population Sample Size

College	Population	Sample Size
Tamale College	518	120
Bagabaga College	436	101
Bimbilla College	426	98
St.Vincent College	122	28
Total	**1502**	**347**

Source: Field Survey,

$\frac{518}{1502}\frac{436}{1502}\frac{426}{1502}\frac{122}{1502}$

Research Instruments and structured questionnaire

Questionnaire was used as the key instrument for data collection for the study. Questionnaire was used because it could obtain large quantities of data and give deeper responses. The questionnaire was made up of closed and

open-ended items as well as Likert-type scale rating items in which respondents were asked to rate their responses in four-point scale, 1-4 where 4 – Strongly agree, 3 – Agree, 2 – Disagree, 1 –Strongly disagree.

. With regards to the structured questionnaire, it was grouped into seven sections (A to G). Section A looked at the socio-economic characteristics such as age, gender, location of school, educational background, background information of the respondents etc. Section (B) looked at factors influencing student's attitude on the choice of agricultural science as a major. Section (C) also focused on the influence of interpersonal factors on students' choice of agricultural science as a major. Also, section (D) considered the influence of college-related factors on students' choice of agricultural science whiles section (E) contained question in relation to the factors that influence career aspirations of the students' choice of agricultural science. Finally, section (F) looks at the influence of gender on the choice of agricultural science as a major and section (G) focused on the strategies to improve student's enrolment in agricultural science. The full details of the questionnaire are i appendix A-F.

Validity and Reliability of Research Instruments

By fixing flaws found in the instrument and recasting items to make sense to respondents, the content validity of the instrument was ensured. To make sure they clearly measure what they were designed to assess, the variables measuring different constructs were either added or eliminated. The supervisor and several senior lecturers in the University of Cape Coast's Department of Agricultural Economics and Extension made sure of the instruments' content validity. To guarantee compliance with social research

norms, questions were rephrased, and formatting recommendations were made.

The reliability of the instruments was determined by using the test-retest reliability approach. Fraenkel and Wallen (2006) explained that the test-retest reliability approach is used to determine the stability of scores over a period between two to three months. The test-retest reliability approach was done by retesting the instruments on a smaller number of respondents at different intervals within two to three months. The reliability for multi-item opinion questions was computed using SPSS version 26 computer software.

Pilot Testing

Copies of the instruments were given to the supervisors to review to see if the quantity and nature of the items measure the concepts or constructs of interest before the instruments were dispatched to the field for the pre-test data collection. The researcher made the necessary changes by rewording, adding, or removing any components that were needed based on the supervisors' suggestions. The researcher led the data collection exercise for the pre-test together with three (3) other trained assistants from February 6 through February 8 at the Jackson College of Education. The acquired data was carefully cleaned before being loaded into IBM Statistical Package for Social Sciences (SPSS) version 25.0 software for statistical analysis. According to Amin (2005), instruments were deemed valid if their validity confidence was at least 0.7. The estimations from the scales for Cronbach's Alpha ranged from 0.840 to 0.855 with an average of 0.850This makes it quite evident that the scales' things are trustworthy.

Table 3: Reliability Analysis of Subscale of the Research instruments and the calculated Cronbach's Alpha

Variables	Number of items	Cronbach's Alpha
Choice of Agricultural Science as a major		
Interpersonal factors	27	0.852*
College-related factors	12	0.840*
Carrier aspiration factors	13	0.855*
Strategies to improve enrolment	12	0.854*

Data Collection Procedures

After the instruments have been approved by the supervisor, the researcher together with 6 well-trained enumerators in the Region were hired to help the researcher in the data collection using the questionnaire. Thus, the research assistants were educated on the purpose of the study and the administration of the instrument. The respondents were assured of maximum security of the information they gave us since the study was mainly for the purpose of academics.

The data collection for the study took a maximum of four weeks which occurred between the months of March-April, 2021. The instrument(s) were sent to the respondents in their various college of education. The hired assistants helped the respondents fill their responses or fill it for them in a form of an interview if otherwise.

Data Analysis

The primary data gathered on the ground were organised and cleaned up. The responses were coded and analysed. Coding was performed to

summarize responses provided by respondents for analysis. The data was analysed using the Statistical Packet for the Social Sciences (SPSS) version 26. Data on demographic characteristics was analysed by means of descriptive statistics such as frequencies and percentages. The analysed data were then presented in the form of tables, pie charts and bar graphs, as appropriate. The logistic regression model was used to analyse the effects of demographic characteristics of students on the choice of agricultural science. The model is specified below;

$$Y_i = \beta_0 + \beta_1 x_i + \cdots \beta_n X_n e_i$$

$Y_i =$ dependent variable

$\beta_i =$ The coefficient

X_i = denotes the explanatory variables

ε_i =is the error term

The rest of the objectives will be analysed using percentages, standard deviation and mean.

Ethical Considerations

The researcher secured a letter from each of the four Colleges of Education and Institutional Review Board (IRB) that was used as a permit to inform the respondents of the authority to carry out the research. The following ethical consideration were considered during the study. The privacy and confidentiality of the participants were protected in that participant's information was handled with extreme professionalism so as not to leak to any third party. As part of the measure to secure privacy, researchers excluded the "name of respondent'' on the questionnaires.

Respondents were informed about the study to give them ample time to make informed decisions. Researchers emphasized that the research was voluntary and that the purpose of the research was for an academic purpose. Respondents were under no circumstance persuaded to give specific answers. References have been given to avoid plagiarism.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

Introduction

This chapter present the analysis and interpretation of the result of the study in relation to the specific objectives. The chapter comprehensively discuss factors that influence students' decisions to choose agricultural science as their major in the Colleges of Education in the Northern Region of Ghana. The study report was chronologically arranged to provide answers to the research questions to address the specific objectives.

Demographic Characteristics of Respondents

To identify the factors that influence the choice of Agricultural science as a major in the colleges of education in the Northern Region of Ghana, it is vital to highlight the background information of the respondents. The characteristics that were elucidated included, age at last birthday, gender, location of senior high school, category of senior high school, Parents' highest level of education, Parent's employment sector. The results of the characteristics of the respondents are presented in table 4 and 5

Objective 1 : Effects of demographic characteristics of students in the choice of agricultural science

Table 4: Demographic Characteristics of respondents (Age)

Age of respondents	Minimum	Maximum	Mean	S. D
316	17	35	24.17	0.160

Source: Field Survey, (2021).

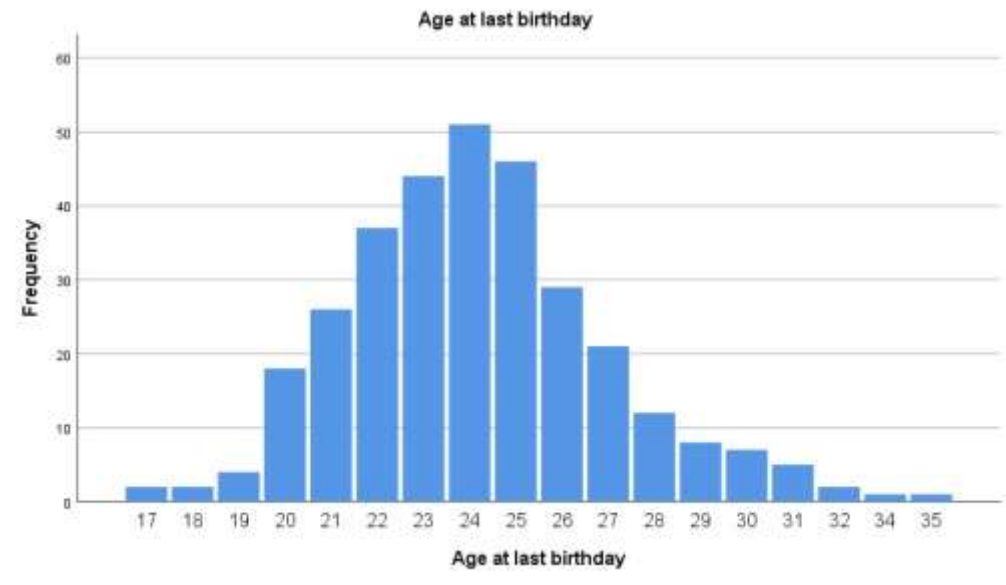

Figure 4: Showing the age range of respondents at last birthday

Table 4 shows the mean age and standard deviation of student studying agricultural science in the colleges of education in the Northern Region of Ghana (X= 24, SD =0.160). This result depicts that most student in the colleges of education in the Northern Region of Ghana are in their early adulthood. The result is similar to findings by the Institute of Statistical, Social and Economic Research, which found out that in spite of the implementation of employment initiatives and interventions by government, youth in agriculture programmes appears to be low in comparison with the entire population (ISSER, 2009). The state of the nation's economy report revealed that about 15,000 young people enter colleges of education annually, however, the formal sector is able to take on only 45% leaving 55% to strive to survive in the informal sector or remain unemployed (ISSER, 2010).

