

Full Length Research Paper

Perceived effectiveness of teaching and learning of agricultural science in colleges of education in the Hohoe Municipality, Ghana

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The lack of resource and the marginalization of the place of agricultural science in the general curricula in pre-university education in Ghana are identified as the key constraints in the study of the subject. The purpose of this study was to ascertain students' perceived effectiveness of the teaching and learning of agricultural science in colleges of education in Hohoe Municipality. A simple random sampling was used to select 120 level 100 and 200 students for the study. The data collected was analyzed and outcomes presented in the forms of descriptive statistics. The majority of respondents disagreed that administrators' support for successful teaching and learning of agricultural science was satisfactory, according to the study's principal findings. However, the respondents were divided on the effectiveness of the methods tutors use in teaching of agricultural science. They said, the lecture and discussion methods are frequently and effectively used. The respondents also concurred that the instructors' methods and approaches for persuading students to study agriculture were very successful. Additionally, it was noted that there was a significant relationship (p-value 0.10) between male and female students, constraints on teaching agriculture, and tutor effectiveness. The study concluded that, agricultural science tutors though had the requisite skills and motivation to teach, the absence of resource materials and incentives among others however, serves as a de-motivator to tutors. It also recommended tutors should also use other methods of teaching such as demonstration, field trips, exhibition, and activities to make lessons more interesting for students.

Key words: Perceived effectiveness, teaching and learning, agricultural science, colleges of education, Ghana.

INTRODUCTION

The practice of agriculture is about caring for plants and animals of value to man. It involves processing, storage, and marketing of farm produce and repair of farm equipment (Arah et al., 2016). The main thrust of

agriculture is food production. However, other benefits derived include job creation, production of raw materials to feed industries, income generation, foreign exchange earnings, capital formation, environmental protection,

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ornamental and aesthetic values as well as air purification.

Ghana's economy is said to be predominantly supported by agriculture. According to the editorial of Daily Graphic (2010), "the Ghanaian economy is largely dependent on agriculture or commodity output for its survival as about 60% of the population are rural based and their main pre-occupation is farming".

Agriculture is said to be the first spokes in the wheel of the industrialization for most developing countries (Amosun, 2020) and Ghana is no exception. Agricultural products such as cocoa, timber, cotton, rubber, yam, maize, meat, milk, eggs and the hides are but a few of the raw materials which have kept industrial development going in Ghana. Cocoa and timber have long been Ghana's conventional export products. However, in recent time, non-traditional export products such as pineapple, banana, mango, yams, pawpaw, chili, okra and snails bring in a lot of the needed foreign exchange (Massaquoi, 2011). Ghana though is projected as an agricultural country; it has not been able to produce up to expectation, as it still has a high rate of malnutrition in both children and adults (Diaz-Ambrona and Maletta, 2014).

The poor performance in the agricultural sector can be attributed to some inadequacies in the sector. Prominent among them are; low technical know-how of farmers, inadequate infrastructure, poor communication systems and road networks, unfavourable land tenure systems, and the sector being in the hands of poorly motivated rural and aged farmers, and fishermen who practice their trade at the subsistence level (Kwarase, 2017).

According to Hassan and Siwar (2021), efforts are still being made to promote national and cultural identity and citizenship, rural development, and modernization of the predominately agricultural-based economy. However, Ghana's educational system has fallen short of expectations in terms of meeting basic human needs.

To change the trend of low agricultural production, modern, scientific knowledge, high technical skills and positive attitudes need to be employed in the sector. Enhancing competitiveness and employability while reducing poverty and exclusion can be accomplished in large part through the development of skills. It is becoming more and more obvious that the working poor are trapped in a vicious cycle of poor education, poor training, low-productivity jobs, and low earnings, which prevents workers and young people from contributing to economic growth (Kwarase, 2017).

Given that education promotes social advancement and economic growth, it is thought to be a tool for social and economic transformation. Additionally, education eradicates disease, poverty, and ignorance, preparing the path for civilization and modernity (Aswani and Wekesa, 2014). The importance of education in Ghana cannot be over emphasized, as it has embraced the policy of Universal Basic Education (UBE). The UBE policy focuses on educating young people who are most likely

to become farmers in the future during their formative years (Ogawa and Nishimura, 2015). The training imbibes good principles, and attitudes towards agriculture so as to sustain the interest of pupils in the early stages.

One of the single most significant influencers on students' achievement is highly qualified teachers (Jan, 2017). Lecture halls, laboratories and farms are needed while agricultural inputs such as seeds, tools, machines with the appropriate equipment and agro-chemicals should be regularly supplied to boost the teaching of the subject. In addition to all these, a comprehensive curriculum, teaching and learning materials backed with a sound policy must be available. A generalist teacher who can instruct at the primary and junior high school levels of education in Ghana is what the three-year Diploma of Education program offered by Ghana's colleges of education aims to produce (Ocansey and Davis, 2016).

Aneke (2015) stated that group discussions, questions and answers, lecture approach, reading textbooks with students, and writing notes on the chalkboard for students to copy are some of the ways used to teach agricultural science. Other methods include supervised practicals at school farm/garden demonstrations, visits to nearby farms or agriculture institutions (field trips), use of posters and charts, use of agricultural resource person(s), role playing of issues, exhibition, projects and problem solving/discovery. Class exercises and homework are also methods of assessing what is learnt.

