A Survey of Factors That Motivate Agricultural Science Students in Nigerian Secondary Schools.

Author: Olumide James Aladeokin

Abstract

The study investigated the perceptions of agricultural science teachers and parents on factors that motivate students to learn agricultural science. The purpose was to provide a descriptive analysis of some motivational factors that can foster students' motivation to learn agricultural science in Nigerian secondary schools. The population for the study included all agricultural science teachers and parents in Rivers state; 30 agricultural science teachers and 70 parents were randomly and accidentally selected for this study. A questionnaire was designed to collect data from the targeted audience. Result from the study indicated that peer motivation, self-motivation and adult authority have weak influence on the students' motivation to learn agricultural science. Furthermore, it was also discovered that collegial authority, students' expectation of success and relevance of topics to students' needs have strong influence on students' motivation to learn agricultural science. Learning agricultural science in Nigerian senior secondary schools is presently at the lowest ebb, students only registered for the subject at the Senior School Certificate Examination only to make up for the required number of subjects. In order to forestall this situation, there is need for motivation, hence, collegial authority, students' expectation of success and relevance of topics are motivational strategies that agricultural science teachers can engage in motivating students.

Keywords: Agricultural Science, Senior Secondary Schools, Motivation

INTRODUCTION

Agriculture, its Justification and Challenges in Nigeria Educational System

Agriculture is very important in any nation's economic and social development. This is because, in most countries of the world, it contributes about 68 per cent of their labour force and also part of the Gross Domestic Products (GDP) and market for industrial products, capital and investment, improved balance of payment to say the least 12.

In West Africa, government of various countries are introducing policies, programmes and regulations that are aimed at ensuring higher productivity and income for those engaged in agricultural production. Among these are agricultural subsidies, granting of agricultural loans to farmers and improved agricultural education curriculum. 8 (pg. 18) stated that, "the broad goal of the secondary school education is to prepare individuals for useful living within the society and higher education". Therefore, the teaching of and learning of agricultural science in secondary schools becomes that aspect of the broad goal of secondary school education that emphasize the acquisition of basic knowledge and practical skills needed for entry into the world of work in various disciplines including agriculture and allied fields. Unfortunately, however, the study of agricultural science and perhaps the performance of students lacked lustre.

Review of Literature

Effects of Motivation on Learning Agricultural science

Agriculture remains an important sector for Nigerian economy because, it has a high potential for absorbing unemployed and under-employed youths. It was in realization of this, that the Nigerian government (present and past) have emphasized the teaching of agricultural science

in primary and secondary schools, to give knowledge background, which prepares the students to be interested in agriculture and allied fields as source of livelihood.

Motivation is a combination of factors within a human being or animal that arouses and directs goal-oriented behaviour. It plays a very important role in learning, as it is capable of arousing and sustaining students' interest not only in agricultural science, but also in other subjects 6. Motivation, when applied to learning refers to a drive that makes learners want to learn. It equally involves increasing the effort of *students' behaviour in a positive manner. Motivation is a way of instigating or inciting students' desire for knowledge, need for achievement or interest in a particular subject matter. In this regard, 10 listed the manifestations of motivation to include the following:*

1. *Students' increased attentiveness in the class and learning situation;*

2. *Improved degree of commitment by positive response to assignment;*

3. *Increased degree of concentration, which could result in better display of understanding and attainment of skills.*

Furthermore, motivation is a desire to achieve a goal, combined with the energy to work towards that goal. Students, who are motivated, have a desire to undertake their studies and complete the requirements of their course. Based on this fact, 9 proposed the following as strategies to motivate students:

1. *Expectancy-value motivation*

2. *Self-worth motivation*

3. *Goal motivation*

4. *Self-determination motivation*

5. *Self-efficacy motivation*

6. *Flow motivation*

4,5 in his discourse on social cognition, highlights self-efficacy (the belief that a particular action is possible and that the individual can accomplish it) and self-regulation (the establishment of goals, the development of a plan to attain those goals, the commitment to implement the plan, the actual implementation of the plan and subsequent actions of reflection and modification or redirections. Motivation plays an important role in learning, and other performance related activities. For a factory worker, increase in wages could motivate him to put extra effort, buying gifts for one's spouse could elicit more love and affection, promotion to decision making cadre in an organization can be used to boost the morale of the workers. However, one is not sure which factor motivates the students in Nigeria's secondary schools to learn agricultural science, so as to take up careers in agriculture and allied fields.

