Raising awareness of climate change issues in Nigeria through education for policy and practice

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Abstract

The objective of this study is to raise awareness through education in mitigating of climate issues. Also, to finding out relationship between resilience teaching and learning and mitigating of climate change issues in North-central zone, Nigeria. The study investigated managing education toward mitigating climate change in North-central zone, Nigeria. Stratified random sampling technique was used to select 375 head teachers and 384 teachers in public primary schools in North-central zone, Nigeria. Questionnaire title "Managing Education Toward Mitigating Climate Change Issues Questionnaire (METACCIQ) was used to collect data for the study and analysed using descriptive statistics and t-test analysis. The results shown that there is no significant difference between raising awareness, resilience teaching and learning and mitigating of climate change issues in Nigeria. It was recommended that Government, school administrators, teachers and stakeholders should embark on raising awareness on climate change issues to encourage changes in young people attitudes and behavior. Also, resilience teaching and learning should be made interesting in order to increases climate literacy among learners through education.

Keywords: Awareness, climate education, resilience teaching and learning, Nigeria

Introduction

Many Nigerians are cognizant that some changes do occur in both rainy and dry season. These two seasons come with extreme heat and nasty rainfall that affect peoples' movement. Too much rainfall causes widespread flooding which destroy human property and causing some households to relocate to more convenient quarters while extreme heat damages crops and vegetation which affect some farmers. For instance, in the 2018 and 2019, some part of Nigeria such as Kwara, Niger, Lagos, Anambra including some places in northern part of Nigeria were severely affected with heavy flooding that destroyed many homes, rendering many people homeless, wipe away farmers crops as well as causing severe health challenges such as increased diarrhea, malnutrition, malaria, injuries, meningitis, severe mental and physical trauma particular for people who live along major river areas.

African is recognized as the continent most susceptible to the impact of climate change. In Nigeria, climate change is manifested mainly through flooding and extreme heat. Therefore, young people will continue to face these realities in the years and decades to come and need to be prepared to both mitigate short-term risk and take steps toward long-term change. Today children are the leader of tomorrow, their behaviors and decision will predictably affect the environment and country at large. Therefore, they need to be properly educated on the issues related to the climate crisis, pollution of water and land so as to bring about changes in environmental knowledge, attitude and behavior of peers, family and of the entire community. There is very little consciousness on climate change issues in developing countries which causing an impediment in effective curbing of the trends. The process of raising awareness through education is very important in mitigation of the climate change issues because it works to achieve the desired changing policy. In short, the objectives of raising awareness is implemented through education policy and practice to bring the desired change among learners.

Numerous studies have been embarked on climate change and efficiency of school. Rose, Thank-God and Nwachukwu (2015) conducted curriculum review as way of compacting climate change in Nigeria. Waziri-Garba, Luka and Muhammed (2018) carried out the impact of school climate on teachers' effectiveness in secondary school in Yobe State, Nigeria. Sample of 34 teachers and 18 school administrators were selected. Inferential statistics analysis was used to test the hypothesis. The finding shown that there is moderate positive correlate between school climate and teachers' effectiveness in Yobe State. Adejumobi and Ojikutu (2013) carried out their research on impact of school climate on teacher job performance in Lagos State, Nigeria. Sample of 18 principals, 238 teachers and 1,804 students were selected. Log-linear model was used to show the collaboration between availability of facilities, class size, leadership style, motivational strategies and teacher morale. Oruonye, (2011) conducted appraisal of the level of consciousness of climate change among students of higher institutions in Jalingo metropolis, Taraba State, Nigeria. Sample of 225 students were selected strangely from the higher institutions in Jalingo metropolis. The finding reveals large number of students interviewed have never heard about climate change is all about. Emu and Nwannunu (2018) embarked on the administration of school climate towards enhancing teachers' job performance in secondary schools in Calabar education zone, Cross River State. Sample of 400 participants comprised both teachers and students were selected with the used of Yamene's formula. The data collected was analyzed using ANOVA. The findings showed that safety school environment and principal leadership styles influence teachers' job performance. There are several areas on climate change and education that are yet to be covered by these scholars. These areas include managing education toward mitigating climate change issues in Nigeria. Similarly, to the best understanding of researcher, there have been no research in Nigeria to a certain degree that have focused on raising awareness and resilience teaching and learning as critical variables of managing education. Therefore, this study attempts to block up the gap left by the previous scholars. The following objectives have been articulated to guide the conduct of the study.

a) To investigate the relationship between raising awareness and mitigating of climate change issues in Nigeria.
b) To examine the relationship between resilient teaching and learning and mitigating of climate change issues in Nigeria.