Table 5: Other Demographic Characteristics of Respondents

Variables	**Subscale**	**N**	**%**
Gender	Female	105	33.2
	Male	211	66.8
Location of Senior High School	Urban area	131	41.5
	Sub-Urban area	114	36.1
	Rural area	71	22.4
Category of your present college	Mixed	279	88.6
	Male	29	9.2
	Female	7	2.2
Elective Course (major)	Agricultural science	80	24.3
	Other subjects	236	71.7
Father's highest educational level	Basic education	80	25.3
	Senior High School	79	25.0
	Tertiary Education	50	15.8
	No Formal Education	107	33.9
Mother's highest educational level	Basic education	78	24.8
	Senior High School	53	16.8
	Tertiary Education	30	9.5
	No Formal Education	154	48.9
Father's current employment sector	Public sector	57	18
	Private sector	129	40.8
	Self-employment	130	41.1
	Unemployed	0	0
Mother's current employment Sector	Public sector	39	11.9
	Private sector	62	18.8
	Self-employment	124	37.7
	Unemployed	91	27.7
Do your parents practice agriculture?	Yes	235	71.4
	No	81	24.6

If yes, how?	Large scale farming	95	30.1
	Small scale farming	166	52.5
	Subsistence only	54	17.1
If no why?	We have no land	146	46.2
	We do not value Agric.	139	44.0
	I come from an urban area	31	9.8

Source: Field Survey, (2021).

Table 5 shows the descriptive statistics of the respondents' demographic characteristics: gender, category of school, location of the school, parent's highest level of education, and employment status. All these factors are predictors that may influence the choice of students in selecting agricultural science as their major.

From the table, 211 accounting for 66.8% male students were involved in the study as compared to 105 (33.2%) female students. This implies that many males enter the colleges of education as compared to their female counterpart in the Northern Region of Ghana. The result is comparable to the findings by Lu (2010) who found out that male dominate the colleges of education as compared to their female colleagues. Again, majority representing 77.6% of the respondents had their secondary education from urban and sub urban areas with the remainder (22.4%) from rural communities. This implies that majority of students in the colleges of education in the Northern Region of Ghana are from urban and sub urban areas as compared to those from rural communities. From the poll, 88.6% were from mixed Senior High Schools with the remainder (11.4%) from

single sex schools. This result implies that mixed Senior High Schools are more that single sex schools in the Northern Region of Ghana

The result further shows that 24.3% of the respondents offer agricultural science as their major subject. This result shows that many students in the college of education prefer other subject to agricultural science, and this is a threat to the economy since agriculture is the backbone of the nation's economy (MFEP, 2014). Despite the high demand for experts in agricultural science to step up food and animal production in Ghana, few students are enrolled to learn agriculture in most tertiary educational institutions. The dominance of students choosing other disciplines could be attributed to numerous programs that are being introduced in the colleges of education. Also, a greater proportion of parents of students in the colleges of education in the Northern Region did not have formal education. This means that most parent are uneducated hence little knowledge on agriculture education on the part of parent. As a result, the influence of parent can be geared toward other area of study agriculture exclusive. This goes to confirm by the results of the study Agbaglo (2021) which indicated that, 52.5% of parents were small-scale farmers.

In addition, it is clear from the table that 91% of the mother were unemployed. This is quite typical of uneducated women in the Northern Region of Ghana who served as housewives. However, it was obvious that the men are engaged in at least one form of work in either the private sector, public sector, or self-employed. No man was recorded to be unemployed. Most of the women were self-employed which might have been in the area of petty trading in the rural areas.

Presentation of Main Results

This section presents the main analysis of the study in order of the research questions.

Objective 1: Effects of demographic characteristics of students in the choice of agricultural science

Table 6: Statistical test of individual predictors

Explanatory Variable	Co-Efficient B	Standard Error	P-Value	Wald Test
Parent employment	-0.423	0.177	0.017	5.745
Category of present college	-0.405	0.178	0.23	5.190

Source: Field Survey, (2021)

Table 6 presents the logistic regression model using with statistical significance of the individual regression coefficients tested using Wald Chi square statistics. From the table above, parent current employment sector has a significant effect with on the choice of agricultural science as a major. The P-value was 0.017 which is far less than the alpha value of 0.05 hence parent have greater influence on student choice of programme in the colleges of education in the northern region of Ghana.

From table 6 above, the Beta (B) shows that increased in parental influence decreases the choice of programme selection of student in the colleges of education in the northern region of Ghana. Hence, negative B in table 6 implies that most student select other programme leaving agricultural science because of parental influence. According to the odd value of 0.314 as indicated in the table above shows that the Tabachnick and Fidell (2001), the Exp (B) value represents the odds ratios for each of the demographic

characteristics. higher the score of the demographic characteristics, the less likely it is that someone would choose agricultural science as their major.

Objective 1: Effects of demographic characteristics of students in the choice of agricultural science

Table 7: Overall model evaluation and goodness-of-fit statistics

Test	Categories	Chi square	df	p-value
Overall Model Evaluation	Omnibus Tests	11.481	1	0.001
	Wald Test			
The goodness of Fit Test	Hosmer and Lemeshow Test	8.869	2	0.012

Source: Field Survey, (2021)

The omnibus tests recorded a significance (p-value) of 0.001 which accepts the hypothesis that demographic characteristics affect the choice of agricultural science as a major in the colleges of education in the Northern Region of Ghana. Thus, factors such as age, gender, location of senior high school, parent's employment status, and parent's educational level influenced students' choice in selecting agricultural science as a discipline. Also, the Hosmer and Lemeshow Test displayed a significant p-value of 0.012 which shows a good fit for the model.

Table 8: Model Summary

Likehood	Cox & Snell R^2 Square	Nagelkerke R^2
348.468[a]	0.018	0.027
	0.033	0.048

Source: Field Survey, (2021)

A model summary of the logistic model is presented in the table 8 above. It could be observed that the model has a smaller pseudo R^2 of 0.027 for the Nagelkerke and 0.048 for Cox & Snell R^2. This means that the model fits 72.3% of the variation in the dependent variable.

Discussion on effects of demographic characteristics of students in the choice of agricultural science?

The objective of this research question was to identify the influence demographic characteristics have on the choice of agricultural science in the colleges of Education in Ghana. A look at table 5 shows that demographic characteristics such as, gender, parental financial and social status influence the students' choice of agricultural science as their major. The information in figure 4 shows that the respondents' age ranged from 17 to 35 years with a mean of 24 years; they cut across the entire schools in the Northern Region with the greatest proportion of 131 in the urban areas. Also, there were more female respondents 66.8% than male respondents; 33.2%. Then again, only 80 (24.3%) out of the total of 316 respondents answered that they offer agricultural science as their major.

This is affirmed by Hofierkova, Bavorova, & Ponkina, (2019) who stated that student enrolment into the faculty of agricultural sciences is one of the least because many have rated agricultural science poor profession. About 235 students depicting 71.8% of the respondents reported that their parents practise agriculture at home whiles only about 81 representing 24.6% were not engaged in agriculture-related activities. It may be due to parents who are actively engaged in full-time public-sector jobs. Bassey, Ime, & Shirley (2012) postulated that parents who are engaged in professional jobs such as

doctors, nurses, lawyers, politicians, and members of the armed forces want their children to pick up their careers but the story is different in agricultural-related parents.

Most farmers in Ghana wish their children attended first-class schools and offered courses to become professionals in other fields of work (Accounting, Engineering, Marketing, Law, Lecturing). Garwe, (2015) confirmed in his study that students that are enrolled in the agricultural science-related programs are one of the least as compared to other programs such as nursing, accounting, biosciences, forensics, and health-related courses. It can also be inferred from table 5 that most of the students also attend senior high schools in the urban areas (41.5%) whiles about 22.5 % attended schools in the rural areas. Students who attend schools in the urban centres easily get enrolled into professional tertiary programs as compared to those who attend senior high schools in rural areas (Garwe, 2015).