There is the general perception that low attention is being paid to agricultural education in Ghana, to the extent that concerns have been expressed by Boakye-Yiadom et al. (2018). Stakeholders have been encouraged to come out with policies and programmes that will help reduce the misconception and encourage students to study the course. Despite several research (Menka and Atteh, 2022; Mbajorgu et al., 2014) done on the root cause of factors impeding the learning and teaching of agriculture science in schools, these studies have failed to evaluate the effectiveness of training received by teachers and from their tutors. It is based on this, the study seeks to ascertain student's perceived effectiveness of the teaching and learning of agricultural education in the colleges of education in the Hohoe Municipality, Ghana. The Saints Francis' and Teresa's Colleges of Education were selected because they are both in the Volta region. While Saint Teresa's is a female College, Saint Francis' is mixed. The study objectives are:

- (1) To determine the effectiveness of methods used by teachers in the teaching of agricultural science.
- (2) To examine the effectiveness of teachers in the teaching and learning of agricultural science.
- (3) To examine the administrative support towards the teaching of agricultural science in the colleges of education.

H₀: There is no significant association between male and

female college students in their perception of factors affecting the teaching of agricultural science.

H_1 : There is significant association between male and female college students in their perception of factors affecting the teaching of agricultural science

The study will help students, tutors and administrators develop positive interests and attitudes to sustain the teaching and learning of the subject in the Colleges of Education in Ghana. The outcome of the research could be used by policy makers and implementers such as the Ghana Education Service (GES), National Council for Tertiary Education (NCTE) and the universities to re-structure the teaching and learning of the subject in various educational institutions in the country. More so, it will serve as a basis for future studies on issues of agricultural education.

However, this research was confined to the two colleges of education in the Hohoe Municipality of Ghana. The results of this study represent the views of students in the two colleges of education in Hohoe who were in school at the time of the study and may not necessarily be the same in the future because perceptions are susceptible to change. Also perception changes with time and context, therefore the time lapse between field data collection and the write up are likely to generate some differences. Furthermore, the study heavily relies on respondents' perceptions, which are not always accurate. The satisfactory high level of internal consistency of the respondents' answers, however, allows for a sufficient level of confidence in the results. Finally, limitations are also imposed by time and resource constraints. However, these constraints are offset by delimiting the study to first and second year students in Hohoe.

RELATED LITERATURE

Meaning and importance of agriculture to the socio-economic development of Ghana

Agriculture is simply, the production of plants and animals useful to man. Agriculture as a practice is carried out to care for both plants and animals of value to man (Dominati et al., 2014). Agriculture provide food that addresses the issue of malnutrition in the world. Thapa et al. (2021) reported that, malnutrition contributes a lot to the physical and mortality of children in developing countries.

Again the United Nations Development Programme (UNDP, 2012) reported that agriculture allows countries otherwise endowed with different soil and climatic conditions to become interdependent for their mutual benefit since food that cannot be grown in one environment due to the particular soil and climatic requirement can still be obtained through agricultural export and trade in other environments.

The governments have started a number of agricultural development programs to fight malnutrition and enhance agriculture education as a means of long-term productivity growth. Because of these factors, agriculture remains a discipline that receives some attention at all educational levels (UNDP, 2012).

Agriculture as an educational discipline in Ghana

Youth learn agricultural science in schools so they can enter the fields of employment that are available in the field. Agriculture is taught and learned in schools through general education, pre-vocational training, or education (Ministry of Education, 2012). In addition to the basic schools, adequate focus is given on agriculture education at the Senior High School and tertiary levels of education.

Learners who pursue vocational agricultural education are prepared for both on- and off-farm employment. In Ghana, senior high schools, agricultural colleges, colleges of education, and universities all offer vocational agricultural education. The goal of prevocational agriculture is to give students the knowledge and skills they need to select vocational agriculture as a field of study. The Junior High School's vocational agriculture program places a strong emphasis on imparting fundamental practical agricultural skills.

General agricultural education is taught in primary schools as a component of integrated science. The goal of this is to help people develop the attitudes, skills, and behaviours that society finds admirable in terms of personal growth to increase interest in the study of nature and to foster an appreciation for the environment, its resources, and its development potential (Ministry of Education, 2012). Basic agricultural education exposes pupils to the fundamentals of agriculture, offers opportunities for skill development, and modifies the attitudes of young children toward agriculture (Sargani et al., 2020).

Concept and methods of teaching agriculture

Alorvor and el Sadat (2011) also stated that, "the aim of every teacher is to provide holistic, child-centred and enjoyable learning experiences to learners with the aim of giving them a strong foundation in character, and a head-start for their subsequent education and development". The Ministry of Education (2012) maintained that young people should be encouraged to develop essential agricultural skills or values, to make it an integral part of teaching to interrelate it to the environment in which they live.

