

School facilities, Parental Subject Perception and Teachers' Professionalism as Correlates of Students' Learning Outcome in Agricultural Science in Bayelsa State

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Abstract

Students' poor performance in science generally and Agricultural science in particular has been considered a serious problem in senior secondary school education by the major stakeholders in spite of various governmental efforts and instructional resources employed in the classroom to teach. The study carried out empirical investigation on school facilities, parental subject perception and teachers' professionalism as correlates of students' learning outcome in Agricultural Science. Four research questions that were raised and answered. This study adopted survey design of correlational type. Purposive sampling technique was used to sample 40 SS2 students per school and 400 parents of agricultural students as well as 20 teachers giving a total of 820 respondents. The three independent variables include school facility, parent subject perception and teachers' professionalism while the dependent variable is student learning outcome in Agricultural Science. The four instruments for data collection are: School Facilities Inventory (SF!) ($r=0.86$), Teachers' Professionalism Questionnaire (TPQ), ($r=0.71$), Parental Subject Perception Questionnaire (PSQ) ($r =0.76$) and Agricultural Science Achievement Test (ASAT) with reliability coefficient of 0.83. Inferential statistics was used to analyse the data collected.. Results revealed a positive and negative significant relationship among the predictors (School Facility ($r = .0248$, $p< 0.05$), Parental Subject Perception ($r a -.0244$, $p< 0.05$) and Teachers' Professionalism ($r = .0250$, $p<0.05$). Moreover, there is a positive multiple correlation among the three predictors ($R = 0.343$). Also, the model was found to be statistically significant ($F(0, 3%) = 17.651$, $p < 0.05$). It is therefore recommended that teachers should ignite student interest and increase student motivation to learn by making connections between what the students are learning and what is going on in their own lives.

Keywords: school facilities, parental perception, teachers' skills, students' learning outcome

INTRODUCTION

Education is the cornerstone of economic growth and social development. It is a principal means of improving the welfare of individuals; it increases the productive capacities of societies and country's political, economic, social and cultural institutions. Education leads to the integral development of the whole person, in terms of contributing positively to the development of the society, acculturation and learning how to learn, thus, there is an emphasis on the development of cognitive, affective and psychomotor aspects of learners to make them develop fully (Labo-Popoola, 2003). This made some educators affirm that education is the only means by which an individual can acquire specialized knowledge and skills regarded as prerequisites for economic development, social change and mobility. It is therefore, understandable why most government all over the world attach great importance to education (Emeke, Adeoye and Torubeli, 2006). Greenwald, Hedges and Lain (1996) opined that the wealth of a nation or society could determine the quality of education in that land; emphasizing that a society that is wealthy will establish good schools with quality teachers, learning infrastructures that with such, students may learn with ease thus bringing about good academic performance. Writing on the

role of facilities in teaching, Ndiku (2002) submitted that no effective science education programme can exist without equipment for teaching. This is because facilities enable the learner to develop problem-solving skills and scientific attitudes. In his contribution, Ezeazor (2003) reiterated that when facilities are provided to meet relative needs of a school system, students will not only have access to the reference materials mentioned by the teacher, but individual students will also learn at their own pace.

Agricultural science is a fundamental science which serves as the basis for understanding the complexities of how the food need of the society are been met. Agriculture is very important to human existence as it provides employment opportunity, provision of food, sources of revenue not only to the government but also to the individual farmers, likewise, it is a source of raw materials for the industries, and it is a source of foreign exchange earnings for the country. Despite the importance of Agricultural science, the level of performance of students in Agricultural science is still low. A well trained student whose capacity is built and developed will be able to add value to his community and contribute meaningfully to its growth and development and to a large extent lead to the sustenance of the nation. Olatoye, (2004) finds that,

in Nigeria, students' performance in science external examinations has been consistently poor as (Agricultural science inclusive) at the internal and shown in Table 1

Table 1: Statistics of entries and results for the May/June WASSCE (2007- 2012) on Agricultural Science