Objective 2: Influence of student attitude in their choice of agricultural science as a major.

Table 9: Influence of students' Attitude

Explanatory Variables	Mean	S.E	S. D
The agricultural science syllabus is too wide to complete	3.43	.081	1.445
People cannot survive without agriculture	4.12	.073	1.297
Agricultural related fields can easily give people work	3.64	.078	1.385
Agriculture science courses are easy to pass	2.71	.082	1.455
Agriculture means only working on the farm	2.16	.078	1.391

Agricultural science is for only farmers	2.22	.082	1.465
All types of agricultural-related careers are dirty	2.39	.084	1.492
There are fewer job careers in agriculture than in other sectors	2.85	.082	1.450
Agricultural jobs have low pay	3.01	.085	1.508
Agricultural education will benefit later in life	3.61	.078	1.393
Friends will laugh when I do agriculture	2.61	.084	1.501
Parents do not want me to work in an agriculture-related career	2.87	.087	1.550
Students should be made aware of the type of jobs in the agriculture field	3.81	.078	1.380
Parents discourage their children from choosing Agriculture	2.97	.084	1.490
Agriculture is only for the weak student	2.53	.086	1.531
Agriculture involves a lot of work	3.33	.081	1.434
Time allocated to agriculture science on the timetable is not enough	3.29	.078	1.384
Agricultural careers are limited	2.96	.085	1.513
Inadequate jobs for agriculture students	2.93	.082	1.453
Agriculture is very interesting	3.45	.076	1.343
I was just given agricultural science courses a try	3.26	.080	1.421
Agricultural science at my college has a good reputation	3.31	.079	1.398
I enjoy a hands-on learning	3.53	.074	1.322

Able to meet college admissions requirements by enrolling in agriculture science	3.63	.075	1.325
Agricultural science is for all students regardless of whether they have an agriculture background or not	3.56	.078	1.382
Agricultural science allows students to have an equal chance to participate in activities	3.64	.071	1.261
Agricultural science activities allow students to feel included regardless of their family's income level	3.67	.072	1.285
Average Mean/ Average Standard Deviation	3.17		1.417

Source: Field Survey, (2021).

An average mean of 3.17 and a standard deviation of 1.417 was obtained respectively which shows that a great proportion of the respondent agreed with most of the predictors. Thus, students' attitude influences their choice of selecting agricultural science or another subject as their major. A study conducted by Olatunji, Opurum and Ifeanyi-Obi, (2012) affirms that students' attitudes have a great influence on their choice of selecting agricultural science as their major in tertiary education. Again, the highest mean was recorded to be 4.12 whiles the lowest was 2.16. This reflects that the two main attitudes that influence students' attitudes towards selecting agricultural science as a major are 2.16. This shows that the key predictor of student attitude is the belief that people cannot survive without agriculture. Also, the lowest influencing factor depicts that agriculture means only working on the farm.

Table 10: Wald Test

Coefficient	Standard Error	P-Value	Wald Test	Exp (B)
B				
	-1.082	0.129	0.000	69.922	0.339

Result from table 10 above show that there is a significant difference in the influence of student attitudes toward the choice of agricultural science as their major in the colleges of education. Thus, p= 0.000 with 1 degree of freedom. The negative coefficient (-1.082) depicts that there is a probability that attitudes of students can influence their choice of agricultural science as their major. This assertion agrees with finding from a study conducted by Esters (2013), on the factors influencing career choices of urban agricultural education students. In addition, Ester reported that several factors such as the availability of career opportunities, high school educational experiences, and work experiences. All these factors also agree with the Social Learning Theory of Career Decision-making.

Discussion on how do students' attitude influence their choice of agricultural science as a major?

Table 9 shows that the choice of the student to study agricultural science or other subject was influenced by the predictors listed in the table. The results from the study also revealed that a great proportion (M=3.17, SD=1.083, overall mean) agreed with the predictors used to measure their attitudes toward choosing agricultural science. Moreover, the highest means showed the relevance of agriculture in that people cannot survive without it.

According to a study by Ngesa (2006) the few proportions of students who choose agricultural science as their major are those whose parents were actively or partially engaged in agriculture. For example, most students regard agriculture as an interesting course (M=3.45, S. D=1.34), and there is work available for graduates (M=3.64, S. D=1.38).

Rayfield, Murphey, Skaggs, & Shafer (2013) reported that studying agriculture does not only prepare and support individuals for careers but also leads to the achievement of educational goals. Moreover, a study by Scott & Laverge (2004) on the perception of Agriculture students regarding the image of agriculture and barriers to enrolling in agriculture education class proved that nearly one-third of students enrolled in agricultural science programs drops off.

Objective 3: Influence of interpersonal factors on students' choice of agricultural science as their major.

Table 11: Influence of interpersonal factors

Variables	Mean	S.E	S.D
I choose Agricultural science because my friends chose it	2.51	.083	1.472
Suggestions from my friends	2.29	.070	1.236
Suggestion from my high school teacher	2.27	.074	1.310
Suggestions from college administrator	1.96	.068	1.201
Agricultural science is more convenient for boys than girls	2.87	.080	1.425
I will be despised by my peers if I chose agricultural science	2.20	.066	1.171

Influence from my father	2.54	.071	1.260
Influence from my mother	2.28	.070	1.252
My father's career had an impact on my choice	2.53	.075	1.332
My mother's career had an impact on my choice	2.41	.073	1.303
My agricultural science tutor influenced my choice	3.05	.078	1.378
The college guidance and counseling coordinator influenced my choice	2.44	.071	1.270
Mean/Average Standard Deviation	**2.45**		**1.201**

Source: Field Survey, (2021).

As show on table 11, the average mean and standard deviation are (M=2.45, SD=1.201) respectively. This showed that most of the respondents moderately agreed with the statements that serve as predictors of interpersonal factors that influence students' choice of agricultural science as their major. The highest predictor was 3.05 depicts that agricultural science tutors influence students' choice in selecting their major subjects at the colleges of education. This may be due to the experiences of the tutors and their ability to serve as their mentors. Osborne and Dyer (2000) proved that people who exert the most influence on agriculture students' career plans included agricultural science teachers, parents, and guidance counsellors.

Discussion on the influence of interpersonal factors on students' choice of agricultural science as their major?

The role of this research question was to detect whether interpersonal factors influence students' choice of agricultural science as their major. From

table 11 it can be deduced from the mean of means (M=2.45, S. D=1.32) that most of the statements presented to the respondents were factors which has less influence on students' choice of agriculture as major. The highest mean (M=3.05, S. D=1.30) was the statement that some agricultural science tutors influence students' choices. This occurs mostly in the rural areas where teachers become the mentors for their students and become easy to influence their choice. A similar result was reported by Vivian, K. (2016) that some tutors influence students' decision to choose agricultural science.

Objective 4: Influence of college-related factors on students' choice of agricultural science as their major.

Table 12: Influence by college-related factors

Explanatory Variable	Mean	Std. Error	Std. D
Quality of instruction is high	3.25	0.066	1.167
The good reputation of the college	3.44	0.068	1.203
The location of the college is good	3.50	0.067	1.185
High students' academic performance	3.44	0.068	1.211
High course completion rate of students	3.44	0.061	1.078
The quality of the college teaching and learning facilities is high	3.49	0.061	1.076
Friendly and serene teaching and learning facilities	3.59	0.066	1.177
Moderate tuition and other fees	3.16	0.063	1.117
College well-staffed agricultural science department	3.45	0.066	1.168
College ability to offer comprehensive career guidance and counselling	3.09	0.066	1.181
College's career and field trips programs	3.16	0.062	1.109
The quality of teaching and learning in the college	3.16	0.059	1.053
The college policies on career decision making	2.68	0.074	1.324
Mean/ Average Standard Deviation	**3.30**		**1.158**

Source: Field survey, (2021).