According to Young and Muller (2015), effective teaching necessitates that the teacher have a thorough understanding of everything that the students need to know as well as the ability to adapt the content,

processes, and pace of his work to the specific needs of each student while using the environment and the appropriate media to support him. According to Pollock et al (2011), a teacher's primary responsibility is to be able to organize and deliver teaching. The ability to design, administer, and evaluate education given to learners in a variety of settings is a highly developed skill for those seeking to teach. Additionally, agricultural educators should be able to help students learn how to solve problems and promote the use of accepted agricultural ideas and practices. Students studying agricultural education have the chance to perform these skills before beginning their formal teaching through microteaching opportunities on campus.

Sargani et al. (2020) indicated that among the methods of teaching agricultural science are: group discussions, questions and answers, lecture, reading of textbooks with students and scribbling notes for students to copy on the chalkboard. Other methods include supervised practicals at school farm/garden demonstrations, visits to nearby farms or agriculture institutions (field trips), use of posters and charts, use of agricultural resource person(s), role playing of issues, exhibition, projects and problem solving/discovery. Class exercises and homework are also methods of assessing what is learnt.

To make the principle of participatory agricultural education possible, the syllabi for JHS and the colleges of education recommended that a variety of participative teaching methods such as demonstrations, supervised practice projects, discussion, problem solving and laboratory work should be appropriately used when teaching in the basic schools (Ocansey and Davis, 2016).

Teaching-learning materials/aids of agriculture

These are the tools a teacher uses to improve efficient instruction and learning (TLM). According to Mailumo et al. (2018), teaching aids are tools used to highlight clarity or invigorate education while supplementing written and/or spoken words in the transmission of knowledge, attitudes, and ideas. Obidike (2021) also noted that teaching aids are materials, equipment or other resources of a teacher, which appeal to other senses other than that of hearing and help to accomplish a function, which is relevant. Obidike (2021) reiterated that teaching aids are items that are used to reinforce the understanding of a topic. They underlined that the primary goal of using teaching and learning resources is to increase the significance of teaching and learning. In order to fully engage the students in the learning process and engage all of their senses in the topic being covered, the instructor uses teaching and learning materials to stimulate as many of the students' senses as possible. Mailumo et al. (2018) indicated that, among factors that influence academic performance are study aids such as

books, textbooks, library facilities, and laboratories.

Banco (2018) mentioned specific TLMs for agriculture as farm tools, preserved specimens of plants, farm animals, rocks and soil. The teaching syllabi of JHS and colleges of education require in addition farm plots or gardens, seed boxes, animal houses and feed samples, weeds and pasture species and all laboratory equipment. The computer is now an important educational tool (Obidike, 2021). The inadequate or absence of textbooks are critical to effective learning and could affect the academic performance of students (Bonney et al., 2015). The utilization of contemporary teaching and learning tools like green houses, arboritoriums, video clips, tape recorders, slide projectors, overhead projectors, etc., is advised for teachers to be very effective. Without easily accessible, adequately stocked, and staffed libraries, as well as people who are accustomed with their use via in-service experience, Singh (2011) observed that the "learning to learn approach" cannot succeed and that educational effectiveness will be diminished.

Students' interest in studying agriculture

The interest of students in agricultural education is winning and plays an essential role in the falling socio-economic status of agriculture. To reverse the falling social and economic status of agriculture students' and pupils' interest in agriculture education has an essential role to play. Mapolisa and Tshabalala (2013) noted that, in most African countries, the doctor, lawyer and administrator are ranked highest in public esteem above the agriculturist and industrialist. He reasoned that pupils and their parents see vocationally based courses, which include agriculture as dead ends. He also observed that guardians would sooner impress upon their wards to choose reading or general courses such as the arts, physical or biological sciences other than the vocational courses like agriculture.

According to the Daily Graphic (2010), major stakeholders in four state universities in Ghana indicated that, there is a decline in students willingness to study agriculture and called on policy makers to come out with policies and programmes that will wipe away all misconception about the subject. Yasmeeen et al. (2011) in his study of small farmer productivity concluded that, when an educated farmer settles down on farming, and develops some commitment, he is likely to be more aggressive and innovative in farming. Furthermore, there is some evidence that such an interested student-farmer is more likely to seek useful knowledge more aggressively from agencies where available.

Iheke and Nwaru (2013) established a relationship between farmers' innovation and educational attainment. More so, all other things being equal, farm productivity increased based on their exposure to agricultural education and that, his productivity was likely to be higher

in modernized environments than in traditional environment. Yasmeen et al. (2011) also acknowledged that farmers with limited education tended to be traditional and resistant to new ideas that did not appear to provide immediate benefits. It is believed that a well-prepared agriculture teacher for basic schools can generate enough interest in pupils to positively impact on attitudes. It included the need to generate and sustain the interest of the child in agriculture.

The profile dimensions of the JSS syllabus, integrated Science included the development of desirable attitudes and interest. The implication of the aims and profile dimension of the basic school syllabus and that of the colleges of education is that not only must agriculture be taught as an activity but must be planned as to allow pupils and students use all of their senses in gaining knowledge, thus develop and sustain learners interest. Bonney et al. (2015) in his study agreed that a lot of interest can be generated in agriculture without attempting to directly teach agriculture by persons ill equipped to do so. It is to this end that emphasis must be placed on agricultural education at all levels especially in the colleges of education.

