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Influence of Language On Students' Participation in Science Lessons in Ekiti State Secondary Schools

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Abstract

The study investigated the influence of Language on students' participation in Science Lessons in Ekiti State Secondary Schools. The study adopted descriptive research design of Survey type. The population of the study consisted of senior secondary three (SS3) science students in Secondary Schools in Ekiti State. The sample of the study comprised of senior secondary three (SS3) science students in the selected secondary schools in Ikole Local Government Area of Ekiti State. Random sampling was used to select four mixed Secondary Schools in Ikole Local Government Area of Ekiti State. The students were selected using stratified random sampling. Self-Structured questionnaire was used to collect relevant data for the study. The questionnaire was constructed by the researcher and was given to experts in the field of Science Education to ensure the face and content validity. In order to determine the validity and reliability, the data collected on the two separate occasions were analyzed using Pearson product moment correlation using split half method. The result obtained on the two occasions showed a correlation coefficient of 75.0 and 78.0 respectively. Data collected were analyzed using descriptive statistics such as frequency count; percentage and standard deviation were used to answer the general questions raised. It was concluded that the language used by the teacher will have negative influence on the students if the teacher uses difficult languages fail to simplify scientific terminologies and uses very poor method of teaching. It was recommended among others that science teachers must be encouraged to use language that will make the learners understand what the teachers are saying while the weak students must be assisted by teachers by speaking simple sentences.

Keywords: Language, Student's Participation, Science Lessons, Gender, Mother Tongue, Biology,

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Background to the Study

Language of instruction is a key element in education since it is a medium through which knowledge is imparted and shared among the learners and teachers. If the language of instruction is not well familiar to the learners and/or teachers, teaching and learning cannot be effective (Dorasamy, 2019). Therefore, language of instruction problems results in educational problems. While language can serve as a means of effective teaching and learning, it can also be a barrier in learning, especially if there is mismatch between the language of teaching and the language known by the learner (Mosha, 2014).In terms of the links between language policy and education quality, the research indicates that using the mother tongue in the classroom enhances classroom participation, decreases attrition, and increases the likelihood of family and community engagement in the child's learning (Dorasamy, 2019; Kinyaduka & Kiwara, 2017).Research also shows that using the mother tongue as the medium of instruction enhances the child's cognitive learning processes, and that learner-centered learning has to be carried out in a language the child speaks in order to be effective. In addition, evidence on the financial aspects of language of instruction policies demonstrates that widespread concerns about the high costs of local language as the medium education are not based on evidence. Studies also show that higher implementation costs in local language use are more than offset by lower student attrition and dropout rates (Smith, 2017).

Nigeria is one of the third world countries, this categorization or assertion is based on the level of technological development. For such a country to meet up those in the forefront serious and rapid technological development is paramount and this can never be achieved without science being focused in all its ramifications, even right away from the elementary level. This fact has been noted by the recent curricula and policy developers. No wonder various forms of science have been introduced into the curricula at various stages of education e.g. rural science, elementary science, general science, pure science, applied science among others

Language as a means of communication has been a major problem in learning and teaching all the types of sciences mentioned above. Series of efforts had been conceived and executed partially to alleviate many of these problems. It is obvious that no country can achieve greatness technologically without paying serious attention to language as a means of communication. Many world notable countries e.g Japan and China are aware of the importance language can play in the development and therefore develop both science and language together. Nigeria is seriously yearning for such development in areas of technology through science therefore the issue of language development which has been a great problem needs to be addressed.

Oluwole (2008) while lending his voice to the potency of indigenous languages as a medium of instruction in modern education states, 'It is therefore generally acceptable that in teaching and learning processes, the mother tongue of the child is of utmost importance. For one thing, it categorizes a large part of the child's environment, that is, it has names of all the objects, actions, ideas, attributes and so on that are so important to him as well as to any society. I quite agree with the view that a child's mother tongue, an indigenous language or a Nigerian language is the most appropriate vehicle to convey the theme, concepts and subject matter of what is to be learnt to the Nigerian child.

Statement of the Problem

It is often observed that fewer than expected students offer science subjects at external examinations like WAEC and NECO in our secondary schools. The researcher's personal experience revealed that the major reasons why students do run away from science subjects apart from computational inability are language problem. Though other problems identified include improper handling of practical, poor guidance and counseling services but language has been the greatest factor for retrogression in learning science.

Many students are failing science subjects because of their poor competency level in the use of the language. WAEC chief examiners (2009) has reported that many students failed because they lack the basic language tools to describe their findings during practical examinations and also that they are incompetent in making their ideas clear through language expression when answering essay questions in science examinations.