The table 12, shows the overall mean and standard deviation of 3.30 and 1.158 respectively. Thus, the respondents generally agreed upon all the statements that predict the influence of college-related factors. The highest mean was 3.59 with a standard deviation of 1.17 reflecting that friendly and serene teaching and learning facilities mostly influence students' choice of agricultural science as their major. The least influencing factor was the college's policies on career decision-making. Dlamini (1999) studied the factors influencing first-year students' career choices in the Faculty of Agriculture at the University of Swaziland and found that most students were influenced by the presence of serene facilities for teaching and learning.

Discussion on influence of college-related factors on students' choice of agricultural science as a major

The results of the study showed that students prefer schools with quality teaching and learning facilities. Also, when the location of the school is good. Majority of the respondents agreed that college-related factors in one way or the other have an influence on their choice of agricultural science as their major with a mean of 3.30 and a standard deviation of 1.158. This finding is supported by several other authors such as (Amedzro & Yaoudeowei, 2005; Bajema, Miller, & Williams, 2002; Garwe, 2015).

Furthermore, as it is indicated on table 11 college policies on career decision making had the least mean (M=2.68, S. D=1.32). The enormous evidence including the one provided from this study suggest that college-related factors influence student career decision-making. This implies that the colleges of education must be well equipped with modern equipment, quality instructors, and quality teaching and learning facilities. This would go a long

way to improve the number of students enrolled to study agricultural science in the colleges of education.

Objective 5: Influence of students' career aspirations on their choice of agricultural science as a major?

Table 13: Influence by Career aspirations

Explanatory Variable	Mean	Std. Error	S. D
There are better employment opportunities in the public sector	3.35	.071	1.263
There are better employment opportunities in the private sector	3.55	.066	1.182
Graduates can engage in self-employment	3.59	.064	1.139
There are opportunities for career development	3.62	.066	1.166
Remuneration in the agricultural sector is good	3.12	.061	1.089
There are opportunities for internships	3.42	.067	1.194
There are opportunities for career fairs	3.22	.069	1.227
There are opportunities to develop leadership skills	3.70	.068	1.212
Agricultural graduates have practical skills	3.59	.069	1.230
Equal career opportunities for both gender	3.87	.067	1.183
Males have higher career ambitions than females	3.81	.064	1.13
Mean/ Average Standard Deviation	3.55		1.183

Source: Field survey, (2021).

Results in table 13 show that majority of the respondents agreed to all the statements used to predict the influence of career aspirations by students in selecting their study program. From the table, the mean of means and the standard deviation is recorded as 3.55 and 1.183 respectively. The highest mean was (M=3.87, SD=1.183) whiles the least was (M=3.12, SD=1.089). All the respondents agreed that there are equal career opportunities for both males and females when they pursue agricultural science-related programs. The

statement “remuneration in the agricultural sector is good” had the least mean of 3.12 and a standard deviation of 1.089. Wildman and Torres (2001), in their study, determined the degree to which a wide variety of factors affected students’ choice of agriculture as a major by administering a questionnaire and gathering the relevant data. In their study, the key influencing factor was the students’ career aspirations.

Discussion on how the extent of students’ career aspirations influence the choice of agricultural science as a major.

This research question was to determine whether students’ career aspirations influence their choice of agricultural science as a major. The outcome of the study showed that all the respondents agreed to the statements that were used as predictors to measure their influence. The overall average was (M=3.55. S.D =1.18) with the least mean being remuneration in the agricultural sector. This indicates that a great majority of the students’ agreed to most of the statements posed to them about the influence of career aspirations on the choice of agricultural science as their major.

The highest mean was recorded as 3.87 and a standard deviation of 1.18 which suggests that there are equal career opportunities for both males and females. Furthermore, a study by Ngesa, (2006); Ozturk, (2001) & Pike, (2014) also supports the fact that students’ career aspirations influence their choice of agricultural science as their major.

Objective 6: influence of gender on students' choice of agricultural science as a major.

Table 14: Influence by Gender

Variables	Mean	SE	SD
Equal career opportunities for both gender	3.87	.067	1.183
Males have higher career ambitions than females	3.81	.064	1.137
Career opportunities are gender sensitive	3.54	.065	1.147
Women's role is homemaker and male's role are the breadwinner	2.99	.067	1.198
Male role models in the field of agriculture have some influence on career choice	3.56	.069	1.221
Female role models in the field of agriculture have some influence on career choice	3.14	.059	1.051
Agricultural science is difficult for ladies	3.22	.066	1.168
Male students have higher career ambitions	3.80	.067	1.190
Agriculture subjects are perceived as masculine disciplines	3.69	.609	
Mean/ Average Standard Deviation	**3. 11**		**1.032**

From table 14, the mean is (M=3.11, SD=1.032). Also, the results from the analysis proved that equal career opportunities exist for both males and females. Thus, the highest mean was recorded as 3.87 with a standard deviation of 1.183. Also, the statement that "women's role is homemaker and male's role is breadwinner" recorded the least mean of 2.99 with a standard deviation of 1.198. This showed that most of the respondents moderately agreed with the statement. Results from a study by Rayfield et al., (2013) affirmed that there are equal career opportunities for both males and females studying agricultural related disciplines.

Discussion on the factors that influence female students' choice of agricultural science as a major which are different from that the male students.

This research question was also posed to analyse whether factors that influence female students' choice of agricultural science as a major are different from that of the male students. The study proved that there is an equal career opportunity for both genders with an average of 3.87 and a standard deviation of 1.183. This shows that most of the respondents agreed with the statements used to predict the influence of gender on career choice. The least mean was 2.99 and a standard deviation of 1.198, which depicts that "the statement women's role is a homemaker and the male's role is breadwinner" is moderately agreed by the respondent. Another study by Kruijssen, (2009) investigated that nearly 70% of a participant in their study were female and actively involved in agricultural science programs. This study suggests that women play a key role in solving the challenges facing the agricultural industry.

Objective 7: Strategies that could be used to help increase students' enrolment in agricultural science in the colleges of education.

Table 15: Descriptive statistics of strategies used to increase enrolment

Explanatory Variable	Mean	Std. Error	Std. D
More time allocation for the teaching of agriculture science	4.00	0.069	1.225
Provision of adequate agricultural resources	4.13	0.065	1.150
Invitation of agricultural resource persons to talk to students	4.03	0.068	1.207
Formation of agricultural clubs	3.96	0.069	1.223
Encouragements to participate in agricultural shows	4.03	0.069	1.219
Engagement of more practical work	4.06	0.066	1.165
Encouragement of field trips	4.00	0.068	1.206
Use of technology to identify appropriate college program	3.93	0.67	1.195
The use of technology	3.99	0.065	1.152
The use of digital images	3.87	0.68	1.210
Use of social media platforms	3.78	0.71	1.267
Mean/ Average Standard Deviation	**3.98**		**1.202**

Source: Field Survey, (2021).

From table 15, the mean of means and the standard deviation is (M=3.98, SD=1.202). Also, all the statements in the table used as predictors of that strategies to increase enrolment of students in the colleges of education in the Northern Region of Ghana were agreed by the respondents. However, the highest predictor was found to be the provision of adequate agricultural resources with an average of 4.13. Kruijssen, (2009) found that when tertiary institutions are well equipped with agricultural resources, it would stimulate the interest of the student in choosing it as their major.

Discussion on strategies that could be used to help increase students' enrolment in agricultural science in the colleges of education.

As show in the table, all the statements used as predictors to measure the strategies to increase students' enrolment in agricultural science in the colleges of education were agreed by the respondents. An average of 3.98 and a standard deviation of 1.202 was recorded. It evolved from the study that the main strategy to increase enrolment into agricultural science programs is to provide adequate agricultural resources. This is followed by the invitation of agricultural resources persons to talk to students. Other key strategies include encouragement to participate in agricultural shows, encouragement of field trips and the use of technology to identify appropriate college programs. Mutambara, Zvinavashe, & Mwakiwa, (2013) also studied the strategies that can be adopted to increase enrolment in agricultural science programs and obtain similar results. Therefore, the results from the study agree with other numerous works that have been done by other researchers

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATION

Overview

This chapter present the summary of the research, major findings on the factors influencing the choice of agricultural science by students in public colleges of education in the Northern Region of Ghana, conclusions, and recommendation.