Studies by Basardien et al. (2016) revealed that, one of the major problems of teaching agriculture is the lack of interest displayed by students and other teachers. This is confirmed by the absence of agricultural clubs in the schools and colleges and where there are, they are either dormant or have leaders who have given up on the clubs activities due to the absence of support from the school authorities. Yasmeen et al. (2011) at a multi-stakeholders workshop on agriculture education lamented the lack of interests in studying agriculture by students. As a subject whose socio-economic effect has dire consequences for our countries food security, there is need therefore, to generate and sustain interest in agriculture which can only be derived from positive attitudes.

METHODOLOGY

Research design

A descriptive cross-sectional survey design was employed in the study. Descriptive cross-sectional survey design is concerned with the conditions that exist, practices that are common, and beliefs, points of view, or attitudes that are evolving, according to Oso and Pate (2011). Pannucci and Wilkins (2010) also indicated that descriptive cross-sectional survey design avoids bias in the selection of the sampling population. In addition, the selection of one item or subject has no influence whatsoever on the selection or non-selection of the other. The primary goal of a descriptive study design is to assess a sample at a specific point in time without attempting to make inferences or pinpoint reasons. The frequency and features of a condition in a population at a specific moment can be "snapped" in descriptive cross-sectional survey. The study followed the principles described earlier, hence the design being described as descriptive cross-sectional survey design. The use of the design in this study is to have an overview of the perceived effectiveness of Teaching and Learning of Agricultural Science in colleges of education in the Hohoe Municipality, Ghana.

Population

The population was students in Saints Francis' and Teresa's Colleges of Education. The students totaled 1152 (665 from St Francis' and 487 in St Teresa's Colleges of Education). All the students had core agricultural science at their first year and some of them were reading agricultural science at their second year. Since the third year students were not available for the study, only 709 first and second year students were targeted for the study. This number comprise 463 and 246 students from Saints Francis' and Teresa's Colleges of Education, respectively.

Sample and sampling techniques

Since all students have taken agricultural education AGN 101 for one semester, the simple random sampling procedure was employed to determine the target sample size. Out of the 709 first and second year students from the two colleges of education, a sample of 120 students were randomly selected for the study. According to Oso and Pate (2011), simple random sampling technique is a procedure of giving every item an equal chance of been selected where the selection of one item has no influence whatsoever, on the selection or the non-selection of the other.

Specifically, the lottery method was adopted and used. The names of all the students were written on pieces of papers and placed in a bag, after which the process of selection of respondents started. The names which were placed in the bag were shuffled before one was picked and placed back after recording. Before the next one was picked the papers are reshuffled to ensure that everyone had the equal chance of being picked. This process was repeated until the 60 respondents per college were picked. Therefore, 120 students were selected.

Instrumentation

Data collection for the study involved the use of a questionnaire. Because the questionnaire offered systematic and reliable information regarding procedures and conditions, it was chosen (Krosnick et al., 2015). The first section of the questionnaire asked questions about the students' personal information, including their sex, age, educational background, and the academic level they had attained while enrolled in the Diploma in Basic Education (DBE) program. The second section gathered data on how colleges support the teaching of agriculture, including the availability of text books and teaching and learning materials, the appropriateness of contact hours, the roles of agricultural clubs, participation in extracurricular activities, the need for facilities, the efficiency of agricultural tutors in the teaching and assessment methods used, and restrictions on the study of agricultural science.

The questionnaires were pre-tested at the Evangelical Presbyterian College of Education, Amedzofe. The Evangelical Presbyterian College of Education, Amedzofe was chosen because it is located in the Volta region of Ghana and has similar conditions prevailing at Saints Francis' and Teresa's Colleges of Education. After a brief introduction by the Agricultural Science tutor, discussions were held with the students involved in the pretesting. Questionnaires that students found difficult were rephrased. Those that were left unanswered were also recast.

The 20 students who participated in the questionnaire's pretesting were chosen using a straightforward random sample approach. After almost 2 h, data were gathered, then electronically edited and analyzed using SPSS software version 25.0. The validity and reliability of the questionnaire were examined during the pretesting phase. For predictor tests in the early stages of research, Boateng et al. (2018) suggested that reliability of 0.50 or greater is sufficient. The items' of the Cronbach's alpha reliability coefficient

Table 1. Test of reliability.

Items	Number of Items	Cronbach's Alpha
Colleges authorities support towards teaching of agriculture	5	0.653
Effectiveness of tutors in teaching agriculture	6	0.672
Effectiveness of teaching methods used	8	0.711
Attitudes of student towards the study of agriculture	7	0.759
Constraints of teaching agricultural science	9	0.575

Source: Field data, Benson (2010).