Therefore, the researcher investigated the influence of language on students' participation in science lessons in Ekiti State secondary schools.

Purpose of the Study

The study investigated the influence of Language on Students' Participation in Science Lessons in Ekiti State Secondary Schools. Specifically, the study proffers solutions to the poor language development of science students. It also examined ways by which science teachers can encourage their students to study and understand science through the language use by the teachers.

Research Questions

1. Does the language of the teachers contribute to the level of students' participation during science lessons?
2. Has the teacher's use of language any impact on the students' performance in science?
3. Will the sex of the students have any significance influence on their participation and performance in science lessons?
4. Will there be any significant difference between teacher's use of language and method of teaching science lessons?

Research Methodology

The research design adopted for the study is the survey type of the descriptive research method of survey method for the careful identification of population, the selection of the sample from the participation and collection of data to be able to discuss the effects of language on students' participation in science lessons. The population of the study consisted of senior secondary three (SS3) science students in secondary schools in Ekiti State. The sample of the study comprised of senior secondary three (SS3) science students in the selected secondary schools in Ikole Local Government Area of Ekiti State. Random sampling was used to select four mixed Secondary Schools in Ikole Local Government Area of Ekiti State. The students were selected using stratified random sampling. Self-Structured questionnaire was used to collect relevant data for the study. The questionnaire was constructed by the researcher and was given to experts in the field of Science Education to ensure the face and content validity. The questionnaire was constructed by the researcher and was given to experts in the field of Science Education to ensure the face and content validity. The questionnaire was validated by the researcher who administered the questionnaire on forty Secondary School students on different occasions. In order to determine the reliability and validity, the data collected on the two separate occasions were analyzed using Pearson product moment correlation using split half method. The result

obtained on the two occasions showed a correlation coefficient of 75.0 and 78.0 respectively. The valued obtained were considered very high to make the instrument reliable. Data collected were analyzed using descriptive statistics. Descriptive statistics such as frequency count, percentage and standard deviation were used to answer the general questions raised.

Results

The descriptive statistics, frequency and percentage were used to explain the scores of the respondents. Also the general information about students were analyzed as shown in the table below:

Age	Number	%
13 – 14 years	60	30
14 – 15 years	120	60
16 – 17 years	20	10
Female	110	55
Male	90	45

Research Question 1: Does the language of the teachers contribute to the level of students' participation during science lessons?

Table 1: Teacher's language and students' participation in science lessons.

	Agreed		Disagree	
	Number	%	Number	%
Students do not often participate in science because of the terminologies used by the teacher.	120	60	80	40
Some students lack the ability to understand simple sentences.	110	55	90	45
The use of language during science lessons by the teachers often put off the students' mind from science lessons.	160	80	40	20
Some teachers are not always ready to simplify scientific terminologies during science lessons.	156	78	44	22
Some teachers are incompetent in the use of language to communicate.	146	73	54	27
Some science teachers do not normally consider weak students in their use of language.	136	68	64	32

The table shows that 120, 60% of the respondents agreed that lack of students' active participation in science lessons is due to the difficult terminologies used by the science teachers while 80, 40% disagreed with the assertion. Also, 110, 55% students agreed that some of the students lack the ability to comprehend simple sentence while 90, 45% of the respondents disagreed with this. 160, 80% of the respondents agreed that the language of some science teacher's pot off the students while 40, 20% disagreed. Also, 156, 78% of respondents agreed that some teachers are not ready to simplify their language while 44, 22% disagreed.

On the issue that some teachers are incompetent in the use of language, 146, 73% agreed while 54, 27% disagreed. On the issue that some teachers do not consider weak students in their use of language during science lessons 136, 68% of the respondents agreed while 64, 32% disagreed.

Research Question 2: Has the teachers' use of language any impact on the students' performance in science lessons?

Table 2: Teachers use of Language and Students Performance in Science Lessons.

	Agreed		Disagree	
	Number	%	Number	%
Some teachers are less concerned about the poor performance of the students in science subjects.	130	65	70	35
Some teachers construct their questions in ambiguous and difficult sentences.	100	75	50	25

The above table on the use of language by teachers and students achievements in lessons shows that 130, 65% of the respondents agreed that some teachers are not concerned about the achievements of the students in science tests while 70, 35% disagreed with this.

On the issue that some teachers used to construct their lessons in difficult and ambiguous sentences, 150, 75% of the respondents agreed while 50, 25% of the students disagreed.