Summary of the Research

The main objective of the study was to identify factors that influence students' decisions to choose agriculture as their major in teacher training colleges of education in the Northern Region of Ghana. To achieve this aim, the study sought to analyse the perception of students to know their level of agreement of some predictors. This included their demographic characteristics, the influence of their attitude, the influence of their interpersonal factors, the influence of their college related factors, the influence of their career aspirations and the influence of their gender on the choice of agricultural science as a major in the public college of education in the Northern Region of Ghana. Descriptive survey design was used for the research.

The study only targeted only level (200-400) students in the colleges of education in the Northern Region of Ghana. A total of 316 students were randomly sampled from the four public colleges of education in the Northern Region of Ghana. A 94-item questionnaire was the key instrument used in the collection of the data which included closed-ended and open-ended items. The

results were analysed with the used of descriptive statistic and logistic regression.

Summary of Key Findings

The most important results of the study are as follows:

1. The number of students enrolled in agricultural science in the public colleges of education in the Northern Region of Ghana is less as compared to those studying other programs. Out of 316 sampled students only 80 were studying agricultural science as their major.
2. The study also indicated that students' attitude influences their choice of agricultural science as their major in the public college of education.
3. The study also discovered that there are equal career opportunities in agriculture suitable for both men and women.
4. The study also found college-related factors that influence the selection of agricultural science students as their major and it implies friendly and serene teaching and learning environment of the college.
5. Agricultural science tutors in the public colleges of education in the Northern Region of Ghana influence the most concerning student's choice of agricultural science as their major.
6. Concerning the first hypothesis, there was a significant difference between demographic characteristics and students' choice of agricultural science as their major.
7. The study also found out that there were no statically significant differences between factors influencing female and male choices in choosing agriculture science as their major.

Conclusions

In conclusion, few students were enrolled to study agricultural science in the public colleges of education in the Northern Region of Ghana. The implication of this is that experts in agricultural related fields of studies would be limited to solve the numerous challenges confronting the agriculture industry. The availability of adequate resources for teaching and learning was key influencing factor that stimulates students' choice of agricultural science as their major. This shows that the public colleges of education must be well equipped with resources to attract students' attention. The inadequacy of friendly and serene teaching and learning environment of the colleges of education also influenced students' choice of agricultural science as their major. Therefore, students perceived agricultural science to be too bulky and difficult to study and hence low enrolment trends.

Recommendations

Considering the key findings from the study and the conclusions drawn from it, the following recommendations were developed for your consideration.

1. The public colleges of education in Ghana Northern Region should frequently organize educational fairs and invite agricultural science experts to speak to students on the need to pursue a career in agricultural science.
2. The Ministry of Education and The Ghana Education Service must regularly supply adequate resources to the public colleges of education in the Northern Region of Ghana.

3. Agricultural science tutors in public colleges of education have a key role to play in influencing students to choose agricultural science.
4. The various agricultural science departments in the public colleges of education must regularly organize educational trips. This would introduce students to career opportunities after pursuing a program in agricultural science.

Areas for Further Studies

The study evaluated the factors that affect students' selection of agricultural science as their major in the public colleges of education in the Northern Region of Ghana.

1. The study could be replicated in other public colleges of education across the country.
2. The study included only students in level 200. Further studies could be done using students from each level in the colleges of education.
3. This study involved only public colleges of education. Further studies could include all other tertiary educations in the country.

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APPENDICES

APPENDIX A

QUESTIONNAIRE FOR PRINCIPALS

This research aims at determining the factors that affect students' decision to select agricultural science as a major in public colleges of education in Ghana.

You are requested to give your response as honestly as possible.

Please tick (√) the appropriate box of your choice or provide appropriate written responses as needed.

This section of the questionnaire contains three different sets of questions

Students Enrolment in Agriculture Science from 2016/2017 to 2019/2020 academic years

1. Name of your college ……

2. Is agricultural science an optional subject at your college?

Yes ☐

No ☐

3. What is the enrolment pattern for agricultural science students from 2016 to 2020 at your school? Please fill in the information required to complete the following table:

#	Academic Year	Enrolment in Agriculture Science	The total enrolment of students
3a.	2016/2017		
3b.	2017/2018		
3c.	2018/2019		
3d.	2019/2020		

QUESTIONNAIRE FOR TUTORS

This research aims at determining the factors that affect students' decision to select agricultural science as a major in public colleges of education in Ghana. You are requested to give your response as honestly as possible.

Please tick (√) the appropriate box of your choice or provide appropriate written responses as needed.

This questionnaire has six sections

Section A: The Influence of Students' perceptions on the Selection of Agricultural Science as a Major

Indicate how the following statements influenced students' choice of agricultural science by rating 1-4. Where 4 – Strongly agree, 3 – Agree, 2 – Disagree, 1 –Strongly disagree. ***Please kindly rate by ticking in the appropriate box***

#	Statement on Students' perception Towards Agricultural Science	Response			
		4	3	2	1
1.	The agricultural science syllabus is too wide to complete				
2.	Agricultural science is important because people cannot survive without it				
3.	People who study agricultural science in school can easily get work in agricultural-related fields				
4.	Agricultural science courses are easy to pass.				
5.	Agriculture means only working on the farm				
6.	Agricultural science is for only those who want to become farmers				
7.	All types of agricultural-related careers are dirty				

8.	There are fewer job careers in the agricultural sector than in other sectors				
9.	Agricultural jobs have low pay				
10.	Agricultural education will benefit students later in life				
11.	Students' friends will laugh at them if they study agricultural science in school				
12.	Students' parents do not want their wards to work in agricultural-related career				
13.	Students should be made aware of the type of jobs in the agricultural field				
14.	Parents who are farmers discourage their children from choosing elective agriculture.				
15.	Agricultural science is a subject for weak students				
16.	Agriculture involves a lot of work				
17.	Time allocated to agricultural science on the timetable is not enough				
18.	Agricultural career opportunities are limited				
19.	People who study agricultural science study not get jobs				
20.	Agricultural science is interesting				
21.	Students want to give agricultural science courses a try				
22.	The agricultural science program at my college has a good reputation				
23.	Students enjoy hands-on learning.				

24.	students believe they can still meet college admissions requirements by enrolling in agricultural science				
25.	Agricultural science is for all students regardless of whether they have an agricultural background or not				
26.	Agricultural science allows students to have an equal chance to participate in activities.				
27.	Agricultural science activities allow students to feel included regardless of their family's income level				

APPENDIX B

The Influence of Interpersonal Factors on Students' Choice of Agricultural Science as a Major

What is the impact of the following statements on students' choice of agricultural science as a major? Rate your answers from 1-4 where 4 = most influential, 3 = influential, 2 = less influential, 1 = least influential. ***Please kindly rate by ticking in the appropriate box***

#	Statement on interpersonal factors	Response			
		4	3	2	1
28.	They choose agricultural science because their best friends chose it				
29.	Their friends suggested they take agricultural science				
30.	Their Senior High School teachers suggested they take agricultural science				
31.	The college administrators suggested they take agricultural science.				
32.	Agricultural science is convenient for boys than girls				
33.	Students will be despised by my peers if they choose agriculturally				
34.	Their fathers influenced them to choose agricultural science				
35.	Their mothers influenced them to choose agricultural science				
36.	Their father's career had an impact on their choice				
37.	Their mother's career had an impact on their choice				
38.	Their agricultural science tutor influenced their choice				
39.	The college guidance and counselling coordinator influenced their choice				

APPENDIX C

The influence of college-related factors on students' choice of agricultural science

What is the impact of the following factors on students' choice of agricultural science? Rate your answers from 1-4 where 4 = most influential, 3 = influential, = less influential, 1 = least influential. ***Please kindly rate by ticking in the appropriate box***

#	College Related Factors	Response			
		4	3	2	1
40	The higher quality of instructions of the college				
41	The good reputation of the college.				
42	The location of the college				
43	High students' academic performance				
44	High course completion rate of students.				
45	The higher quality of the college teaching and learning facilities				
46	Friendly and serene teaching and learning environment of the college				
47	Moderate tuition and other fees of the college				
48	The college's well-staffed agricultural department				
49	The college's ability to offer comprehensive career guidance and counselling.				
50	College's career and field trips programs				
51	The higher quality of teaching and learning in the college				
52	The college policies on career decision making				

APPENDIX D

The Influence of Career Aspirations on Students' Choice of Agricultural Science

How do you agree with the following statements on students' choice of agricultural science? Rate your answers from 1-4 where 4 – Strongly agree, 3 – Agree, 2 – Disagree, 1 –Strongly disagree. ***Please kindly rate by ticking in the appropriate box***