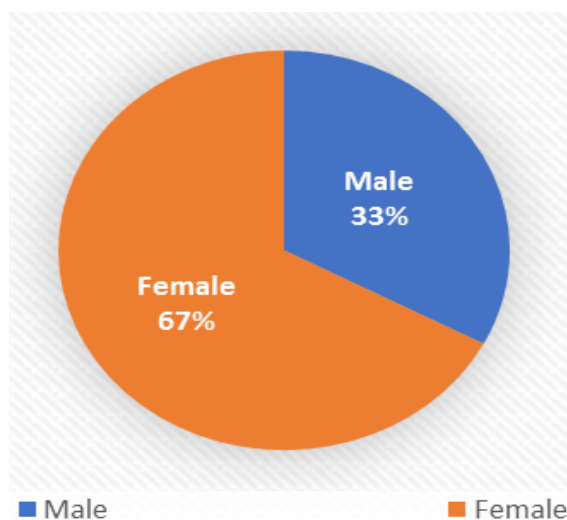


Figure 1. Sex distribution of respondents (n = 111).
Source: Field data, Benson (2010).

was higher. As a result, the validity of each section of the questionnaire was determined Table 1.

Data collection

The questionnaires were administered personally by the researcher. In the classroom, the researcher met the chosen respondents. Before each of them received a questionnaire, the purpose and goals of the study were presented to them. After then, the students had three days to complete the survey at their own convenience. 111 of the 120 surveys that were distributed were returned, giving the response rate a 92.5% average.

Data analysis

The Statistical Product for Service Solutions (SPSS) software version 25.0 was used to code and input the obtained data. Based on the objectives, appropriate statistics were produced. Simple frequency counts and percentages were employed to describe the respondents' demographic data. Both tabular and graphical representations of the results were provided. The attitudes of students toward agricultural science subjects, the effectiveness of teachers in teaching agricultural science, the level of administrative support for the teaching of agriculture, and the limitations of teaching agricultural science were all examined using percentage

distributions, means, and standard deviations. Independent sample t-tests were performed to determine whether there were significant differences between the perceptions of male and female students regarding the teaching and learning of agricultural science in terms of sex.

RESULTS AND DISCUSSION

Demographic characteristics of respondents

Here, respondents' sex, age, educational background, and other demographic data were discussed.

Sex distribution of respondents

The result in Figure 1 shows that out of the 111 respondents, as many as 74 (67.3%) were females while 36 (32.7%) were males. Females were in the majority because St. Teresa's College of Education is a female college. The 36 (32.7%) males were students of St Francis' College of Education which is mixed.

According to a study by Odoom et al. (2016) on colleges

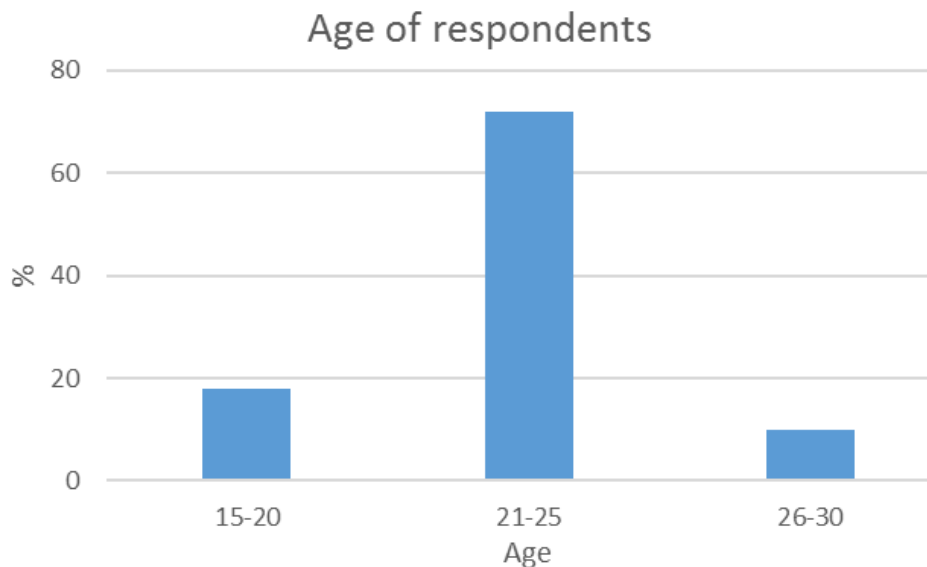


Figure 2. Age distribution of respondents (n=111).
Source: Field data, Benson (2010).

of educations in Ghana, it was revealed that Ghana's colleges of education are male dominated, which contradict the findings of this study. However, Esia-Donkoh (2019) studies in the Western-Central zone of Ghana revealed that female students in colleges of education are twice that of their male counterparts. This shows that the distribution of female-male across the countries' colleges of education is not evenly distributed.

Age distribution of respondents

The results of Figure 2 demonstrate that the majority (73.9%) of respondents were between the ages of 21 - 25, while just 16.2% were 15 - 20. Few students (9.9%) were between the ages of 26 and 30. This indicates that most of the respondents were relatively young and were likely to serve Ghana Education Service (GES) beyond the mandatory period of 25 years in case they stay on the job after graduation.

Entry qualifications of the respondents

The results presented in Table 2 indicate that majority (98.2%) of the respondents entered the colleges of education with Senior Secondary School Certificate Examination (SSSCE). Two respondents entered with 'Ordinary' level and 'Advance' level certificates.

