

Assessment of Willingness to Participate in Climate Change Activism among ATAP Students, Bauchi State, Nigeria

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Abstract

The main purpose of this paper is to assess the willingness of Abubakar Tatari Ali Polytechnic (ATAP) students to participate in voluntary climate change activism in Bauchi State, Nigeria. Willingness which is the outcome variable was measured in ordered categorical five point Likert scale: totally not willing, not willing, partially willing, willing and very much willing while explanatory variables such as field of study and place of permanent residence are measured as: Science and Social Science, and rural and urban. Stratified random sampling was used to select 384 samples for the study. Using SPSS version 18 descriptive statistics was employed to indicate students' willingness to voluntarily participate in climate change awareness campaign, whereas the Ordinal regression was applied to determine the influence of field of study and place of permanent residence on willingness to participate. About 82% of the respondents are willing to very much willing to participate in the voluntary awareness campaign on climate change while 6% are not willing to totally not willing to participate. The result also shows that only 3.7% changes in willingness to participate is attributed to place of permanent residence and field of study indicating that about 96.3% of changes in willingness is explained by other factors. Also, while the students who leave in rural areas and those studying social science related fields demonstrate more willingness to participate in the voluntary awareness campaign, their counterparts in urban dwellings and those studying natural Science courses exhibit low willingness to participate. The study recommends advocacy campaign to students who leave in urban areas and those who are studying Science related disciplines for collective participation toward awareness campaign on climate change.

Keywords: Willingness to Participate, Climate Change Activism, Sustainability, ATAP Students, Bauchi State, Nigeria, Environmental Behaviour.

Introduction

The world over, climate change has become one of the most devastating environmental hazards facing humanity. Its effects cut across every region of the world (Fahad, Tahira, Jianglin, Li, Sufyanullah, and Aaqil (2020) with developing countries been the most vulnerable due to their social and economic over dependency on natural environment (Huong et al., 2018). Climate change has enormous cultural, social and economic impacts on different aspects of people's livelihood. Beniston (2003) observed the impact of climate change on a nation's infrastructural development, food production and water resources management. Climate change has also led to increase in global warming, rise in the sea levels, short time fluctuations in rainfall pattern including dynamics in onset and cessation,

melting of glaciers and floods (IPCC, 2007) the phenomenon which is causing challenging conditions in people's lives and thus a serious devastating environmental hazard awaits future generations if concerted effort is not made to avert the situation. Today, the role of man in climate change crisis through emission of carbon-dioxide (CO₂) and other greenhouse gases into the earth's atmosphere is not only glaringly clear, but has peaked historic level in the last decade (Maren, 2020). Consequent upon these changes, the average world temperature is projected to increase by more than 3°C before the end of 2030, the result which according to IPCC (2022) will be accompanied with catastrophic consequences to both the environment and human socio-economic development. As a result, the concept of climate change has continued to dominate world politics, media and public discourse in both developed and developing economies. Correspondingly, climate change is today considered as one of the few environmental hazards that threatens future human existence on the planet earth (Maren, 2020) and that collective action through participation of everyone in solution finding process is mandatory, while speedy policies through workable engagements and actions by world's community is urgently needed before it is too late (IPCC, 2014).

To take appropriate measures in containing current and future impacts of climate change and to support government policies toward addressing climate change crisis, groups in the society must be willing to act and to champion the course of disseminating awareness campaign to larger population. Studies have found that willingness of individuals to participate in climate change activism is an important stage in addressing climate change crisis (Maren, 2020). Also, there is a mismatch between people's expression on climate change and their participation in taking actions to addressing climate crisis (Carl et al., 2021). This shows that, the way people talk about climate crisis is occasionally contrary to the actions taken. Similarly, the work of Laidley, (2013) has clearly shown a strong correlation between people's willingness to participate in activities related to climate crisis and their social class in the society. Thus, people who occupy higher position of authority or obtain higher income show more willingness to participate in initiatives toward addressing climate change crisis than poor or those occupying lower position of authority.

Although there is wealth of literature about people's concern on climate change in both developed and developing countries of the world, however, there is dearth of information on willingness of students to voluntarily participate in climate change activism. Therefore, the main purpose of this study is to assess students' willingness to participate in voluntary activism against climate change in Bauchi state. Apart from filling the existing gap in the literature. This research specifically is of significant importance to relevant governmental and nongovernmental organizations in their policy formulation and strategies toward public awareness on climate change across rural and urban areas in Nigeria. The outcome of this activity will ensure sustainable practices in resource utilization and environmental concern for the present and future socio-economic development of our societies. The above aim was achieved through the following objectives:

1. To assess the willingness of students of Abubakar Tatari Ali Polytechnic Bauchi to participate in voluntary awareness campaign against climate change in the state.
2. To examine the influence of students' academic disciplines and place of permanent residence on willingness to participate in campaign against climate change.

The study hypothesized that:

1. Generally, there would be high willingness to participate in climate change activism among students in both science and social science disciplines
2. Science students would be more willing to participate in the campaign against climate change than their social science counterparts
3. Students who permanently reside in urban areas will be more willing to act than those who live in rural area.

Problem statement

Climate change is a pressing global issue that requires collective action from individuals and government. Despite the urgency of the problem, there is still lack of engagement and participation in climate change activism in many parts of the world including Nigeria. Again, the influence of place of permanent resident and course of study on willingness of students to participate in climate change activism is still lacking. This problem of climate change has been noted to disproportionately affect vulnerable populations including women, children and low income communities. In Nigeria, lack of engagement in climate change activism may be due to lack of awareness among other factors.

