



Infusion of Climate Change Curriculum into Teacher Preparation in Language Education in Nigeria Universities

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Abstract

The study investigated infusion of climate change curriculum into teacher preparation in language education in Nigeria Universities. A survey designs was adopted for the study. The population for the study was 157. The sample of the study was 80. 28-item questionnaires were developed and used to collect data. Data obtained were analyzed using mean and standard deviation to answer research questions while t-test statistics was used to test hypotheses. It was found that the content area in climate change were needed for the infusion into teacher preparation in language. The findings of the study also revealed some challenges faced in the infusion of climate change into teacher preparation in language education which include attitude of lectures, inability to embrace innovation and death of instructional materials among others. It was recommended that lecturers should be trained to accommodate the challenging issues. It is also advocated that government and education administrators should sponsor to attend seminar and conference on climate change programme.

Keywords: Climate Change, Teacher Education Curriculum, Language Education

Introduction

Education is referred to as an instrument per excellence for effecting the national development (Federal Republic of Nigeria [FRN] 2004:4). Education is a dynamic unit that needs dynamic approach for its actualization. However, the primary and most common way of acquitting education is through qualitative and quantitative formal school curriculum. Olarunoye (2018) viewed curriculum as all the experience of the learner under the supervision of the school. Kanno and Onyeachu (2017) defined curriculum as planned and guided learning experience which are geared towards the full development of the individual for his or her own good and that of the society. Curriculum is therefore dynamic bodies of teacher and assessment. Well-developed curriculum contains the strategies for mastering interpreting and forecasting climate change.

Despite the great importance being accorded to education as human right, there seen to be an increasing concern among education on the emergent issues in the 21st century which seem to impede the free flow of education to all levels. This emergent issue has created a lot of gaps and marginalization among others in terms of student achievement and educational stakeholders. One of the recent issues that has emerged in Nigeria education in the 21st century is climate change.

Climate change is a major challenge of twenty-first century for the entire world. The developing countries such as Nigeria are more adversely affected by climate change because of their high vulnerability aid for adequate capacity. Climate is the prevailing weather conditions of a region as a temperature, air pressure, humidity, precipitation, sunshine, cloudiness and winds, throughout the year or averaged over a series of a year in season or area. Current evidence suggests that the key drivers of both socio-economic developments are



already adversely affected by climate change, thereby jeopardizing sustainability, in various regions of the world. Nwahuanaya (2014) opined that changes in climate can only be regarded as climate change is the global phenomenon of climate transformation characterized by the changes in the usual climate of the plant (regarding temperature, precipitation, and the wind plant are especially caused by human activities.

On 1 January, 2016, the 17 sustainable development goals (SDGs) of the 2030 agenda for sustainable development adopted by world leaders in September, 2015 at a historic UN summit. The Secretary General of United Nations \$25 billion in initial commitment to end preventable deaths of women, children and adolescents by 2030 over the next fifteen years, with these new goals that universally apply to all countries with mobile efforts to end all forms of poverty, fight inequalities and tackle climate change while enduring that no one is left behind. Arunsi(2016) opined that the SDGS success of the millennium development goals (MDG) and aim to go further to end all forms of poverty, build on the new goals are unique in what they call for action by countries, poor, rich and middle income to promote prosperity.

Sustainability is a call to action, a task in progress or journey. It implies responsible and positive decision making and innovation that minimizes negative impact and maintenance balance between social, environmental and economic growth to ensure a desirable planet for, all species now and in the future education for sustainable development allows every teacher and would be teachers to acquire the knowledge, skills altitudes and values necessary to shape a sustainable future. Sustainable development issues that need to be infused into teacher preparation include climate change, disaster risk reduction, biodiversity, poverty reduction among others (Otech, Nwokocha, Igbokwe, 2014). Sustainable development is viewed as a regularization of the means of living which provides to adequate improvement on the previous ways of living in response to contemporary exigencies of act in ways and manner which would ensure continued existence and adequate comfort to the succeeding generation (Uchegbu, Kanu, Uchegbu(2016). It is the development that meets the present needs and at the same time makes it possible for future generation to meet their own needs.

Sustainable development comprises of social, environmental and economic development if climate change education is managed and administered effectively; it will help to give the needed strength for these components to achieve its desired goals in sustaining and developed when generated resources are adequately utilized. There has been problem of climate change which affects everybody in the society. Individuals are expected to make contributions to help overcome the menace or adapt to it through certain adaptation strategies. To achieve this, students need to be taught climate change in their schools while teachers need to be taught climate change during teacher preparation in territory institutions. Intervention strategy in this study involves inclusion of climate change into teacher preparation in language education. In the view of Hornby (2010) infusion is the act of adding something else in order to make it strong or more successful. In this study, infusion is the act of adding climate change to an existing course content of language education for effective teacher preparation in Nigeria universities for sustainable development.