Problem of the Study

Although, there have been many studies on the factors that caused the observed poor performances of students in the sciences, very few of them focused on agricultural science. For instance, 3 in a related study about the factors that influence students' attitudes toward agricultural science in Ikwerre local government area of Rivers State found out none of the

respondents was willing to pursue a career in agriculture and allied fields. Moreover, their findings indicated that most students offer agricultural science in senior secondary schools to make up for the required number of subjects to be registered for in senior school certificate examination (SSCE). Furthermore, many students associate practical agriculture (farm work) with punishment and this, one may say is very demoralizing to students. If this situation persists, then the government's efforts at educating her citizens to be self-reliant and achieving food security may be jeopardised.

Purpose of Study

This current study is interested in finding what factors can actually motivate students in secondary schools to learn agricultural science and take up careers in agriculture and allied fields Research Questions

1. Is there any relationship between peer-motivation and students' desire to learn agricultural science?

2. Is there any relationship between self-motivation and students 'desire to learn agricultural science?

3.What is the relationship between collegial authority and students' motivation to learn agricultural science?

4. What is the relationship between adult-authority and students' motivation to learn agricultural science?

5. What is the relationship between students' expectation of success and their motivation to learn agricultural science?

6.Is there any relationship between relevance of topics in agricultural science and

students' motivation to learn the subject?

7.Is there any difference in the responses of agricultural science teachers and parents?

Hypothesis

The following null hypothesis will guide in this study:

Ho: There is no significant difference in the mean responses of agricultural science teachers and parents on the factors that motivates students to learn agricultural science.

Materials and Methods

To answer the research questions, I employed the use of survey design, because it enables the respondents to give their opinion about the subject matter. The population for the study consists of all agricultural science teachers and parents in Ikwerre Local Government Area of Rivers State. Teachers and parents were chosen for this study mainly because they observed the students closely and they are in the best position to give their opinion on factors that motivate students to learn agricultural science.

For this study, 9 schools were randomly picked from the 13 public secondary schools, yielding 18 agricultural science teachers; 6 private secondary schools were also randomly picked from 9 private secondary schools, giving 12 agricultural science teachers. On the other

hand, 70 parents from Ikwerre Local Government were accidentally picked for the study. These gave the total of 100 respondents. The research instrument used in this study was a questionnaire for Agricultural science Teachers and Parents (QATP). The instrument was divided into 6 sub-headings, which include:

1. Peer-Motivation

2. Self-Motivation

3. Collegial Authority

4. Adult Authority

5. Expectation of Success

6. Relevance of Topics.

Furthermore, the instrument was made up of 25 items and was on a 5-point Likert scale of measurement ranging from strongly agreed to Disagreed. Face and content validation was carried out; while test-retest was used to determine the reliability, this yielded 0.75. The data were analysed using mean, standard deviation, mean cut-off and t-test analysis at $P< 0.05$

Findings

Research question 1: To what extent will peer's motivation influence students to learn agricultural science?

Table 1: Influence of peer motivation on agricultural science students.

A	PEER MOTIVATION	PARENTS' RESSPONSES	TEACHERS' RESPONSES	MEAN	MEAN CUT-OFF	DECISION
1.	Students in agric. Science are members of young farmers' club.	2.48	2.35	2.48	3.00	Rejected
2.	Students offering agric. Science are influenced by one another.	2.24	2.22	2.23	3.00	Rejected
3.	Community and age-grade activities have a strong influence on students' decision to learn agric. science	2.44	2.36	2.40	3.00	Rejected
4	The school Agric. project has a strong influence on students' decision to learn agric. science	3.02	2.91	2.97	3.00	Rejected
	Average	2.55	2.46	2.51	3.00	Rejected

Table 1 above shows the influence of peer motivation on students' decision to learn agricultural science. Data analysis reveals that the average mean score for the parents and agricultural science teachers was 2.51 which was less than the mean cut-off of 3.00. The result is that peer motivation is not a good factor of motivation in agricultural science among students in Nigerian senior secondary school.