Research hypotheses

The following hypotheses were formulated and answered:
1) There is no significant difference between the mean scores of head teachers and teachers on raising awareness and mitigating of climate change issues.
2) There is no significant difference between resilience teaching and learning and mitigating of climate change issues.

Literature review

Managing education

Education serve as a weapon through which individuals and society could reach their fullest in terms of climate change. Education is crucial for effective management of climate change issues and improving the capacity of the people to address development and environment issues (Bangay & Blum, 2010). This implies that, formal education is to help learners of all ages to advance in knowledge, skills and abilities which enable them to think critically, solve problems and curbing with ambiguity by taking more complete ways of mitigating climate change issues. Education around the globe is critical to empower the next generation in finding solutions for a rapid change climate. Adequate teaching and learning on climate change issues will help the learners to adapt to climate related trends. Boakye (2015) states climate change education in Chana prepared learners in schools to act in ways that will sustain the environment. Education is an essential element of any program to curb climate change and its effects (Sharma, 2012). Climate change is the changing of weather patterns due to primarily to the increase in carbon pollution which altered weather pattern by rising temperature, drought, and heavy rains (Balbus et al 2016). In United States, climate change is creating additional complications in maintain healthy schools' environment where over 40 million students spent 30 hours a week due to risks from climate change (Perry, Simone & Maida, 2017). Globally, children are the most vulnerable to climate change, bearing 86% of the problem of disease resulting from climate change (Zhang, Bi, & Hiller, 2007). Despite this, education still remained the effective way of mitigating climate change and promoting well-being of learners (Etzel & Balk, 2011).

Raising awareness towards mitigating of climate change issues

Raising awareness play a crucial role in curbing climate change issues and is a key to understand the causes, consequences and magnitude of the climate crisis as well as unveiled the important role forest play in regulating the climate (UNICEF, 2010). In Nigerian schools, raising awareness on management of climate change issues is needed in order to sensitize learners towards climate change and the havoc it inflicts on people, property crops and the likes.

Resilience teaching and learning and mitigating of climate change issues

Resilience teaching and learning can be seen as a way by which students learn new knowledge on how to prepare for and respond to disasters in order to change behavior and reduce vulnerability to hazard such as floods, extreme heat, land slide to mention but view (Rose, Thank-God & Nwachukwu, 2015). Individual can reduce the risk of being overwhelmed by climate change issues through the development of their resiliency and taking the appropriate steps to curb the likelihood of adverse effect. Resilience teaching and learning in terms of

guiding the learners how to plant trees to prevent heavy wind, recycling of waste product as well as encourage them to develop skill to overcome rapid change and future challenges.

Climate change issues

Climate change is causing greater variation in weather patterns like drought that contribute to wildfire and monsoons that contribute to flooding in different part of countries. Scientific research shows that millions of people will expose to drought by 2025, as ground water is used up faster than changing rainfall patterns can refill it. Reports from UNICEF 2010 revealed that there will be certain period when extreme heat will prevent students from attending schools and too much floods will make roads treacherous, stopping students from reaching schools which will force schools to suspend activities. It is also forecasted that climate change will create environmental degradation, deterioration in livelihoods and forceful migration of populations. Global warming is a phenomenon of climate change due to general increase in average temperature of the earth which vary the weather balances and ecosystem for a long period (Oruonye, 2011). Climate change is affecting human being and global economy in terms of poor health, social and geographical imbalance in many parts of the world (Kristic, Christopher & Jeremy, 2018). The scarcity of resources like food energy given escalate to new issues causing by more droughts and heatwaves, more natural disaster like storms, floods, wildfires to mention but few.

Theoretical background

The theoretical background (see Figure 1) of this study was built on management by objective (MBO) theory postulated by Drucker during the early 1980s as cited in Clement (2010). MBO is a participative management where subordinates and managers formulate objectives of an organization and jointly identify its common goals, define each individual's major areas of responsibilities in term of result expected from each member. MBO is carried out in four steps: goal setting, action planning. Self- control and periodic review.