In Nigeria, most teachers have a lukewarm attitude to in-service training. It is therefore, not surprising to find a teacher who after certification will remain in the classroom till retirement without attending any workshop or conference source. This type of attitude must change if we must together fight to sustain our environment which is one purpose of education. Preparing the language teachers on climate change means that, they need to get abreast with the concepts, trends, ways of making the effects minimal and most importantly creating awareness in or outside the classroom. This preparation starts with the pre-service teacher



training and continues to the in-service teacher training. This is done in order to update their knowledge, skill and altitude in order to meet up with continuing changes in method, course context and resources used in teaching (Eziefuna, 2014). One of the ways of preparing language teachers in climate change issue is by infusing the concept into the syllabus of language in Nigeria universities. The component include vocabulary, grammar, compositions, comprehension, role play, drama civilization, the concept of climate change will be brought to the good knowledge of the student.

Language education according to Nnachi (2009) language is the basis for the study of arts, science and all forms of technology. Language education is therefore a process and practice of teaching a second or foreign language. It is precisely a branch of applied linguistic. The importance of language education cannot be one emphasized. Language creates a medium for the study of every discipline of human endeavor. Without a language, there would be some problems in the study of academic discipline. He added that the school has every need for the study of language if the school aspires towards effective transmission of knowledge. Language Education is offered in primary schools, secondary schools, universities and colleges of education and the polytechnics. Language education graduates are prepared to either gain gainful employment in the industry, companies like Chevron, Total and world organizations like United Nations Organization (UNO) etc. Nigeria television authority as a newscaster in Igbo, English or Hausa Bulletin and teach any of the language subjects after graduation.

It is expected that the recipients of language education programme develop both personal uses, social and linguistic/vocational competencies, i.e. ability for the graduate to use the knowledge acquired to solve his personal problems for instance ability to establish language clinic where he can teach, interpret and earn money, social competency refers to the understanding and appreciation of the role language education play on the socio-economic development of one's nations' economy. For instance, in international organization French and English are two official languages for effective communication. Vocational competency involves students after graduation being self-employed based on the knowledge and skills acquired during the course of the training program. These vocational skills are mainly acquired through language skill such as listening, reading, speaking and writing, while pedagogical competences consist of knowledge, skills and attitudes in planning, implementation and evaluation instructions. Teacher preparation in the context of this study is a process of equipping students of language education of Nigeria universities with linguistic, vocational, technical and pedagogical competence in climate change for effective teaching of language to students in Nigeria universities.

Every country has its peculiar climate system but when it varies from the normal way that means climate change has taken place. Extreme climate like storm, flood, rainfall, wind, heat etc. have serious implication in effective teaching and learning because it affects the functioning of the equipment or materials used for teaching the language. Humidity dampness, deterioration of some teaching facilities may be experienced as a result of excess rainfall, flooding of the language laboratory and classroom may disrupt the conduct of some practical lessons and even verbal presentation of the lesson contents. Excessive heat can equally affect the performance of the facilities like computers, radio, television, cassettes, videos and charts, photograph etc. where sufficient air conditioners and fan are not provided. Earthquakes, hurricane wind can destabilize the smooth functioning of the teaching aids and disorganize sitting positions of students. Dusts when accumulated to the computer, laptop, radio, television, video cassettes, and printer lead to malfunctioning of the equipment which normally needs adequate repair before they can be used effectively.



Poor teaching and learning environment led to dissatisfaction of the lecturers and students. On the part of the students, truancy, late coming, sickness and poor participation in the classroom may be obtainable. When a teacher is not getting positive feedback on the topic she is teaching, boredom sets in. Moreover, climate change exposes the body to various diseases like pneumonia, tuberculosis, eye infections etc. The lecturers, students, parents and management of the institutions stand the risk of contacting any of the above-mentioned diseases. Thus hampers the smooth implementation of the already planned curriculum for the language department. The language education has the responsibility of ensuring that the problem of this climate change is adequately handled. Some language lecturers do not have relevant skills to practice effectively as language educators due to the menace of climate change. As important as language one will ask if change and ways of mitigating climate change. It is on this premise that this paper is structured to critically analyse related concept or content in language curriculum and therefore proffer solution or better still strategies for control of climate change in the teaching of language education in Nigeria universities.