The responders' entry requirements for the Diploma in Basic Education (DBE) program, which aims to raise the bar for basic education through teacher preparation at colleges of education, are met. The requirements are also in accordance with suggestions made by UNESCO

and the ILO that potential teachers should be individuals who have successfully completed a recognized secondary education program (Adedeji and Olaniyan, 2011).

Academic level of respondents

In accordance with the new educational reforms of teacher education in Ghana, the teacher training colleges have been upgraded into the colleges of education to train teachers who will come out with Diplomas in Basic Education (DBE) instead of the past 'A' 3-year Post Secondary Certificate Teachers.

This reform, subsequently led to the naming of their levels of education in the colleges as level 100, 200 to 300, in the first, second and third years, respectively during the three-year course of the study. Table 2 presents results on the educational levels of respondents. Majority (65.5%) of the respondents were level 100 students, with the rest (34.5%) as level 200.

Perception of students of support of colleges' administrators towards the teaching and learning of Agricultural Science

Majority (64.8%) of the respondents disagreed or strongly disagreed that the needed resources for the teaching of agricultural science was adequately provided by the school authorities (Table 4). This is contrary to the suggestion of Amosun (2020) that for a particular system to achieve its identified goals, administrators have to mobilize all human and material resources to support it to succeed. Majority (76.6%) of the respondents agreed and

Table 2. Entry qualification of respondents (N = 111).

Entry qualification	Frequency	Percentage
SSSCE	109	98.2
O level	1	0.9
A level	1	0.9
Total	111	100.0

Source: Field data, Benson (2010).

Table 3. Academic level of respondents (N = 111).

Level of students	Frequency	Percentage
100	72	65.5
200	37	34.5
Total	111	100.0

Source: Field data, Benson (2010).

strongly agreed that the number of periods allocated on the time table for the teaching of agriculture is adequate. According to Spicer (2016), teaching lessons are planned to last for a length of time and according to the timetable. This helps both learners and tutors know when and where and for how long to meet so as to cover adequately the objectives of the study. The adequacy of time for teaching of agriculture is therefore expected to create the right atmosphere for learners to effectively study the course. The respondents agreed (68.5%) that the number of tutors employed by the college authorities is adequate for teaching agriculture.

Prominent among the methods of teaching Agricultural Science is the field trip. Results presented in Table 3 indicate that respondents had varied opinions (Mean=1.86, SD=1.13) but disagreed (81%) that the college authorities allowed them to go on field trips Table 4.

Sargani et al. (2020) emphasized that for the teaching of agriculture to be effective, it should be supplemented with field trips to farms, research institutions, agro-based industries and botanical gardens among others. The absence of field trips is likely to impact on the learning of students since students are likely not to be able to take advantage of field to observe things that are not found in the classroom environment but only found on the field.

Majority (71%) of the respondents either strongly disagrees or disagree that the college authorities release funds for agricultural projects promptly. Teaching is both theoretical and practical (Hyland, 2015). Administrators are in a key position to influence the attitude and interest of teachers and students by their actions or inactions, such as human, materials and finances as far as educational establishments are concerned (Lambersky, 2016). The non-release of funds promptly to provide for the required teaching and learning materials therefore,

will go a long way to de-motivate both the tutors and students for the teaching and study of the subject, respectively.

The composite mean of 2.39 (SD=0.51) indicates students disagree with items relating to support of college administrators towards effective teaching of agriculture in the colleges. This implies that, the respondents hold the negative view of the college administrators' support towards the effective teaching of agriculture in the colleges of education.

Perception of students on effectiveness of tutors in teaching Agricultural Science

Every educational program relies heavily on the instructor to carry it out. The performance of any educated person depends on the quality of education provided by teachers as well as the caliber of the person trained, claim Sarfo and Cudjoe (2016), who assert that the function of the teacher is of utmost importance in education. Therefore, the purpose of the study was to ascertain how students felt about the efficiency of tutors in the teaching of agriculture.

From Table 5, 55.9% of the respondents indicated orientation on the agricultural courses and requirements provided by tutors is highly effective. Moreover, 37.8% confirmed that the orientation is effective with only 6.3% indicating that, it is less effective. Education usually builds on from the known to the unknown. Orientation is an introductory session involving a meeting or series of events which introduces information or training to somebody embarking on something new (Moon, 2014). It is therefore expected that students in the two colleges will have enough introductory information before they study agriculture.

More than a third (36.4%) of the students perceived that thought-provoking questions were asked by tutors during lessons are less effective. This could be an indication that tutors do not relate questions to the background or the environments of students. However, 63.6% indicated that it was effective or highly effective. Majority (96.2%) of the respondents indicated that, the assignments given by tutors are effective or highly effective with only 3.8% indicating that it is less effective. Assignments enable the tutors to examine the progress of the students in the acquisition of knowledge and skills after teaching.

Majority (94.6%) of the respondents also indicated that feedback provided by tutors on progress of work in the course of the work is highly effective or effective. Feedback is a comment or answer to something in the form of an opinion or reaction with the goal of offering helpful data for decisions and advancements in the future. Feedback is therefore said to be the measure of the responses collected from students which are later discussed with the students. These are diagnostic in nature so as to help learners and tutors strengthen their

Table 4. Perception of students of the support of college administrators towards teaching of agriculture.