#	Statement on career aspirations	Response			
		4	3	2	1
53	There are better employment opportunities in the public sector for agricultural graduates.				
54	There are better employment opportunities in the private sector for agricultural graduates.				
55	. Agricultural graduates can engage in self-employment				
56	. There are better opportunities for career development				
57	. Remuneration in the agricultural sector is good				
58	. There are better opportunities for internships				
59	. There are better opportunities for career fairs				
60	. There are better opportunities to develop leadership skills				
61	Agricultural graduates have practical skills to help them fit into the world of work				

APPENDIX E

The Influence of Gender on the Choice of Agricultural Science as a Major

How do you agree with the following statements on students choice of agriculture? Rate your answers from 1-4 where 4 – Strongly agree, 3 – Agree, 2 – Disagree, 1 –Strongly disagree. ***Please kindly rate by ticking in the appropriate box***

#	Statement on the influence of gender	Response			
		4	**3**	**2**	**1**
62.	There are equal career opportunities in agriculture suitable for both men and women				
63.	Male students have higher career ambitions in agriculture than females				
64.	Career opportunities in agriculture are gendersensitive				
65.	Women's role is homemaker and male's role are the breadwinner				
66.	Male role models in the field of agriculture have some influence on career choice in agriculture				
67.	Female role models in the field of agriculture have some influence on career choice in agriculture.				
68.	Agricultural science is difficult for ladies				
69.	Male students have higher career ambitions in agricultural science than female students				
70.	Agricultural and science-related subjects are perceived as masculine disciplines				

APPENDIX F

Strategies to Improve Students Enrolment in Agricultural Science

What is the impact of the following statements on strategies to improve students' enrolment in agricultural science? Rate your answers from 1-4 where 4 – Strongly agree, 3 – Agree, 2 – Disagree, 1 –Strongly disagree. ***Please kindly rate by ticking in the appropriate box***

#	Statement on strategies to improve students' enrolment	Response			
		4	**3**	**2**	**1**
71.	More time should be allocated for the teaching of agricultural science lessons				
72.	Colleges should be provided with adequate agricultural resources				
73.	Colleges should invite agricultural resource persons to talk to the students				
74.	The formation of agricultural clubs should be encouraged in schools and colleges				
75.	Agricultural science students should be encouraged to participate in agricultural shows.				
76.	Colleges should organize agricultural seminars for all students				
77.	Agricultural science students should be made to do more practical work				
78.	Field trips and study tours should be encouraged				
79.	Technology helps identify appropriate colleges and programs for students				
80.	Using technology helped students to find the right information about college program choice				
81.	The use of digital images of a college campus can influence students' decisions when selecting a college or programs				
82.	The use of social media platforms is good for influencing students to choose agricultural science				

QUESTIONNAIRE FOR STUDENTS

This research aims at determining the factors that affect students' decision to select agricultural science as a major in public colleges of education in Ghana. You are requested to give your response as honestly as possible.

Please tick (√) the appropriate box of your choice or provide appropriate written responses as needed.

SECTION A: Demographic Characteristics (Background Information of respondent)

1. Age at last birthday---------- years

16-20 ☐ 21-24 ☐ 25 and above ☐

2. Gender

Male ☐ Female ☐

3. Location of Senior High School Attended

Urban area ☐ Sub-Urban area ☐ Rural area ☐

4. Category of your present college

Mixed ☐ Male ☐ Female ☐

5. Father's highest educational level

Basic education ☐ Senior High ☐ Tertiary ☐

No formal education ☐

6. Mother's highest educational level

Basic education ☐ Senior High ☐ Tertiary ☐ No formal education

7. Father's current employment Sector

Public sector ☐ Private Sector ☐ self-employment ☐

Unemployed ☐

8. Mother's current employment sector

Public sector self-☐ Private sector☐employed

Unemployed ☐

9. Do your parents practice agriculture (farming) at home?

Yes ☐ No ☐

10.If yes, how?

(a) Large scale farming ☐ (b) Small scale ☐farming

(c) Subsistence only ☐

11. If no why?

(a) We have no land ☐ (b) We don't value agriculture at home

(c) I come from an urban area ☐ (d) Others (specify)----------

Section B: The Influence of Students' Opinion and Attitude on the Choice of Agricultural Science as a Major

Indicate how the following statements influenced your choice of agricultural science. Rate your answers from 1-4 where 4 – Strongly agree, 3 – Agree, 2 – Disagree, 1 –Strongly disagree. ***Please kindly rate by ticking in the appropriate box***

#	Statement on Students' Opinion and Attitude Towards Agricultural Science	Response			
		4	3	2	1
12	The agricultural science syllabus is too wide to complete				
13	Agricultural science is important because people cannot survive without it				
14	People who do agricultural science in school can easily get work in agricultural-related fields				
15	I heard the agricultural science courses are easy to pass.				
16	Agriculture means only working on the farm				
17	Learning agricultural science is for only those who want to become farmers				
18	All types of agricultural-related careers are dirty				
19	There are fewer job careers in agriculture than in other sectors				
20	Agricultural jobs have low pay				
21	I believe agricultural education will benefit me later in life				
22	My friends will laugh at me if I do agricultural science in school				

23	My parents do not want me to work in an agricultural-related career				
24	Students should be made aware of the type of jobs in the agricultural field				
25	Parents who are farmers discourage their children from choosing elective agriculture.				
26	Agriculture is a subject for weak students				
27	Agriculture involves a lot of work				
28	Time allocated to agricultural science on the timetable is not enough				
29	Agricultural careers are limited				
30	People who do agricultural science do not get jobs				
31	Agricultural science is interesting				
32	I wanted to give agricultural science courses a try				
34	The agricultural science program at my college has a good reputation				
35	I enjoy hands-on learning.				
36	I believe I can still meet college admissions requirements by enrolling in agricultural science				
37	Agricultural science is for all students regardless of whether they have an agricultural background or not				
38	Agricultural science allows students to have an equal chance to participate in activities.				
39	Agricultural science activities allow students to feel included regardless of their family's income level				

Section C: The Influence of Interpersonal Factors on Students' Choice of Agricultural Science as a Major

What is the impact of the following statements on your choice of agricultural science as a major? Rate your answers from 1-4 where 4 = most influential, 3 = influential, 2 = less influential, 1 = least influential. ***Please kindly rate by ticking in the appropriate box***

#		Statement on interpersonal factors	Response			
			4	3	2	1
40		I chose agricultural science because my friends chose it				
41		My friends suggested I take agricultural science.				
42		My Senior High School teachers suggested I take agricultural science				
43		The college administrator suggested I take agricultural science.				
45		Agricultural science is convenient for boys than girls				
46		I will be despised by my peers if I choose agriculture				
47		My father influenced me to choose agricultural science				
48		My mother influenced me to choose agricultural science				
49		My father's career had an impact on my choice				
50		My mother's career had an impact on my choice				
51		My agricultural science tutor influenced my choice				
52		The college guidance and counseling coordinator influenced my choice				

Section D: The influence of college-related factors on students' choice of agricultural science.