YEAR	TOTAL ENTRY	TOTAL SAT	%	TOTAL CREDIT (A1-C6)	%	TOTAL PASS (D7 & E8)	%	TOTAL FAILED	%
2007	1017267	980941	96.43	327656	33.40	221568	22.59	402257	41.01
2008	1025513	985740	96.12	436751	44.31	207336	21.03	326339	33.11
2009	1096682	1059983	96.65	491972	46.41	238215	22.47	279199	26.34
2010	1062496	1024039	96.38	483888	47.25	233069	22.76	277013	27.05
2011	1238596	1190795	96.14	626417	52.60	273312	22.95	276939	23.26
2012	1367713	1658357	96.41	691499	52.44	278293	21.11	320084	24.27

Source Test Development Division of WAEC

Fasasi (2012) observed that school facilities are a potent factor to quantitative education. The importance to teaching and learning of the provision of adequate instructional facilities for education cannot be over-emphasised. The dictum that "teaching is inseparable from learning but learning is not separable from teaching" is that teachers do the teaching to make the students learn, but students can learn without the teachers. Likewise, Gbeinbo (2009) asserted that learning occurs through someone's interaction with his /her environment, that is, a person is capable of generating learning from environment without being taught. Environment here refers to facilities that are available to facilitate students learning outcome. It includes books, audio-visual, software and hardware of educational technology; so also, size of classroom, sitting position and arrangement, availability of tables, chairs, chalkboards, teacher's guides, library, teaching aids, laboratories, shelves on which instruments for practical are arranged. Also, Conway (2008) asserted that facilities constitute a strategic factor in organizational functioning. This is so because they determine to a very large extent the smooth functioning of any social organization or system including education. He further stated that their availability, adequacy and relevance influence efficiency and high productivity in the performance of students.

Brown and Swanson (2001) asserted that the reasons for variation in learning outcome can be as a result of geographical location of school, material provision, availability of technology and quality of teachers. They also identified that low performing youths are mostly in public rural schools. Lackney (1999) stated that school buildings, classroom housing the students, the physical and environmental conditions, could cause poor students' learning outcome in school subjects. He pointed to the fact that school building which are located near factories, poorly ventilated, having large class size and school size and failure of embedding schools within their community, can cause poor learning outcome in school subjects. Most of these factors are visible in the urban and rural area where schools are situated.

A profession is an occupation or vocation that requires specialized education, special Is, knowledge of some departments of learning and qualifications to do, especially one with social status. It is a job that utilizes functional education and mental abilities rather than al or physical labour. Moreover, Ajayi (2001) asserted that Profession entails an occupation is dependent upon specialized intellectual study and training, for the provision of skilled to other members of society, government and non-governmental agencies for a definite or salary. In the same spirit, Damole (1992) posit that, a profession is a paid job that requires prolonged training and liberal or formal educational qualification. According to Grasha (1993) professions are, ideally, made up of people with high ethical standards who have special knowledge and skills. Anyone who seeks challenging what offers opportunities for personal growth along with social significance would do well to consider a career in education (Conway, 2008). Whoever adopts teaching as a profession assumes that obligation to conduct his or herself in accordance with the ideals of the profession. A teacher is constantly under the scrutiny of his students and the society at large. Therefore, every teacher should see that there is no incompatibility between his precepts and practice. The national ideals of education which have already been set forth and which he or she should seek to inculcate among students must be his or her own ideals. The profession further requires that the teachers should be calm, patient and communicative by temperament and amiable in disposition.

Parental subject perception is vital to the academic performance of a student. In most scenarios, parents wished their children to follow their path of career choice thereby imposing career choice to their children. Some parents consider career for their children based on the job prospect and how the course is ranked in the society. According to Western Australian University (1996) survey, parent sees Agriculture as non-lucrative career as compared to engineering, medicine and law. This to a great extent has influenced negatively the perception of agricultural science as a subject thereby discouraging students' academic achievement. A survey of Western Australian University students' choices, agriculture was ranked below engineering, environmental

sciences and sciences in terms of perceived job prospects and nearly 80% of students had not considered agriculture as a field of study (UWA, 1996).

