

SENIOR SCHOOL SCIENCE TEACHERS' AWARENESS OF SUSTAINABLE DEVELOPMENT GOALS

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Abstract

The current trend of Nigeria economy is towards achieving development in all facets of life. These developments should be sustained across generations. The role of science teachers in this regards and in National development cannot be over emphasized, hence, the need to explore their awareness of science teachers on Sustainable Development Goals (SDG). Four research questions were formulated, three of which translated to hypotheses. A descriptive survey method was adopted and a researcher-designed questionnaire was used for data collection. A random sampling technique was utilized to select 205 teachers that participated in the study. The t-test and ANOVA were used for the analysis. The study found a non-significant difference in (i) teachers gender; (ii) qualification; and (ii) experience with respect to science teachers' awareness of SDGs. The study recommended that teachers ???????????

Introduction

The expectation of Nigeria educational system with respect to the structure of its requirements, standard, administration, management and implementation are implied in the National Policy on Education. The 2013 edition of National Policy on Education stresses the need to embrace the value of the Sustainable Development Goals into all levels of education, one of which is equal and quality education opportunities for all level of education. The policy also advocated for free, compulsory and universal education at the basic, university and adult literacy program where applicable (NPE, 2013). Basic education is expected to be free and compulsory in order to allow all children have access to quality education, and ensure that every child has a foundation upon which further learning rest.

Senior secondary school is the next level after basic education; it is a branch of post-basic and career development education that prepares students for tertiary level. Like other level of education, it is characterized with a number of goals, some of which include catering for variability in talents, personalities, career prospects and future role; provision of competent manpower in the field of applied sciences, technology and commerce; motivating students that have the potential to advance to higher education actualize their mission and achieve excellence among others. Critical examination of these goals informs one of its relatedness to Millennium Development Goals which has been replaced with Sustainable Development Goals (SDGs).

Sustainable Development Goals (SDGs) implies the improvement on the present need of the society without jeopardizing the need of the oncoming generation. Emas (2005) defined SDGs as the advancement on the current need of the citizen without conceding the need of future generation. It is often referred to as global goals and they are 17 in number. Carruthers (2018) submitted that SDGs were created by the United Nations in order to provide common set of developmental goals for all communities in every nation

with a deadline of 2030. The fifth goal of SDGs, that is, gender equality, is already infused into the policy of Nigerian schools. To ensure every child count policy, primary education had been made free and compulsory for everybody irrespective of their gender. This is one of the means through which gender equality could be sustained.

The need to have a decent work and economic growth as implied in the goal eight of SDGs is one way of determining growth in economic. Having a diversified number of competent manpower across fields is one of the intent of secondary education. This is a clear indication that the National Policy on Education had incorporated into its policy the goals of SDGs. Having a decent work could be inferred to having a stable source of income, which could assist a family to provide basic need of food, cloth, education and housing, hence, able to get rid of hunger and poverty; which are goal one and two of SDGs respectively.

Having a decent work and stable source of income could also provide easy access to good health and wellbeing of the citizens. This could also make quality education affordable to Nigerians. These are vital basic necessity that could hasten the realization and sustainability of other goals of SDGs. This further attest to the significance of education in ensuring a well-developed and stable society that do not only cater for todays need but only cater for the future generation.

Every level of education is expected to bring about continual development. This continual development is achievable if, every stakeholder in education is dedicated to playing an active role in ensuring the development. Teachers as one of the stakeholders have duties expected of them in the area of pedagogy and in the subject matter. Example of such duties is that teachers must ensure that students learn the essential things required for the goals of education to be actualize. This agrees with the submission of Cambers, Chapman, Diamond, Down , Griffith and Wiltshire (2008) that teachers are required to nurtured young people and future generation, a socially functioning youth now and a responsible adult in future.

These responsibilities of teachers further affirmed the fact that teachers role are crucial to producing a responsible citizen that might contribute positively to the needed manpower of the society. Cambers *et al.* (2008) also sensitized us to the facts that teachers are character modelers and agent of change. This ensure a good disposition on the part of the teacher in dealing with various problems that might be confronting the students, thereby counseling them appropriately on why they need not to give up either in career related problems or social vices. These consequently help either in eradicating problem of juvenile delinquency or ensuring the realization of the goals of education. These are the ways by which knowledge of pedagogy contributes to sustainable development.

Teachers are supposed to be long life learners and should be able to cope with the development of the changing society. Teachers transmit skills, knowledge and values to learners through the teaching exercise. Oyeleke, Akinyeye and Opeloye (2013) described teacher as someone that possesses appropriate skills, knowledge, task, and attitude and instruct learners on such competences in the physical or virtual classroom. Teachers' effectiveness depends on a number of factors among which are the qualification, experience and gender. Teacher qualification is of the skills acquired through training and

a very important factor that could influence the how well the content to teach is conceptualizes and deliver to students.

