

**OPENNESS TO EXPERIENCE TRAIT OF
AGRICULTURAL SCIENCE TEACHERS AS A
CORRELATE OF THEIR TEACHING EFFECTIVENESS
IN SENIOR SECONDARY SCHOOLS, ABIA STATE.**

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Abstract

The study was carried out to investigate openness to experience trait of Agricultural Science Teachers as a correlate of their teaching effectiveness. Three research questions were posed for study and one null hypothesis was tested at 0.05 level of significance. The study adopted the correlation design. The sample of the study was 94 Agricultural Science teachers from a sample of eight Local Government Areas from three education zones. Two instruments were used for data collection which were the Agricultural Science Teachers Openness To Experience Scale (ASTOES) and Agricultural Science Teachers Teaching Effectiveness Scale (ASTTES). The two instruments were face validated by three experts. The internal consistencies of (ASTOES) and (ASTTES) were 0.74 and 0.83 respectively which were determined using the cronbach alpha. Data were collected through the administration of 94 copies of each of the research instruments to the respondents where 100% recovery was recorded. The mean, standard deviations and Simple Linear Regression were used to analyzed the data collected. Results revealed that Agricultural Science Teachers teaching effectiveness and openness to experience were high to an extent, as there was a moderate positive correlation which was significant. Based on the findings, the study recommended that Government and school administrators should continue to motivate the teachers to maintain high level of teaching effectiveness and openness to experience. Also Personality assessments especially in the aspect of openness to experience

should be continued as one of the assessment tools in recruitment and selection of teachers by the Ministry of Education in Abia State.

Introduction

Agricultural science is an important subject in the senior secondary school that will actively help to launch the students toward effective participation in agricultural activities and choose a career in agriculture. Effective participation of students in agriculture will trigger the rapid development of agriculture in Nigeria. Hence, this is why the agricultural science is one of the few courses studied at all level of education. Agricultural science is an elective science subjects which students from arts, vocational and commercial can select. However, the study of agricultural science in senior secondary school will stimulate the students' interest in participating in agricultural activities which will eventually lead to rapid socio-economic development of the Nation. This is because agriculture has the potentials of becoming a major hub of a Nigeria economy, as it can be a major revenue generating sector of the nation's economy, creating employment for her teeming population, provision of raw materials for industries and self-sufficiency in food production. Despite the challenges that has confronted the sector in the past four decades; it remains a resilient anchor for national food security and job creation especially among the rural populace. This is because in the 1960s, Nigeria was the world's largest exporter of groundnut, the second largest exporter of cocoa and palm produce and an important exporter of rubber, cotton (Sekunmade, 2009). More recently, agriculture employs about two-thirds of Nigeria's labour force, contributes significantly to the GDP and provides a large proportion of non-oil earnings (Sekunmade, 2009).

The significant contributions of agriculture to the Nigeria economy can only be consolidated through effective teaching of Agricultural Science at the senior secondary schools in Nigeria. Agricultural Science simply deals with crop and animal production for human consumption, to this extent Erebor(2003) defines Agriculture Science as the science of rearing of animals and raising of crops for human consumption. Thus, the subject is a very important because of the growing influence of Agriculture in the economy of Nigeria which accounts for why it is classified as a vocational and science subject in the National Policy on Education (FRN, 2013). A good knowledge of Agricultural science is a pre requisite for the study of Agriculture and its allied Courses such as Agricultural Economics, Animal Science, Crop Science and Production. This importance gave rise to the objectives of Agricultural Science as stipulated in the Agricultural Science Curriculum to include, stimulating and sustaining student's interest in Agriculture, enabling students

to acquire basic knowledge and practical skills, preparing students for future occupations.

To achieve of the objectives of agricultural sciences in secondary schools, it calls for effective teaching of Agricultural Science by the Agricultural Science Teacher. To this extent, an Agricultural Science Teachers in the opinion of Olaitan, Asogwa and Assouzu (2010) is an individual who is trained in the pedagogical and technical areas of Agricultural Science and is charged with the responsibility of imparting knowledge, skills and attitudes in the area of agriculture to the students. The pedagogical aspect of teaching deals with the use of selected techniques and methods to present the content (Technical areas) of Agricultural Science to the students in order to attain the learning objectives. The technical aspect deals with the whole content of Agricultural Science as indicated in the different sections and topics, as this also requires practical activities and experiences in the field. Thus this entails effective teaching of Agricultural Science.