Public perception (parents inclusive) of Agricultural science as in the case of United States is that, it involves farming; which to public opinion is seen as way of destroying natural environment (Conway, 2008). In Australia, the negative image of Agricultural science held by the largely urban-based community is reflected in the general press (Monteith & Field, 1995). Destruction of the environment, floods, drought and bankruptcy are typical of images portrayed in the media (Wilkins, 1995). According to Monteith and Field (1995), the negative perception of Agricultural science was caused by previous Agricultural practices which in most cases were faced with problems of land degradation and pollution among other environmental damage.

Statement of the Problem

Students' poor performance in science generally and Agricultural science in particular has been considered a serious problem in senior secondary school education by the major stakeholders (teachers, parents, researchers even the students themselves) as been confirmed by low level of students' performance in public examinations (SSCE) over the years. In spite of various governmental efforts and instructional resources employed in the classroom to teach Agricultural science, no substantial improvements have been noticed in students' learning outcome. Therefore, the study carried out empirical investigation on school facilities, parental subject perception and teachers' professionalism as correlates of students' learning outcome in Agricultural Science. The study was limited to students in public senior secondary school alone and does not concern students in private and post-secondary schools. More importantly, the study does not consider other factors that may be affecting students' learning outcome in Agricultural science other than: school facilities, parental subject perception and teachers' professionalism. The coverage area for the study was limited to Bayelsa State. Therefore, the results and conclusion drawn from the study was limited to the defined target population that was studied.

RESULTS

Table 2: Correlation Matrix of Student Achievement, School Facility, Parent Subject Perception and Teachers' Professionalism

	AAT	SF	PSP	TP
AAT	1.000			
SF	.248*	1.000		
PSP	-.244*	-.110*	1.000	
TP	.250*	.650*	-.147*	1.000
Mean	9.1304	0.320	21.600	38.640
SD	4.980	8.580	28.650	9.980

Note: * Correlations are significant at $p < 0.05$

Research Questions

Based on the stated problem, four research questions that were raised and answered are:

1. What type of relationship exist (a) among the predictors (School facility, parental subject perception and teacher professionalism and (b) between each of the predictors and the criterion (Students' learning outcome in Agricultural science)?
2. Does the obtain regression equation resulting from the set of three-predictor variables allow reliable prediction of students' learning outcome in Agricultural science?
3. Which of the three-predictor variables are most influential in predicting students' achievement in Agricultural Science?
4. Are there any predictor variables that do not contribute to the prediction model?

METHODOLOGY

This study adopted survey design of correlational type. The target population of this study 'comprised of all Agricultural Science teachers, students of senior secondary school offering Agricultural science and their parents in Bayelsa State. Multistage sampling procedure was adopted for the study. Random sampling technique was adopted to select Two Local Government Area in Bayelsa State and five secondary schools from each Local Government Area. Purposive sampling technique was used to sample 40 SS2 students per school and 400 parents of agricultural students as well as 20 teachers giving a total of 820 respondents. The three independent variables include school facility, parent subject perception and teachers' professionalism while the dependent variable is student learning outcome in Agricultural Science. This study used four instruments for data collection namely: School Facilities Inventory (SF!) ($r=0.86$), Teachers' Professionalism Questionnaire (TPQ), ($r=0.71$), Parental Subject Perception Questionnaire (PSQ) ($r=0.76$) and Agricultural Science Achievement Test (ASAT) with reliability coefficient of 0.83. Data collected was analysed using inferential statistics of Pearson product moment correlation and Multiple regression.