What is the impact of the following factors on your choice of agricultural science as a major in this college? Use the following Likert type scale of 1-4 where 4 = most influential, 3 = influential, 2 = less influential, 1 = least influential. ***Please kindly rate by ticking in the appropriate box***

#	College Related Factors	Response			
		4	3	2	1
53	The quality of instructions of the college				
54	The good reputation of the college.				
55	The location of the college				
56	High students' academic performance				
57	High course completion rate of students.				
58	The quality of the college teaching and learning facilities				
59	Friendly and serene teaching and learning environment of the college				
60	Moderate tuition and other fees of the college				
61	The college's well-staffed agricultural science department				
62	The college's ability to offer comprehensive career guidance and counselling.				
63	College's career and field trips programs				
64	The quality of teaching and learning in the college				
65	The college policies on career decision making				

Section E: The Influence of Career Aspirations on Students' Choice of Agricultural Science

How do you agree with the following statements on your choice of agricultural science as a major? Rate your answers from 1-4 where 4 – Strongly agree, 3 – Agree, 2 – Disagree, 1 –Strongly disagree. ***Please kindly rate by ticking in the appropriate box***

#	Statement on career aspirations	Response			
		4	3	2	1
66	There are better employment opportunities in the public sector for agricultural graduates.				
67	There are better employment opportunities in the private sector for agricultural graduates.				
68	Agricultural graduates can engage in self-employment				
69	There are opportunities for career development				
70	Remuneration in the agricultural sector is good				
71	There are opportunities for internships				
72	There are opportunities for career fairs				
73	There are opportunities to develop leadership skills				
74	Agricultural graduates have practical skills to help them fit well in the world of work				

Section F: The Influence of Gender on the Choice of Agricultural Science as a Major

How do you agree with the following statements on your choice of agricultural science ? Rate your answers from 1-4 where 4 – Strongly agree, 3 – Agree, 2 – Disagree, 1 –Strongly disagree. ***Please kindly rate by ticking in the appropriate box***

#	Statement on the influence of gender	Response			
		4	3	2	1
75.	There are equal career opportunities in agriculture suitable for both men and women				
76.	Male students have higher career ambitions in agriculture than females				
77.	Career opportunities in agriculture are gendersensitive				
78.	Women's role is homemaker and male's role is the breadwinner				
79.	Male role models in the field of agriculture have some influence on career choice in agricultural science				
80.	Female role models in the field of agriculture have some influence on career choice in agricultural science.				
81.	Agricultural science is difficult for ladies				
82.	Male students have higher career ambitions in agricultural science than female students				
83.	Agricultural and science-related subjects are perceived as masculine disciplines				

Section G: Strategies to Improve Students Enrolment in Agricultural Science

How do you agree with the following statements on strategies to improve students' enrolment in agricultural science? Rate your answers from 1-4 where 4 – Strongly agree, 3 – Agree, 2 – Disagree, 1 –Strongly disagree. ***Please kindly rate by ticking in the appropriate box***

#	Statement on strategies to improve students enrolment	Response			
		4	3	2	1
84	More time should be allocated for the teaching of agricultural science lessons				
85	Colleges should be provided with adequate agricultural resources				
86	Colleges should invite agricultural resource persons to talk to the students				
87	The formation of agricultural clubs should be encouraged in schools and colleges				
88	Agricultural science students should be encouraged to participate in agricultural shows.				
89	Colleges should organize agricultural seminars for all students				
90	Agricultural science students should be made to do more practical work				
91	Field trips and study tours should be encouraged				

92	Technology helps identify appropriate colleges and programs for students				
93	Using technology helped students to find the right information about college program choice				
94	The use of digital images of a college campus can influence students decisions when selecting a college or programs				
95	The use of social media platforms is good for influencing students to choose agricultural science				

APPENDIX G: Descriptive Statistics

Descriptive Statistics

	N		Minimum	Maximum	Mean		Std. Deviation		
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
Age at last birthday	316	17	35	24.17	.160	2.853	.556	.137	.790	.273
Gender	316	0	1	.67	.027	.472	-.716	.137	-1.498	.273
Location of Senior High School	316	1	3	1.81	.044	.778	.344	.137	-1.271	.273
Category of present college	315	1	3	1.14	.023	.404	3.086	.137	9.291	.274
Elective course or major	316	0	1	.25	.024	.436	1.141	.137	-.703	.273
Father's highest educational level	316	1	4	2.58	.067	1.196	-.045	.137	-1.537	.273

Mother's highest educational level	315		4	2.83	.072	1.274	-.395		-1.569	.274
Father's current employment sector	316	1	3	2.23	.041	.735	-.393	.137	-1.069	.273
Mother's current employment sector	316	1	4	2.84	.055	.978	-.483	.137	-.747	.273
Do your parents practice agriculture at home?	316	0	1	.74	.025	.439	-1.103	.137	-.789	.273
Method of farming	316	1	4	1.88	.039	.686	.222	.137	-.653	.273
Reasons why parent dont engage in farming	316	1	3	1.64	.037	.655	.543	.137	-.680	.273

Agricultural science syllabus is too wide to complete	316	1		3.43	.081	1.445	-.407		-1.175	
People cannot survive without agriculture	316	1	5	4.12	.073	1.297	-1.284	.137	.379	.273
Agricultural related fields can easily give people work	316	1	5	3.64	.078	1.385	-.680	.137	-.803	.273
Agriculture science courses are easy to pass	316	1	5	2.71	.082	1.455	.268	.137	-1.281	.273
Agriculture means only working on farm	316	1	6	2.16	.078	1.391	.938	.137	-.433	.273

Agricultural science is for only farmers				2.22	.082	1.465	.812		-.792	
All types of agricultural related careers are dirty	314	1	5	2.39	.084	1.492	.678	.138	-1.012	.274
There are fewer job careers in agriculture than in other sectors	316	1	5	2.85	.082	1.450	.142	.137	-1.322	.273
Agricultural jobs have low pay	316	1	5	3.01	.085	1.508	.006	.137	-1.431	.273
Agricultural education will benefit later in life	316	1	5	3.61	.078	1.393	-.514	.137	-1.073	.273
Friends will laugh when me do agriculture	316	1	5	2.61	.084	1.501	.429	.137	-1.242	.273

Parents do not want me to work in agriculture related career	316		1	2.87	.087	1.550	.187		-1.458	
Students should be made aware of the type of jobs in the agriculture field	1		5	3.81	.078	1.380	-.740	.137	-.840	.273
Parent discourage their children from choosing agriculture			5	2.97	.084	1.490	.055	.137	-1.372	.273
Agriculture is only for the weak student	316		5	2.53	.086	1.531	.469	.137	-1.265	.273
Agriculture involves a lot of work	316		5	3.33	.081	1.434	-.293	.137	-1.219	.273

Time allocated to agriculture science on the time table is not enough				3.29	.078	1.384	-.251		-1.161	
	316	1	6	2.96	.085	1.513	.053	.137	-1.398	.273
Agricultural careers are limited										
	316	1	6	2.93	.082	1.453	.084	.137	-1.264	.273
Inadequate jobs for agriculture students										
	316	1	7	3.45	.076	1.343	-.321	.137	-.938	.273
Agriculture is very interesting										
I was just given agricultural science courses a try	316	1	5	3.26	.080	1.421	-.180	.137	-1.244	.273

Agricultural science at my college has a good reputation			3.31	.079	1.398	-.229		-1.217	
I enjoy hands-on learning	316	1	5	3.53	.074	1.322	-.467	.137	-.904	.273
		1	5	3.63	.075	1.325	-.577	.137	-.822	.273
Able to meet college admissions requirements by enrolling in agriculture science	316									
Agricultural science is for all students regardless of whether they have agriculture background or not	316	1	5	3.56	.078	1.382	-.474	.137	-1.094	.273

Agricultural science allows students to have an equal chance to participate in activities			3.64	.071	1.261	-.461		-.889	
	1	5	3.67	.072	1.285	-.553	.137	-.856	.273
Agricultural science activities allow students to feel included regardless of their family's income level	316								
	1	5	2.51	.083	1.472	.444	.137	-1.244	.273
I choose Agricultural science because my friends chose it	316								
Suggestions from my friends	316	1	5	2.29	.070	1.236	.589	.137	-.733	.273

Suggestion from my high school teacher			2.27	.074	1.310	.765		-.524	
	1	5	1.96	.068	1.201	1.219	.137	.583	.273
Suggestions from college administrator	316								
	1	5	2.87	.080	1.425	.171	.137	-1.239	.273
Agricultural science is more convenient for boys than girls	316								
	1	5	2.20	.066	1.171	.902	.137	.049	.273
I will be despised by my peers if I chose agricultural science	316								
Influence from my father	316	1	5	2.54	.071	1.260	.390	.137	-.786	.273
Influence from my mother	316	1	5	2.28	.070	1.252	.811	.137	-.254	.273

My father's career had an impact on my choice				2.53	.075	1.332	.433		-.926	
My mother's career had an impact on my choice	316	1	5	2.41	.073	1.303	.625	.137	-.686	.273
	316	1	5	3.05	.078	1.378	-.024	.137	-1.161	.273
My agricultural science tutor influenced my choice	316	1	5	2.44	.071	1.270	.475	.137	-.867	.273
The college guidance and counselling coordinator influenced my choice	316	1	5	3.25	.066	1.167	-.503	.137	-.477	.273
Quality of instruction is high				3.44	.068	1.203	-.561		-.487	
Good reputation of the college										