Research question 2: To what extent will self- motivation influence students to learn agricultural science?

Table 2: Influence of self-motivation on agricultural science students.

B	SELF-MOTIVATION	PARENTS' RESPONSES	TEACHERS' RESPONSES	MEAN	MEAN CUT-OFF	DECISION
1.	When students are allowed to be independent during class activities, they motivated to learn agric. science	2.36	1.87	2.12	3.00	Rejected
2.	Whenever students lead class activities, their motivation is very high.	3.28	2.45	2.87	3.00	Rejected
3.	When students are given opportunity to choose what they want to learn, they become creative.	3.34	3.48	3.41	3.00	Rejected
4.	Most students in agric. science have personal goals that motivate them to learn agric. science.	3.06	3.13	3.10	3.00	Accepted
	Average	3.01	2.73	2.87	3.00	Rejected

Data analysis in table 2 above shows that parents have a mean score of 3.01, while the teachers' response was 2.73. However, the mean of means was 2.87, which is less than the mean cut-off score. The result is that self- motivation is not good in motivating agricultural science students in Nigeria senior secondary schools.

Research question 3: To what extent will collegial authority influence students to learn agricultural science?

Table 3: Influence of collegial authority on agricultural science students.

C	COLLEGIAL AUTHORITY	PARENTS' RESPONSES	TEACHERS' RESPONSES	MEAN	MEAN CUT-OFF	DECISION
1	When students are aware of teacher's educational background, they are always eager to learn from him/her	3.24	3.48	3.36	3.00	Accepted
2	Students ask questions on how to pursue certificate similar to teacher's.	2.58	2.74	2.66	3.00	Rejected
3	Students always see the agricultural science teachers as role models	2.78	2.87	2.83	3.00	Rejected

4	Students have more trust in you when they know you are qualified to teach agric. science.	3.60	3.44	3.52	3.00	Accepted
5.	As a result of teacher's qualifications and trust, students are highly motivated to learn agric. science.	3.34	3.55	3.45	3.00	Accepted
	Average	3.11	3.22	3.17	3.00	Accepted

Table 3 above shows the influence of collegial authority on the motivation agricultural science students. Data analysis shows that both parents and teachers' responses have a mean score of 3.17, while the mean cut-off is 3.00. the result is that collegial authority has a high influence on the motivation of agricultural science students.

Research question 4: To what extent will collegial authority influence students to learn agricultural science?

Table 4: Influence of adult authority on agricultural science students.

D	ADULT AUTHORITY	PARENTS' RESPONSES	TEACHERS' RESPONSES	MEAN	MEAN CUT-OFF	DECISION
1.	When a young graduate of agriculture teaches the subject, students always find it easy to trust him/her	2.86	2.35	2.61	3.00	Rejected
2	Agric. science students will have more respect for an older teacher not minding the qualification.	2.56	2.39	2.46	3.00	Rejected
3.	Agric. science students have the believe that age and wisdom are related factor.	2.83	2.22	2.53	3.00	Rejected
4.	Adult agric. science teachers are better in motivating students than the younger ones.	2.64	2.44	2.54	3.00	Rejected
	Average	2.72	2.35	2.54	3.00	Rejected

Table 4 above shows the influence of adult authority on the motivation agricultural science students. Data analysis reveals that both parents and teachers' responses have a mean score of 2.54 which is less than the mean cut-off 3.00. The result is that adult authority has a low influence on the motivation of agricultural science students.

Research question 5: To what extent will students' expectation of success influence them to learn agricultural science?

Table 5: Influence of students' expectation of success on their motivation to learn agricultural science.

E	EXPECTATION OF SUCCESS	PARENTS' RESPONSES	TEACHERS' RESPONSES	MEAN	MEAN CUT-OFF	DECISION
1.	When teacher set the objects in agricultural science class, students always work toward the achievement of the objectives.	3.16	3.35	3.26	3.00	Accepted
2.	When teacher have high expectation for the students, this motivates students to perform well in agric. science.	3.24	3.10	3.18	3.00	Accepted
3.	Students with high expectation of success always perform very well in agric. science	3.26	3.10	3.18	3.00	Accepted
	Average	3.22	3.23	3.21	3.00	Accepted

Table 5 above shows the influence of students' expectation of success on their motivation to learn agricultural science. Data analysis reveals that both parents and teachers' responses have a mean score of 3.21 which is greater than the mean cut-off 3.00. The result is that when students have a high expectation of success, it influences their motivation to learn agricultural science.