The alarming rate of climate change which attributed to natural and human activities call for remedies or better still, solutions to averting these problem such as flooding, excessive heat, oil spillage etc. There has been problem of climate change which affects everybody in the society. Government, Non-governmental organization, or private organization are expected to make contribution to help overcome the menace or adapt it through certain adaptation strategies. To achieve this, students need to be taught climate change during teacher preparation. It is based on this premise that this study intends to investigate the infusion of climate change curriculum into teacher preparation in language education for sustainable development in curriculum into teacher preparation in language education for sustainable development in Nigeria Universities.

Objectives of the Study

Specifically, the study intends to achieve the following objectives:

1. To identify the content area of climate for infusion into language education of Nigerian universities for sustainable academic development
2. To find out lecturers' preparedness to teach climate change component of the revised language studied.
3. To ascertain the challenges hindering the preparation of languages lecturers for implementing climate education curriculum for sustainable academic development.
4. To determine the strategies to improve the infusion of climate change curriculum into teacher preparation on language education and ICT studies for sustainable academic development.

Research Question

The study was guided by the following questions:

1. What are the content areas in climate change required for infusion into teacher preparation in language in Nigeria universities for sustainable academic development?
2. How prepared are the language lecturers for promoting sustainable development practices on climate change?
3. What are the challenges hindering the preparation of language lecturers for implementing climate change education curriculum for sustainable academic development?
4. What are the strategies to improve the infusion of climate change curriculum into teacher preparation on language education for sustainable academic development?



Hypotheses

Two Hypotheses were generated to guide the study, they are:

1. There is no significant difference in the mean rating of lecturers in Nigeria Universities on the challenges hindering infusion of climate change curriculum into language education for sustainable academic development.
2. There is no significant difference in the mean rating of lecturers on the content areas of climate change needed in language education for Nigeria universities for sustainable academic development.

Methodology

The study adopted descriptive survey research. This design is deemed appropriate because it seeks to document and describe what exists or the status of existence/assess of what is being investigated. The target population consists of 157 made up of 42 lecturers of language education. Sample was 80 lecturers of language education were obtained through proportionate stratified random sampling techniques. There was no sampling of the lecturers of language education because of the small size.

A 28-item questionnaire covering the content areas, teacher preparation, challenges and strategies that harness climate change for sustainable development was developed for collecting data from respondents. The questionnaire had 4-point response options of strongly agree (SA), =4, agree(A)=3, disagree(D)=2, strongly disagree (SD)=1 respectively. These are used in data analysis. The questionnaire was validated by three experts, and one from Department of measurement and evaluation, all from, Micharl Okpara University of Agriculture. Umudike. The instrument was trial-tested on fifteen lecturers from the federal universities that were not part of the study population. The reliability coefficient was computed using Cronbach Alpha technique and the result were found to be 0.73, 0.81, 0.74 and 0.83 respectively for the four sections of the questionnaire. These values were considered high enough, assuring the adequacy and reliability of the instrument for the study. Mean and standard deviation were the statistical tools used for answering the research questions, while t-test statistics was used to test the null hypotheses at 0.05 alpha levels.

Results

Research Question 1:

What are the content areas in climate change required for infusion into teacher preparation in language in Nigeria universities for sustainable academic development?

Table 1: Mean and Standard Deviation of Language Lecturers on the content area of climate change

S/No	Cluster Item	X	SD	Remark
1.	Concept of climate change	3.74	0.20	Agreed
2.	Causes of climate change	3.58	0.19	Agreed
3.	Effects of climate change on reading comprehension lesson and ICT skill	3.61	0.21	Agreed
4.	Effect of climate change on language lecturers and computer operators	3.48	0.18	Agreed
5.	Methods of control and adaptation to climate change	3.34	0.18	Agreed

Data in table 1 revealed all the 5 cluster items on climate change. This indicated that the mean were above real limit of 2.50 showing that all the 5 items on climate change was required for the infusion into teacher preparation in language education in Nigeria universities.

Research Question 2:

How prepared are the language lecturers for promoting sustainable development practices on climate change?

Table 2: Mean and Standard deviation on teacher language lecturers are prepared for promoting sustainable developmental practices on climate change

S/No	Items	X	SD	Remark
6.	Pro service training	3.21	0.19	Agreed
7.	In-service training	3.38	0.18	Agreed
8.	Use of curriculum materials	3.35	0.29	Agreed
9.	Research technique	3.47	0.18	Agreed
10.	Attending conference	3.52	0.21	Agreed
11.	Micro-teaching	3.52	0.36	Agreed
12.	ICT Training	3.53	0.36	Agreed
13.	Teaching practice	3.44	0.31	Agreed
	Total Mean	3.33	1.04	

A look at table 2 showed that all respondents (agreed that the listed items in numbers 6,7,8,9,10,11,12,13 would determine how language lecturers are prepared for the climate change. The table further revealed that these items scored up to the accepted mean of 2.50.