Effective teaching is one of the good qualities a good Agricultural Science Teacher must possess in order to achieve good academic performance and stimulate students interest in the study of agricultural science. A good Agricultural Science Teacher is one who displays effectiveness in the teaching of agricultural science; they are dedicated and are needed in schools in order to enhance the academic performance and stimulates student interest in the study of Agricultural Science. In this way, several authors have defined effective teaching in various ways. According to Mbakwen (2001) effective teaching can be defined as the extent to which a classroom teacher performs his/her instructional roles; given the necessary facilities such that students' learning will be maximized. Thus the teacher of agricultural science is a facilitator, motivator, an interventionist, a catalyst; who excites learning by creating a proper environment for the students to participate agricultural activities (Agomuo, 2015).

Effective teaching of an Agricultural science teacher involves a deep understanding of the subject matter, learning theories, students' differences, planning classroom instructional strategies, knowing individual students and assessment of students' understanding and proficiency with learning outcomes. To this extent, Agomuo (2015) asserted that variables of teacher's teaching effectiveness do include (a) teacher's knowledge of the subject matter, enthusiasm and responsibility for learning. (b) teachers activities that encourages learning.(c) promoting assessment activities that encourage learning through experience. (d) Effective Assessment and Feedback Mechanism; (e) Respect for the students. They also include teachers' ability to reflect, collaborate with colleagues and continue ongoing professional

development. This is why effective teaching is one of the criteria to determine the students' academic achievement in agricultural science and interest in agricultural activities.

Over the years, there has been a record of poor academic performances of the students in external examination especially in Agricultural Science, This trend of poor performances of secondary school students has also been confirmed by the West African Examination Council (WAEC). The WAEC result analyses for the year 2015, 2016 and 2017 reveal that the performance of Nigerian students in secondary schools in public examination has not been encouraging(WAEC Chief Examiners Report, 2017). Similarly the poor performances of students in Agricultural science also extends to Abia State. In Abia State, WAEC results analyses for the years 2015, 2016 and 2017 reveal that the poor performances of students has been inconsistent and relative poor on the average, following statistics of the performance of Nigerian students in secondary schools in public examination has not been encouraging(Abia State SEMB, 2017). Consequent upon this there have been a persistent decline of the student applying agricultural related course in tertiary institutions as well as persistent decline of students participating in agricultural activities.

Students poor performances in Agricultural Science and lack of interest in participating in agricultural activities could be attributed to a lot of factor amongst which include the inability of the agricultural science teachers to effectively teach students of the secondary schools Agricultural Science in a way to enhance students academic performances and to stimulate students interest. To this extent, a lot factors such as school organizational climate, teachers' job satisfaction, teachers' job motivation or teachers' emotional intelligence and personality factor of the teacher can be attributed to influencing the teachers teaching effectiveness towards enhancing the academic performances of the students. It is on these bases that the present study focused on determining how personality (openness to experience) of the teacher correlates their teaching effectiveness.

Openness to experience is a personality component of a teacher. Openness is a measure of depth, breadth and variability in a person's imagination and urge for experiences. The factors relates to intellect, evenness to new ideas, cultural interests, educational aptitude and creativity as well as an interest in varied sensory and cognitive experiences. According to Arif, Rashid, Tahira, & Akhter(2012) openness to experience deals with curious, intellectual, creative, cultured, artistic, sensitive, flexible imaginative of an individual. Openness reflects the degree of intellectual curiosity, creativity and a preference for novelty and variety of a person (Ryan, 2005). Manning et. al (2006) also stated the same perspective where they mentioned that openness is

about a person's openness to new experience and is manifested in such things as an individual's breadth of interests, level of creativity and intellectual qualities. At two extremes are the conventional teachers, who is relatively closed to new experiences and open individual, who is relatively open to such experiences. Based on Bozionelos (2004), teachers who score high on openness should be more likely to report involvement in their work, as their work can serve as the arena to entertain their curiosity, their appetite for exploring new perspectives, and their tendency to develop genuine interests for their teaching activities they are involved in. Thus this expected to influence their teaching effectiveness which perhaps is expected to influence their student's performances. It is on these bases that the present sought to determine how openness to experience correlates agricultural science teachers teaching effectiveness.