This theory can be functional in the school setting such that MBO accommodates the individual's manager's goals and plans. The general goals are internalized in specific goals. The goal which allow maximum involvement of the school administrators and subordinates to formulate strategy plan in mitigating the issues of climate change through effective action plan by raising awareness and introducing resilience teaching and learning for proper management of climate change as well as ensuring implementation of the plan objectives in order to take corrective action due to evidence of periodic review towards prevention of future trends.

This study anchored on this theory because MBO have been widely employed for operational reforms in education. It has resulted in improvement of teaching and learning, maximizes crisis management and encourage innovation. MBO also serves as a control measure to check and balance the activities of any educational system for effective and efficient outcome.
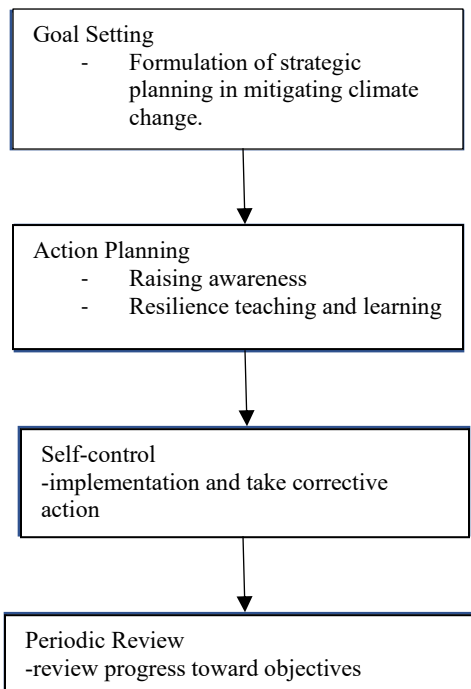
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┌─────────────────────────────────────┐
│ Goal Setting                         │
│    -    Formulation of strategic     │
│         planning in mitigating climate│
│         change.                      │
└─────────────────────────────────────┘
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                    ▼
┌─────────────────────────────────────┐
│ Action Planning                      │
│    -    Raising awareness            │
│    -    Resilience teaching and learning│
└─────────────────────────────────────┘
                    │
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┌─────────────────────────────────────┐
│ Self-control                         │
│ -implementation and take corrective  │
│ action                               │
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┌─────────────────────────────────────┐
│ Periodic Review                      │
│ -review progress toward objectives   │
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Figure 1. Theoretical framework (Adapted from Clement (2010)).

Methodology

Quantitative research design was adopted in this study. The design was viewed appropriate for this research because it examines the relationship that exist between formal education and management of climate change issues. It also provides the chance to acquire the view of the sample distribution, use appropriate statistics analysis technique to analyze the data collected and grasp a rational decision approximately for the study (McNabb, 2013; Fisher, 2007 & Punch, 2005). This study concentrated on public primary schools in North-central zone, Nigeria. There are 12,775 public primary schools in North-central geo-political zone. The target population of this study encompassed the 12,775 head teachers and 93,301teachers in public primary schools in North-central zone. Sample of 375 head teachers and 384 teachers were selected with the used of determining sample size table of Research Advisor (2006).

Table 1. Population sample of head teachers and teachers of primary education.

S/N	North-Central zone states	Number of primary schools	Number of teachers	Selected head teachers	Selected teachers
1	Benue	2,661	4,344	78	18
2	FCT	495	7,172	15	29
3	Kogi	2,096	13,778	62	57
4	Kwara	1,406	17,274	41	71
5	Nasarawa	1,278	25,217	37	104
6	Niger	2,834	16,320	83	67

| 7 | Plateau | 2.005 | 9,196 | 59 | 38 |
| | Total | 12,775 | 93,301 | 375 | 384 |

Multi-stage sampling technique was used in selecting the participants in public primary schools. Sample of 375 head teachers and 384 teachers were selected proportionally based on the available number of head teachers and teachers in each State, this implied getting the population of sample participants in each of the selected primary schools and choosing the sample equivalently from the population under study as revealed in Table 1. Stratified random sampling technique was used to choose head teachers and teachers from the sample public primary schools in order to guarantee that all classes of head teachers and teachers has equivalent right and opportunity of being carefully chosen. The techniques are suitable for this study since it provides way for the selection of a true sample population (Brians et a., 2011).