College support	Mean	Std. Dev.	Percentage rating			
			SD	DA	A	SA
School authorities provide the needed resources for the teaching of agriculture	22.3	0.94	23.4	41.4	23.4	11.8
Adequate periods are allocated on timetable for the teaching of agriculture	3.09	0.87	5.4	18.0	38.8	37.8
The number of agricultural tutors employed are adequate	2.87	1.00	12.6	18.9	36.9	31.6
Colleges allow student to go on field trips of interest	1.86	1.13	55.9	17.1	1.7	15.3
Colleges release funds for agricultural projects promptly	1.80	0.85	43.6	37.4	14.5	4.5

Scale: 1=Strongly Disagree (SD), 2= Disagree (DA), 3= Agree (A), 4= Strongly Agree (SA). n= 111.
Source: Field data, Benson (2010).

Table 5. Perception of students on effectiveness of tutors in teaching agricultural science.

College support	Percentage		
	Less Effective	Effective	Highly Effective
Provision of orientation by tutors on the course requirements	6.3	37.8	55.9
Raising of thought-provoking questions during lessons by tutors	36.4	33.6	30.0
Use of assignments by tutors	3.8	30.2	66.0
Provision of feedback on progress of work in the course of study	5.4	37.8	56.8
Lesson presentation by tutors	1.8	34.9	63.3
Tutor motivation during agricultural lessons	14.4	45.9	39.7

n= 111.

Source: Field data, Benson (2010).

good points and find solutions to weaknesses.

Respondents perceived lesson presentation by the tutors to be effective (34.9%) or highly effective (63.3%). Less than 2.0% indicated that lesson presentation by tutors was less effective. This is evidence that agricultural science instructors at the two colleges of education effectively communicate their lectures to students. The majority of respondents (85.6%) believe that tutoring students' motivation during their study of agricultural science is helpful or extremely effective. The tutor's ability to motivate learners will therefore enhance their predisposition to imbibe what is taught. Kirschner and van Merriënboer (2013) indicated that students tend to do better work when instructions are provided by people who really know what they are doing. Therefore, instructions should be provided to enhance their ability to learn what is taught.

Students' perception of effectiveness of the teaching methods used by tutors

Teaching methods are the processes adopted by teachers to induce learning during teaching-learning interaction (Kabugi, 2013). He emphasised that these teaching methods ensure that students acquire knowledge in the subject. The efficiency of the approaches employed by

tutors to teach Agricultural Science was rated differently by respondents (Table 6). The lecture approach is seen as being quite effective, as evidenced by the mean of 2.96 and standard deviation of 1.58. Close to a third (28.0%) of the respondents perceived the lecture method to be the most effective while a similar percentage perceived it not to be effective method. The rest (44.9%) had perceived the lecture method to be effective, somehow effective and least effective. According to Hardwick (2013), the lecture mode of instruction is still one of the most common ways for instructors to convey knowledge and concepts, and students are already accustomed with it. He stated that depending on the message's persuasiveness, the teacher's manner, and the message's clarity, lectures might be educational, tedious, or overwhelming.

The discussion method, according to Brodie (2013), is that which involves the exchange of ideas, facts and opinions about a topic between individuals or groups of students under the guidance of a teacher. Table 6 indicates majority (57.0%) of the respondents say that the discussion method used by the tutor is most effective (mean = 1.85). Bonney (2015) assertion that, the attributes discussion methods are more learner-involving and students are more likely to perceive the methods as effectively used.

More than a third of the students perceived

Table 6. Students' perception of effectiveness of teaching methods used by tutors.

College support	Percentage						
	Mean	Std. Dev	ME	E	SE	SE	LE
Lecture method	2.96	1.58	28.0	15.9	15.0	14.0	27.1
Discussion method	1.85	1.22	57.0	19.6	9.4	8.4	5.6
Demonstration method	2.36	1.41	39.8	19.4	17.6	11.2	12.0
Activity method	2.51	1.57	38.3	22.4	10.3	7.5	21.5
Projects method	3.01	1.47	17.8	27.1	16.8	12.1	26.2
Exhibition method	2.94	1.53	22.4	24.3	16.8	9.4	27.1
Role play method	3.18	1.60	19.6	24.3	10.4	9.3	36.4
Field trip method	3.25	1.73	27.1	15.0	6.5	8.4	43.0
Composite	2.76	1.51					

Scale: 1= Most Effective (ME), 2 = Effective (E), 3 = Somehow Effective (SE), 4 =Least Effective (LE), 5 = Not Effective (NE).

Source: Field data, Benson (2010).

demonstration and activity methods to be most effective (39.8 and 38.3%, respectively). Majority (78.1%) of the respondents perceive demonstration and activity methods as the most effectively used in teaching with their means of 2.36 and 2.51, respectively. Demonstration method according to Brodie (2013) is extensively used for teaching agriculture. It involves the tutor showing, telling and doing something, which is observed by his audience thus the students. This facilitates learning by doing. The method usually stimulates students thinking formation of concepts generalizations and equips them with new skills as needed in agriculture.