Location of the college is good	315	1	5	3.50	.067	1.185	-.511	.137	-.480	.274
High students academic performance	316	1	5	3.44	.068	1.211	-.409	.137	-.748	.273
High course completion rate of students	316	1	5	3.44	.061	1.078	-.265	.137	-.466	.273
The quality of the college teaching and learning facilities is high	316	1	5	3.49	.061	1.076	-.514	.137	-.229	.273
Friendly and serene teaching and learning facilities				3.59	.066	1.177	-.441		-.656	
Moderate tuition and other fees	316	1	5	3.16	.063	1.117	-.088	.137	-.547	.273

		1	5	3.45	.066	1.168	-.494	.137	-.448	.273
College well-staffed agricultural science department	316									
		1	5	3.09	.066	1.181	-.126	.137	-.695	.273
College ability to offer comprehensive career guidance and counselling	316									
College's career and field trips programmes	316	1	5	3.16	.062	1.109	-.259	.137	-.339	.273
The quality of teaching and learning in the college				3.16	.059	1.053	-.268		-.364	
		1	5	2.68	.074	1.324	.135	.137	-1.171	.273
The college policies on career decision making	316									

		1	5	3.35	.071	1.263	-.406	.137	-.777	.273
There are better employment opportunities in the public sector	316									
		1	5	3.55	.066	1.182	-.534	.137	-.540	.273
There are better employment opportunities in the private sector	316									
Graduate have capacity to engage in selfemployment	316	1	5	3.59	.064	1.139	-.462	.137	-.588	.273
There are opportunities for career development				3.62	.066	1.166	-.489		-.673	
		1	5	3.12	.061	1.089	.160	.137	-.675	.273
Remuneration in the agricultural sector is good	316									

There are opportunities for internships	316	1	5	3.42	.067	1.194	-.303	.137	-.856	.273
There are opportunities for career fairs	316	1	5	3.22	.069	1.227	-.129	.137	-.913	.273
There are opportunities to develop leadership skills	316	1	5	3.70	.068	1.212	-.584	.137	-.646	.273
Agricultural graduates have practical skills		1	5	3.59	.069	1.230	-.435	.137	-.851	.273

Equal career opportunities for both gender	316	6	3.87	.067	1.183	-.991	.200		
Males have higher career ambitions than females	316	1	5	3.81	.064	1.137	-.658	.137	-.478	.273
Career opportunities are gender sensitive	316	1	5	3.54	.065	1.147	-.292	.137	-.894	.273
Women's role is homemaker and male's role is breadwinner	316	1	5	2.99	.067	1.198	.259	.137	-.856	.273
Male role models in the field of agriculture have some influence on career choice	316	1	5	3.56	.069	1.221	-.358	.137	-.957	.273
Female role models in the field of agriculture have some influence on career choice				3.14	.059	1.051	.099		-.499	

Agricultural science is difficult for ladies	316	1	5	3.22	.066	1.168	-.029	.137	-.834	.273
Male students have higher career ambitions	316	1	5	3.80	.067	1.190	-.594	.137	-.721	.273
Agriculture subjects are perceived as masculine disciplines	316	1	5	3.69	.068	1.206	-.625	.137	-.527	.273
More time allocation for teaching of agricultural science				4.00	.069	1.225	-1.058		.055	
Provision of adequate agricultural resources	316	1	5	4.13	.065	1.150	-1.106	.137	.164	.273
Invitation of agricultural resources persons to talk to students	316	1	5	4.03	.068	1.207	-.906	.137	-.451	.273

Formation of agricultural clubs	316	1	5	3.96	.069	1.223	-.774	.137	-.769	.273
Encouragement to participate in agricultural shows	316	1	5	4.03	.069	1.219	-.991	.137	-.237	.273
Organization of agricultural seminars for students				3.93	.069	1.218	-.773		-.644	
Engagement of more practical work	316	1	5	4.06	.066	1.165	-.844	.137	-.643	.273
Encouragement of field trips	315	1	5	4.00	.068	1.206	-.915	.137	-.388	.274

	316	1	5	3.93	.067	1.195	-.804	.137	-.435	.273
Use of technology to identify appropriate college programme										
The use of technology	316	1	5	3.99	.065	1.152	-.828	.137	-.445	.273
The use of digital images	316	1	5	3.87	.068	1.210	-.730	.137	-.634	.273
Use of social media platforms				3.78	.071	1.267	-.730		-.566	
DC	316	1.20	3.20	2.0633	.02202	.39150	.099	.137	-.569	.273
ISA	316	1.00	5.00	3.1669	.03788	.67328	.190	.137	.992	.273
IIF	316	1.00	5.00	2.4526	.03918	.69656	.292	.137	.512	.273
ICF	316	1.00	5.00	3.2964	.03808	.67694	-.539	.137	.301	.273
ICA	316	1.00	8.67	3.4935	.04902	.87136	.692	.137	5.025	.273
IGM	316	1.44	5.00	3.5130	.03902	.69371	-.541	.137	-.195	.273

SIE	316	1.00	5.00	3.9765	.05326	.94673	-.621	.137	-.708	.273
Predicted probability	329	.25316	.25316	.2531646	.00000000	.00000000	.	.	.	.
Predicted group	329	0	0	.00	.000	.000	.	.	.	.
Predicted probability	315	.00828	1.00000	.2535776	.01254420	.22263755	1.312	.137	1.017	.274
Predicted group	315	0	1	.16	.021	.369	1.844	.137	1.411	.274

Predicted probability	315	.00828	1.00000	.2535776	.01254420	.22263755	1.312	1.017	.274
Predicted group	315	0	1	.16	.021	.369	1.844 .137	1.411	.274
Predicted probability	316	.17143	.29384	.2531646	.00324871	.05775040	-.716 .137	-1.498	.273
Predicted group	316	0	0	.00	.000	.000	. .	.	.
Valid N (listwise)	310								

Age at last birthday

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	17	2	.6	.6	.6
	18	2	.6	.6	1.3
	19	4	1.2	1.3	2.5
	20	18	5.5	5.7	8.2
	21	26	7.9	8.2	16.5
	22	37	11.2	11.7	28.2
	23	44	13.4	13.9	42.1
	24	51	15.5	16.1	58.2
	25	46	14.0	14.6	72.8
	26	29	8.8	9.2	82.0
	27	21	6.4	6.6	88.6
	28	12	3.6	3.8	92.4
	29	8	2.4	2.5	94.9
	30	7	2.1	2.2	97.2
	31	5	1.5	1.6	98.7
	32	2	.6	.6	99.4
	34	1	.3	.3	99.7
	35	1	.3	.3	100.0
	Total	316	96.0	100.0	

				Valid Percent	Cumulative Percent	
		Frequency	Percent			
Valid	Male	105	31.9	33.2	33.2	
	Female	211	64.1	66.8	100.0	
	Total	316	96.0	100.0		
Total		329	100.0			
Total		329	100.0			153

Gender

Category of present college

				Valid Percent	Cumulative Percent
		Frequency	Percent		
Valid	mixed	279	84.8	88.6	88.6
	male	29	8.8	9.2	97.8
	female	7	2.1	2.2	100.0
	Total	315	95.7	100.0	
Total		329	100.0		

Appendix H: Ethical Clearance

UNIVERSITY OF CAPE COAST

INSTITUTIONAL REVIEW BOARD SECRETARIAT

TEL: 0558093143 / 0508878309
E-MAIL: irb@ucc.edu.gh
OUR REF: UCC/IRB/A/2016/1237
YOUR REF:
OMB NO: 0990-0279
IORG #: IORG0009096

27TH JANUARY, 2022

Mr. Paul Ayekorok Abowen
Department of Agricultural Economics and Extension
University of Cape Coast

Dear Mr. Abowen,

ETHICAL CLEARANCE – ID (UCCIRB/CANS/2021/37)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted Provisional Approval for the implementation of your research titled **Factors influencing the Choice of Agriculture Science in Public College of Education in the Northern Region of Ghana.** This approval is valid from 27th January, 2022 to 26th January, 2023. You may apply for a renewal subject to submission of all the required documents that will be prescribed by the UCCIRB.

Please note that any modification to the project must be submitted to the UCCIRB for review and approval before its implementation. You are required to submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

Samuel Asiedu Owusu, PhD
UCCIRB Administrator