Research question 6: To what extent will relevance of topic to students' needs influence their motivation to learn agricultural science?

Table 6: Influence of relevance of topics to students' needs on their motivation to learn agricultural science.

F	RELEVANCE OF TOPICS TO STUDENTS' NEEDS	PARENTS' RESPONSES	TEACHERS' RESPONSES	MEAN	MEAN CUT-OFF	DECISION
1.	Whenever topics are relevant to students' needs they show more enthusiasm, thus increasing the level of motivation	3.48	3.39	3.43	3.00	Accepted
2.	Teachers often make topics in agric. science to be relevant to students' environment, thus increasing their level of motivation.	3.10	3.22	3.16	3.00	Accepted
3	When topics in agric. science are relevant to students' needs, they are able to develop meaning and purpose for their hard work.	3.34	3.35	3.35	3.00	Accepted
4.	Most agric. science teachers have the ability to make topics in agric.	2.96	3.13	3.05	3.00	Accepted

	science more relevant to students' needs.					
5.	The use of concrete instructional materials helps students to establish a link between their environment and what the teachers teach them in Agric. science.	3.66	3.61	3.64	3.00	Accepted
	Average	3.31	3.34	3.33	3.00	Accepted

Table 6 shows the responses of agricultural science teachers and parents on the effect of relevance of topics on the motivation of students to study agricultural science in senior secondary school. Data analysis reveals that both parents and teachers' responses have a mean score of 3.33, which is greater than the mean cut-off 3.00. The result is that when topics are relevant to the needs of students, their motivation to study agricultural science will be very high.

Summary of findings

s/n	Variables	Parents' responses	Teachers' responses	Mean	Mean cut-off	Decision
1	Peer Motivation	2.55	2.46	2.51	3.00	Rejected
2.	Self-Motivation	3.01	2.73	2.87	3.00	Rejected
3.	Collegial Authority	3.11	3.22	3.17	3.00	Accepted
4.	Adult Authority	2.72	2.35	2.54	3.00	Rejected
5.	Expectation of Success	3.22	3.23	3.21	3.00	Accepted
6.	Relevance of Topics	3.31	3.34	3.33	3.00	Accepted
		2.99	2.89	2.92		

Research question 7: Will there be any statistically significance difference in the mean responses of agricultural science teachers and parents about the factors that motivate students to learn agricultural science?

Ho: There will not be any statistically significant difference in the mean responses of agricultural science teachers and parents about the factors that motivate students to learn agricultural science.

Table 7: t-test analysis of the difference in means responses of agricultural science and parent about the factors that motivate students to learn agricultural science.

Variables	N	Means	S. D	Calculated t-value	Tabulated t-value	p-value	Decision
Parents	70	2.99	0.12	5.885	2.015	0.05	Accept
Agric. Science teachers	30	2.89	0.43				

Ho: There will not be any statistically significant difference in the mean responses of agricultural science teachers and parents about the factors that motivate students to learn agricultural science.

Finding: There is statistically significant difference in the responses of parents and agricultural science teachers on the factors that motivate senior secondary school students to learn agricultural science. ($t(5) = 5.885$; $p < 0.05$.

Decision: Do not reject null hypothesis.

Discussion

The findings of the study indicate that peer motivation has a weak influence on students' motivation to learn agricultural science. The weak influence could be attributed to the fact that generally, students in secondary schools in Nigeria have apathy toward agricultural science. It is also believed that students that belong to the same peer groups have the same value orientation and beliefs. Hence, rather for peer motivation to have a strong and positive influence on students' motivation to learn agricultural science, reversed is the case. This finding disagreed with works of [14], and [16], these authors posited that belongingness or need for affiliation is an important factor in human behaviour, but they do not specify whether the behaviour is positive or otherwise. However, the study agrees with [19], who posited that students who surround themselves with peers who value learning and educational process will also value their own learning and strive to enhance their education.