Ebuoh (2011) explored gender influence on teachers' attitude towards biology in Enugu Local Government Area of Enugu state, the study reported a non-significant difference in the attitude of students towards biology. Attitude of male and female senior school students towards mathematics was compared by Adebule & Aborisade. (2014). The study confirmed that gender does not influence students attitude. Similar result was found by Kimani, Kara and Njagi, (2013)

Ibe, Nworgu and Anyaegbunam (2016) assessed the influence of teachers' characteristics on academic achievement of secondary school student in biology. A significant difference existed between teachers (i) gender; (ii) qualification; (iii) experience and academic achievement of students in biology. Overt and Ofem (2017) researched on teachers' variable and application of test blue print in learners' assessment in secondary schools in Cross Rivers. The study established a non-significance influence of years of teaching experience on teachers' application of test blue print.

Research Questions

The study provided answers to the following questions:

1. Are the science teachers aware of the sustainable development goals?
2. Does the awareness of science teachers vary based on gender?
3. Are there variations in the awareness of qualified and unqualified science teachers on SDGs?
4. Are there differences in the awareness of teachers on the basis of teaching experiences?

Research Hypotheses

The following hypotheses were tested in this stud:

- H0₁: There is no significance difference in the awareness of male and female science teachers on SDGs.
- H0₂: A significance difference does not exist in the awareness of qualified and unqualified teachers on SDGs.
- H0₃: There is no significance difference in the awareness of science teachers on SDGs based on teachers' years of teaching experience

Methodology

The study utilized a descriptive method of a survey type. All senior school teachers in Kwara State constituted the target population for the study. Random sampling technique was used to select 250 teachers that took part in the study. A validated questionnaire developed by the researchers was utilized to source for information from teachers on their awareness of the SDGs. Out of the 250 questionnaires that were distributed to teachers across the 16 Local government areas of the state, 205 questionnaire forms that were appropriately filled were utilized for the analysis.

A reliability value of 0.79 was obtained using Cronbach alpha. The *t-test* and ANOVA were used for data analysis. Hypothesis one was subjected to *t- test* statistic while hypotheses two and three were tested using ANOVA.

Results

Research Question One: Are secondary school science teachers aware of SDGs?

The mean and standard deviations of the teachers' awareness of each item of the questionnaire is shown in Table 1. The table revealed that out of 17 items, the teachers were aware of 14 items which are items 1,2,3,4,5,6,7,8,9,10, 12,15,16, and 17. This is determined by comparing the mean values of the items with the average mean of all the items which is 3.07. This means that the respondents were aware of majority of the SDGs.

Table 1: Secondary school Science Teachers Awareness of SDGs

S/No	ITEM	Mean	Std. Deviation	Decision
1	Sustainable development goals should be incorporated in to all levels of education especially secondary school	3.64	0.56	A
2	Seminar should be organize for teachers on the need to adopt sustainable development goals	3.61	0.61	A
3	SDGs ensures inclusive and equitable education and promote lifelong opportunity for all	3.42	0.60	A
4	Science education is very necessary for the attainment of the SDGs	3.51	0.62	A
5	Attainment of the SDGs translate to better place to live in the world	3.26	0.71	A
6	SDGs implementation influences teachers performance in class	3.25	0.62	A
7	The school has a large role to play as regards attainment of SDGs	3.34	0.63	A
8	The SDGs are important because they will future direction of development	3.36	0.60	A
9	The SDGs could influence government planning and funding priorities	3.22	0.69	A
10	The SDGs are a new set of universal goals to end global poverty	3.21	0.64	A

11	The SDGs do not provide a complete solution to all global and national problems or break into major structural issues	2.95	0.80	NA
12	Integration of SDGs into the curriculum will enhance its implementation	3.23	0.65	A
13	The implementation of SDGs depend on teachers' qualification	2.99	0.83	NA
14	SDGs will end poverty in all its form everywhere and promote sustainable agriculture	2.97	0.70	NA
15	SDGs will ensure healthy life and promote wellbeing for all at all ages	3.13	0.61	A
16	SDGs ensure availability and sustainable management of water and sanitation for all	3.14	0.68	A
17	SDGs will promote full and productive employment and decent work for all	3.19	0.66	A

Research Question Two: Does the awareness of science teachers vary based on gender?