Expectedly, if the agricultural science teachers are very effective in their teachings, the students are bound to exhibit high academic achievement in internal and external examination, as well as show keen interest in participating in agricultural activities. However, the academic achievement of student in public examination like West African Examination Council (WAEC), National Examination Council (NECO) and National Business and Technical Examination Board (NABTEB) had been poor and inconsistent on the average over the past decade, as well as students participation in agricultural activities. These has raised an incessant complaint and comment from the public on the quality of Agricultural Science teacher's effectiveness in producing student for entry into higher institutions and trained manpower skill in agriculture. Meanwhile efforts by many researchers to proffer solutions to the problem of ineffective teaching of the teachers through variables such as teacher's qualification, school organizational climate, emotional intelligence and school environmental factors have not yielded the expected significant result.

It is in view of these that the present study sought to investigate through empirical evidences to provide answers to questions such as; To what extent openness to experience factor of agricultural science teachers correlate their teaching effectiveness?

One research questions and one hypotheses were posed for the study

1. To what extent does scores of teacher conscientiousness correlates their teaching effectiveness scores?

There is no significant correlation between the agricultural science teachers' scores on openness to experience and their scores on teaching effectiveness.

The null hypothesis was formulated and tested at 0.05 level of significance.

Method

The correlation research design was employed for the study, Correlational design aimed at determining the relationship between two or more variables and enabling us to ascertain the extent to which variation in one variable are associated with variations in another (Maduabum, 2004).

The study was carried out in Abia State and it covered all senior secondary schools in Abia state. The population for the study was 298 Agricultural science teachers from a total of 247 secondary schools that cut across 17 local government areas from three education zones of the state which were Aba, Umuahia and Ohafia Education Zones respectively.

The sample of the study was 94 Agricultural Science teachers which represent 32% of the total population from a sample of 72 secondary schools representing 29% across the 8 Local Government Areas representing 35% of the population selected from three Education Zones. The sample size for the teachers and schools was considered adequate because (Nwanna, 2007) recommended even the use of 10% for a population of a few thousand.

The multistage sampling was adopted where the first stage involved the use proportionate stratified sampling technique to select the teachers, school and local government areas. The second stage also involved the use of simple random sampling techniques to select the required number of Local Government Areas from each of the Education Zones. The third stage involves the selection of the schools from each of the Local Government Areas selected. The last stage involved the selection of teachers from each of the schools selected using the purposive sampling techniques since most of the schools have one Agricultural Science Teachers with exceptions of some schools having two teachers.

Two instruments were used for data collection, the instruments were the Agricultural Science Teachers Openness to Experience Scale (ASTOES) and Agricultural Science Teachers Teaching Effectiveness Scale (ASTTES), Agricultural Science Teachers Conscientiousness Scale (ASTCS) was adopted from the Goldberg's international personality item pool (IPIP) (Goldberg, 1992) and adapted. The adapted Agricultural Science Teachers Openness to Experience Scale (ASTOES) consisted of 6 items. It is divided into two sections. Section A focused on the Bio data of the respondents, while section B focused on (ASTTES). Agricultural Science Teachers Teaching Effectiveness Scale (ASTTES) consisted of 25 items. The items were spread in five clusters. Cluster A focused on Teachers knowledge enthusiasm and responsibility for learning which consisted of 6 items, Cluster B focused on

Teachers activity that encourage learning which consisted of 4 items, Cluster C focused on Promoting teachers assessment activities that encourage learning through experience which consisted of 5 items, Cluster D focused on Respects for students which consisted of 5 items and Cluster E focused on Effective assessment and feedback mechanism swchich consisted of 5 items.

To ensure the validity of the instruments, the two instruments were presented to three validates one from the Department of Educational Psychology, one from the Department of Agricultural Science Education and one expert from the Department of Science Education(Measurement and Evaluation) who ensured the face validity by vetting items on the instruments. The corrections and recommendations were effected by the researcher.