The questionnaire for the current study consisted of self-designed questionnaire titled "Managing Education Toward Address Climate Change Issues Questionnaire" (METACCIQ). A total 12 items developed to measure managing education with two sub-scales: raising awareness (6 items) and resilience teaching and learning (6 items). The items of questionnaire regarding climate change issues were concluded from Adele et.al (2017) on extreme heat (7 items) and Kristic, Christopher and Jeremy (2018) on heavy flood (6 items). Participants responded to four point-Likert scale (Strongly Agree (SA) = 4; Agree(A) = 3; Disagree (D) =2; Strongly Disagree (SD) = 1). The criterion mean is given hence: 4 + 3+ 2 +1 /4 = 2.50. The criterion mean portrays that any item that is equal to or greater than the measure mean value of 2.50 is agreed while the one less than the measure mean value of 2.50 is disagreed by the participants. Allen and Christopher (2007) concluded that 4-point Likert scale answer format is very easier and faster to complete than 5 or 7-point scales format. The content validity of the instruments was ensuring by giving enlist copies of the questionnaire to two experts in educational management and measurement and evaluation. Three questions were dropped in order to justify the instruments while some languages were corrected to avoid ambiguity. Pertinent adjustment and corrections were effected appropriately firmly on the observations and recommendations. 40 amended copies were further distributed to the participants who were part of the samples to determine their apprehension and clearness of the items in terms of instructions and scaling of the questions so as to perceive if there may be any challenges in filling up the questionnaire. Thus, some recommendations made were addressed effectively before the distribution of the final copies. Cronbach's alpha was used to test the reliability of the instruments as shown in Table 2. This was to enhance effectiveness of the item wordings, commands and comprehensibility of the question series so as to notice any challenges that may occur in answering the questions. Consequently, some suggestions made were corrected properly prior the distribution of final copies. Reliability of the instrument was tested using Cronbach's alpha. As shown in Table 2, the value for Cronbach's alpha for this study was confirmed to be acceptable.

Table 2. MEACCIQ reliability test.

Variables	Sub-variables	N	Cronbach's Alpha	Decision
Managing education	Raising awareness	6	0.86	All items are acceptable
	Resilience teaching and learning	6	0.80	All items are acceptable
Climate change issues	Extreme heat	7	0.82	All items are acceptable

Heavy flood	6	0.84	All items are acceptable

Table 2 indicated that there are 6 items for raising awareness of managing education with Cronbach's alpha of 0.86 and 6 items under resilience teaching and learning of managing education with Cronbach's alpha of 0.80. for climate change issues, the Cronbach's alpha value for the sub- variables are 0.82 for extreme heat and 0.84 for heavy flood. The Cronbach's alpha value for this study was confirmed to be acceptable. The value above 0.70 are considered acceptable and value above 0.80 are reliable and preferable (Brannen, 2017). Hence, the Cronbach's alpha value of the 2 indices of managing education and 2 indices of climate change issues were about 0.83. thus, the values represent a good internal steadiness reliability for all items in the questionnaire. This implied that all the 25 questions are established to be acceptable and reliable.

The participants were visited in their separate schools to deliberate the reason of the study prior the dispersal of the instruments in line with the guide furnished by Stanley and Wise (2010) which stressed the ethical issues in guaranteeing secrecy and concealment of participants responses. The questionnaires were administered to the participants with the help of three trained research assistants and with the help of friends and fellow workers in the selected schools in North-central zone. To enhance optimal response rate, the objectives of the research and instruction on how to fill the questionnaire were clearly clarified to participants. The activities of data collection were smoothly completed with three weeks because the questionnaires were personally distributed by researcher, trained research assistants and colleagues and friends in the public primary schools in North central zone, Nigeria. The collected data were analyzed using the Statistical Package of the Social Sciences (SPSS/2.1). The data were analyzed using both descriptive analysis (mean and standard deviation) and t-test statistics analysis to examine the objectives of the study which as designed to analyze head teacher and teachers on Managing education based on 2 sub-variables. Inferential statistics such as t-test for the hypotheses. The t-critical value was related to the significance level of (0.5) to determine the acceptance or rejection of hypotheses. The demographic profile of participants was presented by means of descriptive statistics as revealed in Table 3.