Research Question 3: Will the sex of the students has any significance influence on their participation and performance in science lessons?

Table 3: Female Participation and Performance in Science Lessons.

	Agreed		Disagree	
	Number	%	Number	%
Female participation in science lessons are below expectation.	70	35	130	65
Some male students participate very well in science lessons more than female students.	148	74	52	26
Some teachers find it more convenient to cope with				

male students than female during science lessons.	130	65	70	35

The above table shows that 70, 35% of the respondents agreed that female participation in science was below expectation while 130, 65% disagreed. Also, 148, 74% agreed that male students participate very well in science lessons more than female students while 52, 26% disagreed. On the issue of whether the teachers find it more convenient to cope with male students more than female during science lessons, 130, 65% agreed while 70, 35% disagreed.

Research Question 4: Will there be any significant difference between teachers' use of language and method of teaching science lessons.

Table 4: Differences between Teachers' Use of Language and Method of Teaching Science Lessons.

	Agreed		Disagree	
	Number	%	Number	%
Some science teachers use language that suits them rather than the students.	106	53	94	47
The method of reporting science experiments was not taught by some science teachers.	90	45	110	55
The language of reporting science experiments is too difficult to follow by the students because of their poor language background	160	80	40	20
Some teachers lack the method of teaching science subjects.	140	70	60	30
Some science teachers teach science subjects without explaining the science terminologies thoroughly to the students.	150	75	50	25

From the above table, 106, 53% of the respondents agreed that some science teachers use language that suits rather than the students while 94, 47% disagreed. Also, 90, 45% of the respondents agreed that some teachers did not teach methods of reporting science experiments very well while 110, 55% disagreed. On the issue of the difficulty of following language of reporting by students, because of the students' language background, 160, 80% agreed while 40, 20% disagreed. About the poor method of teaching science employed by the science teachers 140, 70% agreed that some science teachers employed poor teaching methods while 60, 30% disagreed. On the inability of some science teachers to explain science terminologies thoroughly to the students 150, 75% of the respondents agreed to this while 50, 25% disagreed.

Discussion

Majority of the respondents agreed that students have problem in science lessons because of the language used by some science teachers. According to the data, the science terminologies make the understanding of science lessons difficult for the learners. Also, the students agreed that they were discouraged by the way some science teachers use language during science classes. It is generally agreed that most science teachers contribute to the failure of the students because they do not normally simplify the terminologies used during the science lessons also weak students are not often considered by some of the science teachers.

About 65% of the students agreed that most science teachers are less concerned about the poor performance of the students in science subjects while 75% of the students attribute the mass failure of students `to the way the teachers construct their questions during examinations. Some science teachers may find it difficult to explain or simplify science terminologies in the learners' language. He says that this may hinder students understanding. The above responses corroborate the claim of Ali and Ismail (2006) that a more serious problem in the learning and teaching of science is the non- technical vocabulary, or terms that have certain meanings in everyday language but very specific and different meanings in science.

The study also revealed that around 65% of the respondents disagreed that those female students participation in science lessons is below expectations while 74% of the respondents agreed that male students performed better than female students in sciences. In addition53% of the respondents agreed that some language teachers are self-centered because they use language that suits them, while 55% were of the opinion that method of reporting science experiments was adequately taught by science teachers. On the other hand, 80% of the respondents agreed that the language of reporting science experiments contribute to the failure of the students hence lead to mass failure. The students in their responses agreed that most of the science teachers lack adequate knowledge of teaching science subjects hence the mass failure in subjects like Physics and Chemistry. The above are not farfetched from the claim of scholars like Ezendu (2013), and Nwogu (2014).

Conclusion

Based on the findings of this study, it was concluded that the language used by the teacher will have negative influence on the students if the teacher uses difficult languages fail to simplify scientific terminologies and uses very poor method of teaching. Also, the inability of teachers to pay attention to students who are weak in understanding language is a source of hindrance to success in science examinations. In addition to the above, it is concluded that the inability of the teachers to explain method of performing experiments to the students in simpler language contributes to the failure of the students in science examinations.

Recommendations

Based on the findings of the study, the following recommendation were made

i. In order to improve the performance of the students in science in science subjects, it was recommended that science teachers must be encouraged to use language that will make the learners understand what the teachers are saying while the weak students must be assisted by teachers by speaking simple sentences.

ii. Teachers should be encouraged to the current especially on the use of best methods of teaching science subjects. Science teachers should endeavor to simplify science terminologies so that student will be able to understand science and develop interest in science lessons.

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