The internal consistencies of the (ASTOES) and (ASTTES) were determined using the cronbach alpha which yielded an internal consistency indices of 0.74 and 0.83 for (ASTOES) and (ASTTES) respectively. The researcher distributed 94 copies of each of the research instrument questionnaire through the help of research assistants who are teachers and after which they will return the instruments which have been scored. Thus100% recovery was recorded. Research questions 1and 2 were answered using the mean and standard deviations while research question 3 was answered using Simple Linear Regression(SLR) while the null hypothesis was tested using the hypothetical pvalue of the Analysis of Variance(ANOVA) of the Simple Linear Regression.

Results

Table 1: Simple Linear Regression analysis showing the extent of correlation between Agricultural Science Teachers Openness to Experience correlates their teaching effectiveness.

R	R Squared	Adjusted R-squared
0.673 ^a	0.454	0.448

a. Predictor: (Constant), Teachers Openness to Experience

The data in Table 1 revealed that there was a moderate positive correlation of $r = 0.673$ between Agricultural Science Teachers Openness to Experience and their teaching effectiveness. The calculated R^2 of 0.454 which also indicates that the variance observed in their teaching effectiveness was accounted for by the teacher openness to experience.

Table 2: Analysis of Variance (ANOVA) of the Simple Linear Regression analyses showing the significant correlation between Agricultural Science Teachers openness to experience and their teaching effectiveness.

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	1091.874	1	1091.874	76.353	0.000
Residual	1315.626	92	14.300		
Total	2407.500	93			

- a. Dependent Variables: Teachers Teaching Effectiveness
- b. Predictors: (Constant), Openness to Experience.

Data in table 2 shows an F- value of 76.353 and p-value of 0.000 since the p-value of 0.000 is less than 0.05, the null hypothesis which states that there is no significant relationship between the Agricultural Science Agricultural Science openness to experience and their teaching effectiveness was rejected. Hence this implies that there is a significant moderate positive relationship between the Agricultural Science Teachers openness to experience and their teaching effectiveness. Since the corresponding research question three a revealed a moderate positive relationship between Agricultural Science Teachers openness to experience and their teaching effectiveness.

Discussion

The finding revealed that there was a moderate positive correlation which was significant between the Agricultural Science Teacher's openness to experience and their teaching effectiveness in secondary schools. This findings are in agreement with the Separate findings of Arif, Rashid, Tahira, & Akhter, (2012), Supian and Khadijah (2014), and Buela and Mamman (2015) whose findings revealed high positive correlation which was significant between the Teacher's conscientiousness and their teaching effectiveness in secondary schools. This findings are in agreement with the separate findings of Arif, Rashid, Tahira, & Akhter, (2012), Supian and Khadijah (2014), Noraini, Norashikin, & Lily (2015) and Buela and Mamman (2015) whose findings revealed that teachers were open to experience have their effective teaching. This findings could be attributed to the fact that when these teachers are open in the course of their teaching with their students and fellow colleagues it predisposes them to been open about the ethics of effective teaching there by influencing their teaching effectiveness. Also when teachers are not open to the experiences, the teachers teaching effectiveness will not be effective. The implication of this findings is that teachers that academic

performances of the students in agricultural science will be enhanced since there is effective teaching as result of the agricultural science teachers openness to experience.

Conclusion

The study carried out to investigate the correlation between agricultural science teachers openness to experience and their teaching effectiveness in secondary schools. In summary, it can be concluded that moderate positive significant correlation exist between the Agricultural Science Teacher's openness to experience and their teaching effectiveness in secondary schools. The findings of this study provide positive implications towards the teaching of Agricultural Science in secondary schools and the schools. Thus, openness to experience trait of an Agricultural Science Teacher's educator contributes in ensuring effective teaching of agricultural science subject.

Recommendations

Based on the findings, the following recommendations were made

1. Government and school administrators should continue to motivate the teachers to maintain high level of teaching effectiveness.
2. Government and school administrators organize seminars and conferences where teacher's openness to experience are developed since it predict effective teaching of the teachers.
3. Personality assessments especially in the aspect of openness to experience should be continued as one of the assessment tools in recruitment and selection of teachers by the Ministry of Education in Abia State.

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