Table 2 shows a correlation matrix among predictors (School Facility, Parental Subject Perception and Teachers' Professionalism) and the criterion (Students' Achievement in Agricultural Science). The table also outlined the magnitude and direction of relationship that exists among the variables of the study. The result shows that, there exist a positive and negative significant relationship among the predictors (School Facility ($r = .0.248, p < 0.05$),

Parental Subject Perception ($r = -.0.244, p < 0.05$) and Teachers' Professionalism ($r = .0.250, p < 0.05$) and the criterion (Students' Achievement in Agricultural Science). This implies that an increase in the predictors leads to a corresponding increase in the criterion and vice versa. In other words, degrees of relationship observed between the variables suggest an association among them.

Table 3: Model Summary and Regression ANOVA

R	0.343
R Square	0.118
Adj. R Square	0.111
Std. Error of the Estimate	4.690

Model		Sum of Squares	DF	Mean Square	F	Sig
1	Regression	1164.766	3	388.255	17.651	.000
	Residual	8710.474	396	21.996		
	Total	9875.240	399			

From Table 3, it could be seen that there is a positive multiple correlation among the three predictors, which are (School Facility, Parental Subject Perception and Teachers' Professionalism) and Students' Achievement in Agricultural Science, which is the dependent variable ($R = 0.343$). This implies that the factors are quite relevant towards the determination of the dependent variable. The adjusted

R square value of 0.111 revealed that the three factors accounted for 11.1% of the total variance in the dependent variable. The remaining 89.9% could be due to factors and residuals in the model that are not considered in this study. Also, the model was found to be statistically significant ($F 0, 3\% = 17.651, p < 0.05$)

Table 4: Relative predictions of the predictor variables on students' achievement in Agricultural Science

Model	Unstandardized Coefficients		Standardized Coefficients Beta	T	Sig		
	B	Std. Error					
	(Constant)		4.144	1.202		3.448	.001
	SF		.083	.036	143	2.295	.022*
	PSP		-.036	.008	-.209	-4.385	.000*
	TP		.063	.031	.126	2.024	.044*

Note: * Correlations are significant at $p < 0.05$

Table 4 shows the individual variable's contribution to the prediction model on students' achievement in Agricultural Science. The table indicates that all the three predictors were found to have significant relative prediction to the students' achievement in Agricultural Science. These variables are: School Facility $t = .0.143, t(3, 396) = 2.295, p < 0.05(0.022)$, Parental Subject Perception, $t = -0.209, t(3, 396) = 4.385, p < 0.05(0.000)$ Teacher's Professionalism, $t = -0.126, t(3, 396) = 2.024, p < 0.05(0.044)$. They all contribute significantly to the prediction model. From table 4, it is obvious that there is none of the predictor variables that do not contribute to the prediction model.

DISCUSSION

The positive significant relationship that surface between school facilities and students' achievement in Agricultural Science buttresses the assertion of Ajayi,

(2004) who reiterated that when school facilities are provided to meet relative needs of a school system, students will not only have access to the reference materials mentioned by the teacher, but individual students will also learn at their own paces and achieve much in the school subject. Olutola (1982), noted that the availability of the school building and other plans contribute to good academic performance as they enhance effective teaching-learning activities. He further stated that well sited school buildings with aesthetic conditions, playground, lavatory, etc. according to the scholar usually contribute to achieving higher educational attainment by the students.

Moreover, this finding supports Bassey, (2002) who noted that the use of instructional resources would make discovered facts glued firmly to the memory of students. From their statements, one could conclude that resource materials as part of school facilities

serve as concrete channels of information which can help a learner to form a mental picture of what is being taught and reproduce it when it is time for evaluation. However the finding from this study negate Adeogun, (2001) who carried out study on the effects of school physical facilities on students' academic achievement, the report shows that, to some extent, school physical resources do not have much influence on students' academic achievement when compared with the effects of socio economic status of parents, student academic background attitude of student to studies. The positive significant of parental perception of subject buttresses the discovery of (Cooper, Linsay & Nye, 2000) who found that compared with parents who were not involved, involved parents developed more complex strategies for working with schools through their subject perception and their children to promote achievement. Parents' subject perception with their children's schooling is not a uniform process, and researchers have studied many dimensions of parental perception of school process in general. The perceptions of the parents on school subject command their involvement.