As shown in Table 2, the *t*-test analysis revealed that the male teachers had a mean value of 55.85, Standard Deviation 5.87 while that of female are 55.07 and 6.39 respectively, this implies that male are slightly more aware than the female

Hypothesis One: There is no significance difference in the awareness of male and female science teachers on SDGs

The *t*-test analysis in Table 2, showed that a $t_{(203)} = 0.89$, at $p > 0.05$. Since the *p*-value is greater than 0.05, it means there is no significant difference in the awareness of male and female teachers on SDGs. Hence, the null hypothesis formulated is not rejected

Table 2: The t-test Analysis of teachers' Awareness of SDGs based on their Gender

Gender	N	Mean	Std	T	df	Sig	Decision
Male	97	55.85	5.87	0.89	203	0.37	Not Significant
Female	108	55.07	6.39				

Research Question Three: Are there variations in the awareness of qualified and unqualified science teachers on SDGs?

The descriptive statistics of teachers with varying qualification on SDGs awareness as illustrated in Table 3 shows that teachers with Ph. D. and Masters' degree are the group

having the highest awareness of the goals than those with B. Sc. and NCE holders. This shows that the awareness of the teachers varied slightly on the basis of their qualification.

Table 3: Descriptive Statistics of teachers' Awareness of SDGs based on their Qualification

Qualification	N	Mean	Std. Dev.
Ph.D. & M .Ed	47	55.98	6.28
B.Sc. Ed	126	55.51	6.44
NCE	32	54.38	4.61
Total	205	55.44	6.14

Hypothesis Two: A significance difference does not exist in the awareness of qualified and unqualified science teachers on SDGs.

The ANOVA analysis shown in Table 4 indicated that $F_{(2, 203)} = 0.67$, at $P > 0.52$. This implies that a significant difference does not exist among qualified and unqualified teachers. Since the $p > 0.05$, the null hypothesis is not rejected.

Table 4: Analysis of Variance of Teachers' Awareness of SDGs based on their Qualification

Between Groups	Sum of Squares	df	Mean Square	F	Sig.
	50.52	2	25.256	0.67	0.52
Within Groups					
Total	7655.97	203	37.90		
	7706.49	204			

Research Question Four: Are there differences in the SDGs awareness of science teachers on the basis of teaching experiences?

The descriptive statistics of mean and standard deviation in Table 6 shows that teachers of 0- 10 years of teaching experience had the highest mean of awareness with 55.91, followed by 21- 30 with 55.25, then 11-20 with the least mean of 54.84. This indicated that there are differences in teachers' awareness on the basis of their experience.

Table 6: Descriptive Statistics of teachers' Awareness of SDGs based on Years of Teaching Experience

Teaching experience	N	Mean	Std. Dev.
0-10	106	55.91	5.46

11-20	75	54.84	6.61
21-30	24	55.25	7.49
Total	205	55.44	6.46

Hypothesis Three: There is no significance difference in the awareness of science teachers on

SDGs based on teachers' years of teaching experience.

Table 7 revealed a F value of 0.67 at 2, 205, degree of freedom. This shows that there is no significant difference among the three categories of experience; because the p -value is greater than 0.05 and as a result of this, the null hypothesis is therefore not rejected

Table 7: Analysis of Variance of Respondents' Awareness of SDGs Based on their Years of Teaching Experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	50.85	2	25.43	0.67	0.51
Within Groups	7655.64	202	37.90		
Total	7706.49	204			

Discussion

It could be deduced from the findings that teachers are aware of majority SDGs. This implies that SDGs are attainable since every teacher is conscious and aware of what is expected of them as far as global development is concerned. Also evidence from the study is the fact that the awareness of male and female teachers on SDGs is statistically the same. This might be as a result of the fact that gender gap in STEM-related fields is gradually fading off and subsequently more women are taking up the challenges of excelling in fields that were previously gender stereotyped. The finding on gender agree with result obtained by Ebuoh (2011); and Adebule & Aborisade (2014) who found no significance difference between male and female students attitude.

The finding on the qualification of teacher revealed that qualification does not influence their awareness. Though their differences are not significant, those with higher degrees (Ph.D. and Master) had slightly higher mean than the NCE holder. This is likely due to the fact that these categories of teachers have access to more contents and pedagogy. This affirmed the results obtained by Ibe, Nworgu and Anyaegbunam (2016); Overt and Ofem (2017) who reported non – significant difference (i) between qualified and unqualified teachers; and (ii) among teachers with varying years of experience.

Significant difference did not exist among teachers with varying experience, but the study confirmed the fact that teachers with less experience were more current and aware of the recent developments in the society than the moderately experienced and experienced teachers.

Conclusion

The study established that all teachers were aware of most of the Sustainable Development Goals and that their gender, qualification and experience did not intervene in their awareness of those goals that could be sustained.

Recommendations

Based on the outcome of the study, the following recommendations were made:

1. More awareness should be created for teachers to ensure the conceptualization of all the 17 goals
2. Teachers with lower qualifications should be encouraged to embark on further studies in order to broaden their knowledge on current inclinations in their fields.
3. In-service teachers should be exposed to regular trainings in form of seminars and workshops to update their knowledge on current trends and issues in the field of education

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