Research Question 3:

What are the challenges hindering the preparation of language lecturers for implementing climate change education curriculum for sustainable academic development?

Table 3: Mean and standard deviation on the challenges for the infusion of climate change curriculum into language education for sustainable development

S/No	Item	X	SD	Remark
14.	Most of the climate change issues are not in the syllabus	3.50	0.72	Agreed
15.	Attitude of lecturers	3.12	0.85	Agreed
16.	Lack of instructional materials	3.91	0.23	Agreed
17.	Lack of teacher preparation	1.22	1.88	Disagreed
18.	Inability of in-service language lecturers and ICT lecturers to embrace innovation	2.71	0.23	Agreed
19.	Waste management	2.50	0.23	Agreed
20.	Orientation of new staff	1.38	0.85	Agreed
	Total mean	3.34	0.88	

The data in table 3 revealed that all listed items from 14, 15, 16, 18 and 19 scored more than the acceptable mean that those items were challenges faced for the implementation of climate change curriculum into language education. Item 17 and 20 scored below the acceptable mean of 2.50 thus indicating that they did not agree that lack of teacher preparation and orientation of new staff was a challenge that faced the implementation of climate change curriculum.

Research Question 4:

What are the strategies to improve the infusion of climate change curriculum into teacher preparation on language education for sustainable academic development?

Table 4: Mean and standard deviation on the strategies to harness climate change and prepare language lectures for sustainable academic development.

S/No	Cluster Item	X	SD	Remark
21.	Tree planting is a mean & of climate change control	3.12	1.88	Agreed
22.	Students should taught the modern method of waste management as contained on 3 (reduce, reuse and recycle	3.48	1.18	Agreed
23.	Covering the computer, radio, television from coating dust	3.85	0.84	Agreed
24.	Provision of fan and air condition in classroom setting	2.98	1.22	Agreed
25.	Use of mixed method of teaching	3.40	1.18	Agreed
26.	Attending seminars, workshops and conferences	3.28	1.22	Agreed
27.	Wearing cardigan, raincoat to avoid catching cold	3.12	1.18	Agreed
28.	Use of story-telling, debates and show	2.85	1.09	Agreed
Total mean		3.36	0.24	

Table data in table 4 revealed that all listed item statements scored above the acceptable mean of 2.50, Hence those statements indicated that they were the strategies to harness climate change curriculum and prepare language lectures for sustainable academic development.

Hypothesis 1

There is no significant difference in the mean rating of male and female lecturers in Nigeria Universities on the challenges hindering infusion of climate change curriculum into language education for sustainable academic development.

Table 5: t-test differences between mean of male and female lecturers are the content area needed to infuse climate change curriculum in language education for sustainable development.

Variable	N	Mean	SD	df	t-cal	t-crit	Sig.	Decision
Male	51	3.40	0.91	79				H0 ₁ is
Female	30	3.10	0.70		0.68	1.96	Not. sig.	Rejected

Table 5 revealed that t-calculated – 0.68 was less than t-critical (1.96) at 0.05 level of significance. If t-calculated is less than t-critical, then are accept that the null hypotheses of no significant differences between the responses of male and female lecturers on the content areas needed to infuse climate change curriculum into language education for sustainable academic development.

Hypothesis 2

There is no significant difference in the mean rating of male and female lecturers on the content areas of climate change needed in language education for Nigeria universities for sustainable academic development.

Table 6: t-test differences between mean of male and female lecturers on the challenges faced by language lecturers in implemented of climate change curriculum.

Variable	N	Mean	SD	df	t-cal	t-crit	Sig.	Decision
Male	51	3.36	0.15	79	-1.103	1.97	Not sig.	H0 ₂ is
Female	30	3.34	0.88					Rejected



In table 6, it was revealed that less than the t-critical (1.97) at 79 degree of freedom (df) and 0.05 level of significant. The null hypothesis of no significant difference between the responses of male and female lecturers on the challenges facing the language was rejected.