Likewise the significant relationship of teacher's professionalism is in consonance with the assertion of some researcher about the features of a typical teacher in relation to students' academic achievement. For instance, Ige, (2010) stated that teacher's instructional delivery that place premium on high levels of students' involvement are referred to as active learning strategies which enhance higher achievement in school subject. She explained further that advance organizers can be used for presenting information (either vertical or visual) for easier integration of the new materials. Advance organizer is a way of connecting what the learners had known to the new topic. This can be overview of a lesson, description of the learning activity, story, questioning, concept map, charts of what they have known, what to be learn and what they had been learnt.

Moreover, The Bonwel and Eisen, (2000) reiterates that classroom teachers are one of the chief determinants of educational achievement, whose academic qualifications, relevant professional training, working experience, among others, are most significant determinants of students' academic performance. They further asserted that the importance of teacher related factors to effective teaching and learning cannot be underestimated. It is therefore important for the teacher to be competent so that the students can benefit from the instructional delivery strategy he or she is giving.

Furthermore, Katharina, (2008) observed that there is a 'definite and direct correlation between teacher's knowledge management style and students' academic

achievement. He went further to say that if a teacher is having problems with knowledge management, then his/her students will certainly record low academic achievement scores. Moreover, David (2007), observes that teacher's knowledge management is not about creating elaborate systems of rewards and punishments. Rather, effective knowledge management is about keeping all of your students actively involved in all of your lessons. In this manner the teacher is addressing knowledge deficiency issues before they arise. The teacher is being pro-active rather than re-active. However, it is difficult to keep students actively involved if they are bored or uninterested. That's why student boredom is one of the two major factors contributing knowledge management deficiency issues. Therefore, it is the teacher's job to ignite student interest and increase student motivation to learn. The best way to do this is by making connections between what the students are learning and what is going on in their own lives. In other words, find out what is important to them. It can therefore be seen that the connection between teacher's knowledge management and students' learning which invariably leads to students' achievement cannot be waved aside. The result of this study had significantly enable educational administrators and curriculum planners to identify which of the variables most predict students' learning outcomes in Agricultural science and to what extent. It has also helped government to identify the importance and influence of improved school facilities for academic and professional excellence. Finally, the result of the study had proved beyond reasonable doubt the need for capacity building in form of training and re-training of the students and teachers in Agricultural science.

REFERENCES

- Adeogun, A.A. (2001). "The Principal and the Financial Management of Public Secondary Schools in Osun State" *Journal of Educational System and Development*. Vol. 5, No. I page 1-10.
- Ajayi, D.O. (2001). Assessment of Teachers' Effectiveness in Teaching Biology. Essential Ingredient for the 21g Century Biology Educators. *Journal of Ekiti State Science Teachers Association of Nigeria* 1, 19 - 18.
- Ajayi, T. (2004): "The Role of Government in Establishing a Foundation Level for Support and Sustainability of Education in Nigeria" Lead Paper Presented at the 2004 Conference of the Nigerian Association of Educational Administration and Planning University of Jos, September 20-30.
- Bassey, M.P. (2002). Availability of Resources for the Teaching of Science Subject in Public Secondary Schools. A Case Study of Some Selected Secondary Schools in Alimosho Local Government.