The results also indicate that self-motivation has a weak influence on agricultural science students' motivation. The weak influence could also be attributed to the fact that students do not see any future in learning agricultural science. The findings disagreed with [13] who proposed self-determination as one of the factors of motivation. Although, self-determination may work for other subjects, it does not work in agricultural science. Nevertheless, the study agrees with Bandura [4, 5].

The results of this study indicate that collegial authority has a strong influence on the students' motivation in agricultural science. This could be attributed to the fact that students are always seeking for someone to provide structure, direction and praise; today's students often ask what to do before thinking through their own plans. It seems they want things fixed so they can move to the next project. Hence, the most successful style is to ask questions that lead students to formulate their own ideas. However, the quality of agricultural science teachers in our secondary schools is very important to the use of this motivational style.

In addition, the teachers must be motivated to teach the subject; it is however unfortunate to note that there are several university graduates of agriculture, but few graduates of vocational agricultural education in Nigeria. This study agrees with [10], who stated that in a learning situation, the teacher is the pivot and is ranked next to students.

It was also observed in the study that adult authority has a weak influence on students' motivation to learn agricultural science. This could be attributed to the fact that the older teachers do not always continue to grow and learn and may grow tired of their jobs. The findings of this study agree with [2, 7], they both agreed that a year-long graduates are more confidents than graduates of 4-year programmes and as effective as senior teachers.

The results from the study also indicate that students' expectation of success has a strong influence on their motivation to learn agricultural science. This may be attributed to the following:

1. Ability of the teachers to set achievable goals and objectives.
2. Ability of the teachers to provide conducive environment for learning.
3. Ability of teachers to use instructional strategies that are students- centred
4. Allowing the students to take responsibility for their learning.

Expectation of success provides students with more power to pursue new goals. The findings of this study agree with [18], who posited that external praise for one's improvement is strongly related to fomenting the sense of success. He affirmed that there is a similarity between the experienced successes and satisfaction.

It was also observed that relevance of topics has a strong influence on students' motivation to learn agricultural science. This could be attributed to the following:

1. The ability of the teachers to create a conducive learning environment.
2. The ability of the teachers to relate agricultural science curriculum to the economic growth of the nation and students' needs.
3. The availability of concrete instructional materials or the provision of hands-on experience for the students.
4. Provision of rich and relevant content that makes the students to be thirsty for learning and which is capable of satisfying the thirst.

In addition, the finding is in consonance with [1], who posited that vocational agriculture was borne out of the need for the system to make its products useful to the students and the society. This is because, provision of real life experience, which are related to learners' environment and needs, is capable of instigating the students to explore their environment and therefore, prompt them to learn more.

Furthermore, when the data were subjected to t-test analysis, it was discovered that there was no significant difference in the mean responses of parents and agricultural science teachers on the factors that motivate students to learn agricultural science in Nigerian secondary schools.

Implications of the findings

1. Teaching and learning of agricultural science in Nigerian secondary schools have not been able to explore the possibilities inherent in peer influence on learning.
2. Students generally do not believe that an adult teacher is better than younger ones. A young motivated agricultural science teacher will adequately motivate the students.
3. Agricultural science teachers must be able to popularize the subject, this will propel the students to appreciate the subject and be willing to learn.
4. Most of the agricultural science teachers do not know how to motivate their students.
5. Most of the agricultural science teachers in Nigerian secondary schools are not trained to teach vocational agriculture.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Since the teacher is the anchor man for all other motivating factors, it is important that only qualified vocational agriculture teachers are employed to handle the subject.
2. The preparation of the teachers should not only focus on the pedagogy, but also on subject matter.
3. Government should give incentives to vocational agriculture teachers just as the government is doing to other science teachers.
4. Young graduates of vocational agriculture should be employed to teach agricultural science in Nigerian secondary schools.
5. Teaching of agricultural science as core- science subject should be de-emphasized
6. School authorities should endeavour to organize at least two out-of-school visits to commercial farming enterprise in order for students to see the opportunities inherent in learning agricultural science and the relatedness to their lives.
7. Practical agriculture should carry more marks than the theory

Acknowledgments

This work was supported by Professor B.J. Obomanu and Rev. Dr. Ndioho both of Faculty of Education, University of Port Harcourt, Rivers State. I also express my profound gratitude to Pastor E.A. Adeboye PhD, the General Overseer of the Redeemed Christian Church of God, worldwide; Engr Olusayo Ajayi and Miss Olajumoke Aladeokin for their financial assistance. I also appreciate all the researchers that contributed information toward this research.