Table 3. Demographic information of the participants.

		N = 759	Percentage (%)
Gender:	Male	323	43%
	Female	436	57%
		759	!00%
Age:	20-30	122	16%
	31-40	389	51%
	41-50	153	20%
	51 above	95	13%
		759	100%
Qualification:	NCE	384	51%
	B.Ed.,	347	46%
	Master degree	28	3%
		759	100%
Year of Experience	1- 10 years	202	27%
	10-20 years	428	56%
	21 years above	129	17%
		759	100%

Table 3 displays the demographic evidence of participants who partook in this study. From the table 323 participants (43%) are male and 436 participants are female. Based on average age of the participants, the majority is 389 participants representing (51%) are between 31-40 years while 95 participants (13%) are between age 51 above. In terms of qualification of the participants, majority 384 participants (51%) are NCE holder while 28 (3%) are master degree holder. In respect of year of experience, majority 428 participants (56%) have 10-20 years of experience, while 129 participants (17%) have 21 years above experience in North-central zone public primary schools.

Findings

This section discusses the result of the findings based on research objectives.

Raising awareness

Objective 1:   Investigate relationship between raising awareness and mitigating of climate change issues

Table 4 describes the mean and standard deviation of collected data from participants in the selected public primary schools.

Table 4. Raising awareness.

S/N	Raising Awareness	Head teachers' Responses Mean SD		Teachers' Responses Mean SD		Decision
1	Raising awareness encourage changes in young people attitudes and behavior.	2.98	0.925	2.88	0.966	Agreed
2	Raising awareness helps young people to adapt to climate related trends.	2.94	0.942	2.86	0.935	Agreed
3	Raising awareness prepare learners for necessary skill, knowledge and qualities to deal with rapid changing world.	2.93	0.915	2.90	0.996	Agreed
4	Increase pupils' knowledge on health, nutrition, sanitation and disease prevention.	2.89	0.998	2.92	0.943	Agreed
5	Raising awareness bring about an opportunity to improve learners' life prospects and the world around them.	2.87	1.030	2.83	1.016	Agreed
6	Raising awareness helps to initiate the mainstream of climate change adaptation to learners.	2.92	0.973	2.94	0.942	Agreed
	Grand Mean	2.92	0.964	2.89	0.966	

(Mean ≥ 2.50 Agree, Mean < 2.50 Disagree)

Table 4 shown the overall perception of head teachers and teachers on raising awareness toward mitigating climate change issues is interpreted as "Agreed" (M = 2.92, SD = 0.964) and (M = 2.89, SD = 0.966). This shows that head teachers and teachers agreed that raising awareness improve appropriate ways of mitigating climate change issues. In addition, all the responses obtained mean values greater than the criterion mean value of 2.50. this implies that

the head teachers and teachers agreed that raising awareness i) encourage changes in young people attitudes and behavior (M = 2.98, SD = 0.925) and (M = 2.88, SD= 0.966), ii) helps young people to adapt to climate related trends (M = 2.94, SD = 0.942) and (M = 2.86, SD = 0.935), iii) prepare learners with the necessary skill, knowledge and qualities to deal with rapid changing world (M = 2.93, SD = 0.915) and (M = 2.90, SD = 0.996), iv) increase pupils' knowledge on health, nutrition, sanitation and disease prevention (M = 2.89, SD = 0.998) and (M = 2.92, SD = 0.943), v) bring about an opportunity to improve learners' life prospects and the world around them (M = 2.87, SD = 1.030) and (M =2.83, SD = 1.016) and vi) helps to initiate the mainstream of climate change adaptation to learners. (M = 2.92, SD = 0.973) and (M = 2.94, SD = 0.942). The results display that the head teachers and teachers agreed that when raising adequate and appropriate awareness to learners, they will invariably equip with needed knowledge to mitigating climate change issues.

Resilience teaching and learning

Table 5 shows the analysis of response of participants on managing education to address climate change issues.

Table 5. Resilience teaching and learning.