- Bonwel, C.C. and J.A. Eisen (2000). Creating excitement in the Classroom. ASHE ERIC Higher Education Report No. 1. Washington, DC, George Washington University.
- Brown, D. & Swanson, L. (2001). Rural Education: Students' Achievement. University of Michigan. Retrieved from sitemeller.Umich.edu/huder/356/study.
- Cooper, H., Linsay, J.J. and Nye, B. (2000). Homework in the Home: How Students, Family and Parenting-Style Differences Relate to the Homework Process. *Contemporary Educational Psychology* 25. 4: 464-487.
- Conway, K.S. and Houtenwille, A. J. (2008). Parental Effort, School Resources and Student Achievement. *Journal of Human Resources* 43.2:437-453.
- Damole, B.T. (1992). The Influence of Teacher Preparation and use of Instructional Material on Primary School Pupils Performance in Integrated Science. *Ilorin Journal of Education* 12, 56 - 64.
- David T. G. (2007). Building trust among educational stakeholders through participatory school administration, leadership and management. *Management in Education*, Vol. 21, No. 1,
- Emeke, E. A., Adeoye, A, Torubeli, V. A. (2006). Locus of Control, Self Concept and Emotional Intelligence as correlates of Academic Achievement Among Adolescent in Senior Secondary School in Oyo State. *Nigerian Journal of Clinical and Counseling Psychology*. Vol. 12, Issue 2. Eric Clearinghouse for Social Studies/ Social Science Education. Bloomington. Epstein, J. L. and Sanders, M.G. 2000. Connecting Home, School and Community: New Directions for Social Research. Handbook of the Sociology of Education. M.T. Ilallinan.
- Ezeasor, M.E.N (2003). School Environment and Teacher Effectiveness as Determinants of Student Achievement in Biology: A case study of selected secondary schools in Ibadan. An Unpublished Ph.D. Thesis,
- Fasasi, R.A. (2012). Improving 'canters' attitude to science under the Universal Basic Education Programme: The effect of ethno-science based instruction. Proceedings of the annual conference of Science Teachers' Association of Nigeria held at Abuja, Nigeria from 6 August-11 August, 2012, 169-177.
- Gbeinbo, E. R. (2009). The problems encountered in practical chemistry perceived to be influencing student's learning outcome. An Unpublished M.Ed dissertation of the University of Ibadan.
- Grasha A.F. (1993). A matter of Style: The Teacher as Expert, Formal Authority, Personal Model, *Facilitator and Delegator*. *College Teaching* 42 (4) 142 —149.
- Greenwald R., Hedges L. and Larne R. (1996). The Effect of School Resources on Student Achievement. *Review of Educational Research* 66(3), 361-396 (EU 596389)
- Ige, T.A. (2010). Effective Methods for Teaching the Sciences. A Paper Presented at TESCOM/STAN Workshop on Effective Method for Teaching Sciences for Technological Development in Oyo State.
- Katharina, M. (2008). Teacher Job Satisfaction, Student Achievement, and the Cost of Primary Education in Francoph'one Sub-Saharan Africa.
- Labo-Popoola, S. O. (2003). Teacher and School Variables as Determinants of Students Achievement in Summary Writing and Comprehension Aspect of English Language. An Unpublished Ph.D Thesis of University of Ibadan. Ibadan.
- Lackney, J.A. (1999). The relationship between Environment Quality of school facilities And students' performance: A congregational briefing to the US House of representative. Committee on Science. Retrieved from <http://www.edi.msstate.edu/performance.html>.
- Monteith, N. & Field, S. (1995). From the Valleys to the New Horizons. A paper delivered at a conference convened by the Australian Institute of Agricultural Science, November. Melbourne: ALAS.
- Ndiku, P. N, (2002). School and Teacher Factors as Determinant of Classroom Material Resources Utilization in Pre-Primary Schools in Lagos State. Unpublished Ph.D Thesis University of Ibadan.
- Olatoye, R. A. 2004. Emergeist Issues in Enhancing the Teaching and Learning of Science in Schools. Issues in Educational Measurement and Evaluation in Nigeria. Pp 102-114. Published by Institute of Education, University of Madan, Ibadan-Nigeria.
- Olutola, A. (1982). School Planning and Maintenance Introduction to Educational Planning. S Adesina (ed). Ile-Ife University of I fe Ltd, p.210-219.
- University of Western Australia (1996). Agricultural Careers Survey Report number 95/5 Prepared by the institutional Research Unit, Planning Services, The University of Western Australia.
- Wilkins, J. 1995. Sowing the seeds. A paper delivered at a conference convened by the Australian Institute of Agricultural Science.