References

Aladeokin, O.J. (2009) Developing Entrepreneurial Skills in Vocational Agriculture: Prospects and Challenges in Nsikak-Abasi Udofia (ed) Developing Entrepreneurial Skills Through Science Technology and Mathematics STM Education. 50th Annual Conference of Science Teachers Association of Nigeria (pp.96-99).

Andrew, M. & Schwab, R.L. (1995) Has reform in teacher education influenced teacher's performance? An outcome assessment of graduates of eleven teacher education programmes. Action in Teacher Education, 17, 43-53.

Arokoyu, A.A. & Aladeokin, O.J. (2009) Factors Influencing Students' Attitude towards Agricultural science in Ikwerre Local Government Secondary Schools of Rivers State. A Paper Delivered at the Science Teachers' Association of Nigeria (STAN) National Agricultural Science Panel Workshop, Umuahia, March 11th-14th.

Bandura, A. (1986) *Social foundations of thought and action: A social Cognitive theory.* Upper Stable River, NJ: Prentice-Hall.

Bandura, A. (1997) *Self-efficacy: The exercise of Control*. New York: W.H. Freeman.
Chauhan, S.S. (2007) *Advance Educational Psychology* (7th ed) New Delhi. Vikas Publishing House. PVT LTD.

Denton, J.J. & Peters, W.H. (1988) Programme assessment report: Curriculum Evaluation of a non-traditional programme for certifying teachers. Unpublished Report. College Station, TX: Texas A&M University.

Federal Republic of Nigeria (FRN) (2004) *National Policy on Education* (4th ed.), Nigeria Educational Research and Development Council Press.

Fives, H., & Manning, D. K. (2005). Teachers' strategies for student engagement: Comparing research to demonstrated knowledge. Paper presented at the Annual Meeting of the American Psychological Association, Washington DC.

Inyang, E.C.H. (1998) Effective Remedial Measure in Students' Mathematical Performance: A Focus on the Teacher Education Programme, Journal of ANCOPSS 5 (1), 17-19.

Ivowi, U.M.O. (1993*) Curriculum Development in Nigeria*. Sam Bookman Educational Communication Services, Ibadan.

Joshua, S.D., Pur, J.T., Gwary, M.M. (2008) Attitudinal Disposition of Senior Secondary School Students Toward Agricultural Science in Maiduguri Metropolis. Agricultural Journal, 3(2) 120-124.ISSN:1816-9155.

Klitgaard, R.E. & Hall, G.R. (1974) Are there unusually effective schools? Journal of Human Resources, 10 (3), 90-106.

Leonard, N., Beauvais, L. & Scholl, R. (1995) A self-concept-based model on work motivation. Paper presented at the Annual Meeting of the Academy of Management, August. http://www.cba.uri.edu/scholl/Papers/self_Concept_Motivation.HTM

Maslow, A. (1954) Motivation and personality. New York: Harper.

Murnane, R.J. & Phillips, B.R. (1981) Learning by doing, vintage and selection: Three pieces of the puzzle relating teaching experience and teaching performance. Economics of Education Review, 1(4), 453-465. https://doi.org/10.1016/0272-7757(81090015-7

Norhia, N., Lawrence, P. & Wilson, E (2001) *Driven: How human nature shapes our choices.* San Francisco: Jossey-Bass.

Obi, C.J. (2005) A critique of Vocational Agricultural Education in Nigerian Senior Secondary School. Journal of Home Economics Research, 6(2) 57-61.

Subramanian, U. (2001) Helping ESL learners to see their own improvement. The internet TESL Journal, 7 (4). http://www.iteslj.org/Techniques/UpendranImprovement.html

Sullivan, H.S. (1968). *The interpersonal theory of psychiatry*. New York: W.W. Norton & Company.

Author Note

Olumide James Aladeokin: http://orcid.org/0000-0002-2705-1364

No potential conflict of Interest was reported by the author.

Correspondence concerning this article should be addressed to aladeokinj@gmail.com. Africa Center of Excellence for Innovative and Transformative STEM Education, Lagos State University, Ojo, Nigeria