The activity method is learner centered and involves investigation, experience or study in which pupils are allowed to develop and express their own ideas, thoughts (Bonney, 2015). He stressed that, it takes advantage of the curiosity and natural tendency of children to explore and play and so it is best for primary and JHS learners. However, as many as 21.5% of the respondents said the activity method was least effectively used by tutors. While more than a quarter of the respondents perceived project method (26.2%) and exhibition method (27.1%) to be least effective, more than a third of them asserted that role play (36.4%) and field trip of 43.0% of the methods were least effective. Culminating this with the field observations in the two colleges of education, these methods were rarely used and even when used, they were poorly organised.

Differences in perception of factors affecting the teaching of Agricultural science according to sex of respondents

Table 7 shows the relationship between male and female college students in their perception of factors affecting the teaching of Agricultural Science. The result shows that more females responded to the various perception

variables as in line with the sex distribution as discussed earlier. The result revealed that there was no significant association between male and female college students in their perception on the support of colleges' authorities towards teaching of agriculture, effectiveness of teaching methods used, attitudes of student towards the study of agriculture and constraints of teaching agriculture.

However, only effectiveness of tutors in teaching agriculture and constraints of teaching agriculture was found to have significantly association between male and female students at p-value of 10%. According to a related study by Mbori et al. (2018), the gender of teachers has a substantial impact on how well they are able to teach agriculture. The study added that female teachers have higher record of classroom management diversity and pay attention to the individual needs of students to ensure students' needs are addressed. However, the constraints in teaching of agriculture by tutors cannot be overlooked as this could have different impact on male and female students.

CONCLUSIONS AND RECOMMENDATIONS

The study concluded that the absence or inadequate resource materials (textbooks, syllabi, libraries, laboratories, tools, equipment and chemicals) in the colleges are constraints to the teaching of the subject. Apart from the discussions and lecture methods of teaching which are often used, students are not familiar with the activity, demonstration field trips, exhibition, projects and role play since they are rarely used by tutors. Agricultural Science in both colleges was mostly theoretically taught since opportunities for practical teaching are either non-existent or inadequate. Finally, agricultural science tutors though had the requisite skills and motivation to teach, the absence of resource materials and incentives among others however, serves

Table 7. Differences in perception of factors affecting the teaching of agricultural science according to sex of respondents.

Variable	Sex	n	Mean	SD	MD	SED	t-Value	Sig.																																															
Colleges authorities support towards teaching of agriculture	M	36	2.375	0.505	0.016	0.104	0.141	0.888																																															
	F	74	2.391	0.513					Effectiveness of tutors in teaching agriculture	M	36	2.396	0.330	0.015	0.070	0.0219	0.083*	F	74	2.411	0.354	Effectiveness of teaching methods used	M	35	2.861	0.640	0.138	0.168	0.8230	0.412	F	72	2.723	0.884	Attitudes of student towards the study of agriculture	M	34	1.946	0.489	0.157	0.101	1.564	0.121	F	74	2.103	0.486	Constraints of teaching agriculture	M	36	2.453	0.582	0.262	0.150	1.740
Effectiveness of tutors in teaching agriculture	M	36	2.396	0.330	0.015	0.070	0.0219	0.083*																																															
	F	74	2.411	0.354					Effectiveness of teaching methods used	M	35	2.861	0.640	0.138	0.168	0.8230	0.412	F	72	2.723	0.884	Attitudes of student towards the study of agriculture	M	34	1.946	0.489	0.157	0.101	1.564	0.121	F	74	2.103	0.486	Constraints of teaching agriculture	M	36	2.453	0.582	0.262	0.150	1.740	0.085*	F	74	2.715	0.806								
Effectiveness of teaching methods used	M	35	2.861	0.640	0.138	0.168	0.8230	0.412																																															
	F	72	2.723	0.884					Attitudes of student towards the study of agriculture	M	34	1.946	0.489	0.157	0.101	1.564	0.121	F	74	2.103	0.486	Constraints of teaching agriculture	M	36	2.453	0.582	0.262	0.150	1.740	0.085*	F	74	2.715	0.806																					
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	F	74	2.103	0.486					Constraints of teaching agriculture	M	36	2.453	0.582	0.262	0.150	1.740	0.085*	F	74	2.715	0.806																																		
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	F	74	2.715	0.806																																																			

n-111, *Significant at 10%, SD-standard deviation, MD-mean difference, SED-standard error difference.
Source: Field data, Benson (2010).

as a de-motivator to tutors.

In light of the findings, the following suggestions were made.

To help revivify the study of the agricultural subject, government should offer material resources on a sustainable basis, such as textbooks, curricula, laboratories, libraries, instruments, and equipment. Agriculture science as a separate subject should be re-introduced by the Ministry of Education in the curricula from the Junior High School through to the Universities. In line with emerging world trends, the course content of the subject should be diversified to include business oriented topics such as value-chain, marketing and research at all levels. Tutors should also use other methods of teaching such as demonstration, field trips, exhibition, and activities to make lessons more interesting for students. Students are future agricultural experts and decision makers, so it is important to give experiential learning opportunities special consideration. Extracurricular activities like on-farm research and demonstration plots that showcase agricultural practices can improve learning for students and make them more aware of the potential advantages of studying agricultural science.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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