S/N	Resilience Teaching and Learning	Head teachers Responses		Teachers Responses		Decision
		Mean	SD	Mean	SD	
7	Resilience teaching and learning increase climate literacy among learners.	2.95	0.996	2.80	1.038	Agreed
8	Resilience teaching and learning help learners understand the impacts of global warming.	3.04	0.937	2.85	0.960	Agreed
9	It encourages innovative teaching methods to assimilate climate change education in schools.	2.89	0.985	2.92	0.990	Agreed
10	Helps build the resilience that is needed to forestall and reduce destructive effects of climate change.	2.91	0.966	2.89	0.971	Agreed
11	Helps learners gain greater knowledge, skills and become more self-confident.	2.89	0.986	2.93	0.961	Agreed
12	Helps learners to join forces in reducing the susceptibility of societies to climate-related risks	2.94	0.976	2.82	1.037	Agreed
	Grand Mean	2.94	0.973	2.87	0.993	

(Mean > 2.50 Agree, Mean < 2,50 Disagreed)

Table 5 revealed the overall perception of the head teachers and teachers on resilience teaching and learning towards mitigating climate change issues is interpreted as "agreed" (M = 2,94, SD = 0.973) and (M = 2.87, SD = 0.993). This displays that head teachers and teachers agreed that resilience teaching and learning bring about effective ways of mitigating climate change issues. Furthermore, all the responses obtained mean values higher than the measure mean value of 2.50. This reveals that the head teachers and teachers agreed that resilience teaching and learning i) increase climate literacy among learners (M = 2.95, SD = 0.996) and (M = 2.80, SD = 1.038), ii) help learners understand the impacts of global warming (M = 3.04, SD = 0.937) and (M = 2.85, SD = 0.960), iii) encourages innovative teaching methods to

assimilate climate change education in schools (M = 2.89, SD = 0.985) and (M = 2.92, SD = 0.990), iv) helps build the resilience that is needed to forestall and reduce destructive effects of climate change (M = 2.91, SD = 0.966) and (M = 2.89, SD = 0.971), v) helps learners gain greater knowledge, skills and become more self-confident (M = 2.89, SD = 0.986) and (M = 2.93, SD = 0.961), and vi) helps learners to join forces in reducing the susceptibility of societies to climate-related risks (M = 2.94, SD = 0.976) and (M = 2.82, SD = 1.037). The results display that the head teachers and teachers agreed that resilience teaching and learning on climate change issues will help learners to adapt to any climate trends in the global world.

Hypotheses testing

T-test statistical analysis was used to analyze the formulated hypotheses as follow:

H_{01}:   There is no significant difference between the mean scores of head teachers and teachers on raising awareness and mitigating of climate change issues.

Table 6. Raising awareness and mitigating of climate change issues.

Variables	N	$\bar{x}$	SD	Df	T-cal	t-crit	Decision
Head teachers	375	2.92	0.964				
				757	0.83	1.96	Accepted
Teachers	384	2.89	0.966				

Table 6 shows the t-test investigation between the mean scores of head teachers and teachers' responses on raising awareness and mitigating of climate change issues. The t-critical value of 1.96 is greater than t-calculated value of 0.83, this implies that there is no significant difference between the responses of head teachers and teachers on raising awareness and mitigating climate change issues (Yim, Nahm, Ham & Park, 2010). Thus, the hypothesis which states that there is no significant difference between raising awareness and mitigating of climate change issues is accepted.

H_{02}:   There is no significant difference between the mean scores of head teachers and teachers on resilience teaching and learning and mitigating of climate change issues.

Table 7. Resilience teaching and learning and mitigating of climate change issues.

Variables	N	$\bar{x}$	SD	Df	T-cal	t-crit	Decision
Head teachers	375	2.94	0.973				
				757	0.86	1.96	Accepted
Teachers	384	2.87	0.993				

Table 7 reveals the t-test investigation between the mean scores of head teachers and teachers' responses on resilience teaching and learning and mitigating climate change issues. The t-critical value of 1.96 is greater than t-calculated value of 0.86. this implies that there is no significant difference between the responses of head teachers and teachers on resilience teaching and learning and mitigating of climate change issues (Skaik, 2015). Thus, the hypothesis which positions that there is no significant difference between resilience teaching and learning and mitigating climate change issues is accepted.