Discussion of Findings

The findings in table 1 showed that majority of language lecturers respondent agreed that content area of climate change should be infused in language education such as concept or climate change causes of climate change, effects of climate change, methods of control and adaptation to climate change. The findings are in line with the assertion made by Eziefula (2014) in a study on preparing English Language teacher for effective curriculum implementation on climate change issues” at upper basic education where it was found that climate change issues should be infused into the component of English Language at the upper basic education. The components include vocabulary, building grammar, composition, comprehension, drama, poetry and so on. With this infusion, the concept of climate change will be brought low to the level of the students. The result of the test of hypotheses revealed that, there is no significant difference in the mean rating of the responses of lecturers of language education on the content areas of climate change to be infused into teacher preparation in language education in Nigeria universities.

The outcome in table 2 show that the listed were the preparedness of lecturers on climate change for promoting sustainable development practices on climate change. These foregoing findings are in line with the observation made by Eziefula (2014) who stress that preparing the English language teacher on climate change means that he/she needs to get abreast in the concepts, trends, ways of making the effects minimal and most importantly creating the awareness in or outside the classroom. This preparation starts with the pre-service teacher training and continues to the in-service teacher training. This finding is in line with Eyisi (2003) who opined that the preparation given to teachers who had graduated and are actually teaching in different schools and at different levels. It is a form of short courses, seminars or workshops run for teachers on the job to update their knowledge and skills and keep them abreast of developments in their fields of specialization. The training does not only complement the pre-service education but also acquaint them with new and modern developments for successful teaching. It has reported Ozor and Madukwe (2012) that there is need to build the capacity of teachers to be able to impact the necessary knowledge about climate change. In service training activities are embodied in conferences, workshop, committee work/professional reading, visits, demonstration, field trip, teachers exchange professional association work, symposia ad seminars that are always tailored towards attaining professional refurbishment in teachers. Unlike the pre-service which is packaged and made available to all who wish to be teachers, in-service training is a personal thing. It is only teachers who are committed and interested in being on top of their career that avail themselves of this preparation. In Nigeria, most teachers have a lukewarm attitude to in-service training. It is therefore, not surprising to find a teacher who after certification will remain in the classroom till retirement without attending any workshop or conference. This type of attitude must change if we must together fight to sustain our environment which is one purpose of education.

The outcome of table 3 showed that all the listed items were challenges to implement climate change curriculum into language education. This finding is in line with the assertion made by Eziefuna (2014) the most English language is unable to embrace change or innovation. This should not be so as climate change issues are emergent. Waste Management and lack of instructional materials are one of major challenges for the infusion of climate change in



language education. This is in line with Dibia, Obi and Anebi (2014) who found that despite the ravaging effects of climate change, issues of climate change have not been reflected in texts, reference books, and other materials for teaching and learning. Oteh, Nwokeocha and Igbokwe (2014) reported that waste management had become a major problem and concern in the country as a result of rapid urbanization and increase population in rural and urban settlements. As a result of ineffective waste management, the world is currently suffering from hunger, malnutrition, sickness and other forms of calamities. This is obtainable in computer system effectively. In addition, hypotheses 3 in table 6 showed no significant difference in the views of respondents to the challenges of that faced language lecturers in implementation of climate change curriculum.

In table 4, the findings revealed that the listed like the planting of trees, field trip for better understanding of the 3R's (reduce, raise, recycle) environmental sanitation, landfill among others, were some of the strategies to harness climate change education for sustainable development. This finding is in agreement with Okoro and Akparanta (2014) who opined that government/the ministry of education/institutions of education should be very practical as to equip teachers in implementation process.

Conclusion

Climate change is a serious problem and concern in the country. Individuals are expected to make contributions to help overcome the menace of climate change. Climate change curriculum if properly implemented will contribute a lot to the sustainability of an environment for future generation. In the area of study, students need to be teaching climate change in their schools while their teachers need to be taught same any teacher preparation in Nigeria Universities and to determine the extent of preparedness of language education to effectively teach the climate change component of language education theme of revised language. This study was carried out to identify the content area strategies required for infusion into teacher preparation in language education in Nigeria universities. Thus, the sustainability of the air we breathe, the water we drink, the food we eat and the afforestation of our environment, is the holistic panacea to sustainable climate change. The findings of this study have implication for the successful implementation of the revised curriculum.

Recommendation

Base on the findings it was recommended that:

1. Climate change content such as concepts of climate change, causes of climate change effect of climate change on lecturer and method of control and adaptation should be infused into teacher preparation in language.
2. Curriculum planners should suggest activities that language lecturers can expose students to, in order to reduce the effect of climate change.
3. Curriculum planners should ensure that concepts of climate change are included in the titles for prose and poetry in language curriculum for Nigeria universities.
4. Government and education administrations should sponsor lecturers to attend seminar and conference on the issue of climate change.

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