Discussion

The findings in table 4 reveals that raising awareness improve appropriate ways of mitigating climate change issues in North central zone, Nigeria. Nigeria. These are, it inspires changes in young people attitudes, helps young people to adjust to climate related trends, prepares learners with necessary skill, knowledge and attitude to deal with rapid changing world, increases pupils' knowledge on health, nutrition, sanitation and disease prevention, brings about an opportunity to improve learners' life prospects and the world around them as well as helps to initiate the mainstream of climate change adaptation to learners. Results from hypothesis one shown that there is no significant difference between raising awareness and mitigating of climate change issues in North-central zone, Nigeria. These findings conform to Jafar, Muhammad, Tamuri, & Hussin (2019) that teacher have an influential position that can bring about changes in learners through the aspect of raising awareness which is a value that needs to be understood. These findings agreed with Oruonye (2011) that raising environmental awareness bring about better understanding and outcomes in management of climate change issues. These findings also conform with UNICEF (2010) that raising awareness in problems of climate change is one of the best conducts of strengthening community on the problems of adaptation to climate change. These findings are in line with Bangay and Blum (2010) that education responses are needed to curb climate change issues. In addition, these findings conform to Raudsepp (2001) that education has positive and significant impact on climate change awareness.

The findings in table 5 indicates that resilience teaching and learning bring about effective ways of mitigating climate change issues in North central zone, Nigeria. Such that it increases climate literacy among learners, helps learners understand the impact of global warming, encourages innovative teaching methods to assimilate climate education in schools, helps build the resilience that is needed to forestall and reduce destructive effects of climate change, helps leaners gain greater knowledge, skills and become more self-confidents in mitigating climate challenges as well as helps learners to join forces in reducing the vulnerability of societies to climate-related risks. Findings from hypothesis two analysis exposed that there is no significant difference between resilience teaching and learning and mitigating of climate change issues in North-central zone, Nigeria. These findings are in line with Halimah Abdul Majid, Chuah & Eow (2018) that continuous process of resilience teaching and learning are needed in the creation of raising awareness towards effective control of climate change issues as the world is evolving. These findings agreed with Rose, Thank-God and Nwachukwu (2015) that children can be amazingly resilient in the face of significant change and disasters management. These findings concur with Kristic, Christopher and Jeremy (2018) that resilience teaching and learning creating understand of the global scope of potential health system crisis and clear awareness. These findings agreed with Houghton, Austin, Beerman and Horton (2017) that extreme heat reduce an individual ability to concentrate and leading to fatigue. Furthermore, these findings also concur with Mertz, Halsnaes, Olasen and Rasmussen (2009) that underdeveloped countries are more likely to be affected by climate change issues as compared with developed countries. The impact of this study on policy of Nigeria and practice of teachers is to make the government, school administrators, teachers and education stakeholders understand the importance of raising awareness as an effective way of controlling climate change issues. This study would also help school administrators and teachers to make resilience teaching and learning more interesting so as to arouse the learners' adaptation to climate change trends. In addition, this study would also be of useful and reference citation for further researchers in the field of education.

Government, school administrators, teachers and stakeholders should embark on raising awareness on climate change issues to inspires changes in young people attitudes, helps young people to adapt to climate related trends, prepares learners with necessary skill, knowledge and attitude to deal with rapid changing world, increases pupils' knowledge on health, nutrition, sanitation and disease prevention, brings about an opportunity to improve learners' life prospects and the world around them as well as helps to initiate the mainstream of climate change adaptation to learners. Also, resilience teaching and learning should be made interesting in order to increases climate literacy among learners, helps learners understand the impact of global warming, encourages innovative teaching methods to assimilate climate education in schools, helps build the resilience that is needed to forestall and reduce destructive effects of climate change, helps leaners gain greater knowledge, skills and become more self-confidents in mitigating climate challenges as well as helps learners to join forces in reducing the susceptibility of societies to climate-related trends

Conclusion

Climate change generally is seen as a grave danger to the prosperity and security of the world in the present time. In view of the findings, it was resolved that there is no significant difference between raising awareness, resilience teaching and learning and mitigating of climate change as they were found to be correlate one another. Raising awareness and resilience teaching and learning assist in preparing, adjusting and implementing climate change adaptation measures. Creating climate change awareness through education is very important in Nigeria.

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