This research therefore focus attention to address this gap by assessing the willingness of ATAP students in Bauchi state, Nigeria to participate in climate change activism.

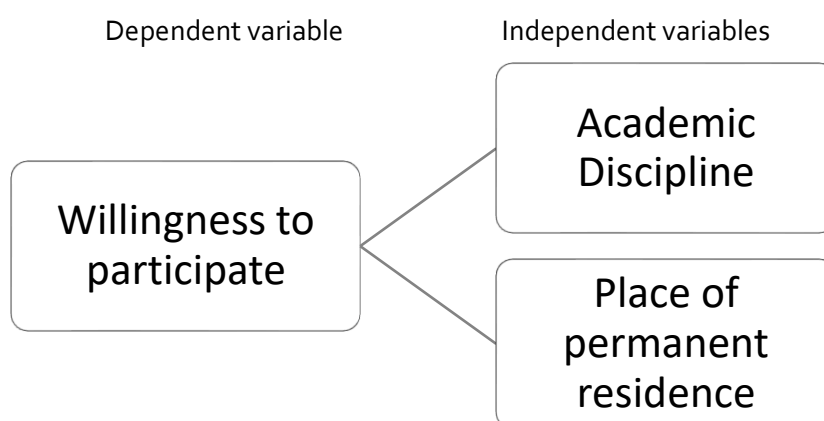


Figure 1: The model for student's willingness toward study field and location of residence

Materials and Methods

Study design

The study is based on a quantitative approach which involved a structured questionnaire for data collection. The instrument which is divided into two (2) sections was designed to solicit

information from the students of Abubakar Tatari Ali Polytechnic (ATAP) Bauchi. The first section of the questionnaire required the respondents to provide information regarding their socio-economic and demographic backgrounds which include age, average monthly income, gender, field of study (science and social science), level of study (ND1, ND2, HND1 & HND 2) and place of permanent residence which is limited to rural and urban. The second section which is on willingness to voluntarily participate in climate change awareness campaign comprised seven (7) items measured on a 5 - point Likert type scale: strongly not willing =1, not willing =2, partially willing =3, willing =4 and very much willing = 5. The respondents expressed their views on each Likert item by selecting the most accepted option provided in the scale. Ethical consideration was observed by ensuring anonymity and confidentiality of responses. Also, the respondents were informed of what the data would be used for and the person responsible for it.

Population, sampling and data collection

The population for this study comprised of all 19,000 students in both natural and social sciences field of Abubakar Tatari Ali Polytechnic (ATAP) Bauchi. The institution is located at the outskirts in the western part of Bauchi city, the headquarter of Bauchi State of Nigeria. For convenience, the students were grouped into science and social science groups. All students in the school of sciences and environmental technology were grouped as science while those in the School of Management and General Studies were considered as Social Science group. A total number of 384 samples, half this size from each group was drawn using Kreijcie & Morgan (1970) Out of 420 questionnaires randomly issued, 384 were properly filled, retrieved and used for analysis.

Statistical analysis

SPSS version 18 package was used to analyse the data. Firstly, the data was organised and summarized in tables. Frequencies and percentages were computed for data on demographic variables and willingness status. Normality of data was tested to ensure appropriate selection of statistical tools. Ordinal regression was used to test the model fitting information, the goodness of fit, Pseudo R^2 and impact of permanent place of residence and students' fields of study on willingness to participate in the climate change awareness campaign.

Results

In this section, the findings obtained from students' responses were presented, interpreted and discussed. The findings are presented in 7 tables. The first table presents demographic characteristics of the respondents which include gender, age, discipline and level of study. The second table reveals the willingness of students on participation in campaign against climate change. The third, fourth, fifth, sixth and seventh tables display results on normality of data, model fitting information, goodness of fit, regression coefficient and parameter estimates.

Demographic Profile of the Respondents

Data on some demographic profile of the respondents such as discipline: science and social science, level of study: ND 1, ND 2, HND 1 and HND 2, location of permanent residence: rural or urban, and age are presented in table 1.

The respondent's highest proportion (53.9 %) belonged to the age bracket of 25 – 29 years. This shows that majority of the students in the Nigerian Polytechnic system are aged 25-29 bearing in mind that about 65% of the respondents in this survey are higher national diploma students who returned to the institution after post national diploma industrial experience. Abubakar et al. (2014) revealed that the ages of the majority of Polytechnic students which also correspond with undergraduate counterparts in Nigerian universities is within the range of 19 and 29 years. On the other hand, the lowest proportion (1.7 %) belongs to the age group 15 – 19 years, which is in line with the finding of Buhari et al. (2014) who found the least number of students within the age bracket of 15 – 18 years in.

Table 1
Demographic profile of the respondents

Indicators	Frequency	Percentage (%)
Age		
15-19	7	1.7
20-24	140	36.7
25-29	207	53.9
30-34	30	7.8
Gender		
Male	260	67.8
Female	124	32.2
Discipline		
Science	192	50.0
Social Science	192	50.0
Level of study		
ND 1	60	15.6
ND 2	47	12.2
HND 1	26	6.7
HND 2	251	65.6
Residence		
Rural	164	42.8
Urban	220	57.2

Source: Field Survey 2021

Nigerian Polytechnics. This is probably due to the fact that the age bracket corresponds with age for graduation of most of the senior secondary school leavers in the area.

Concerning gender, the data shows that more than two – third (67.8 %) of the respondents were males, while females comprised only 32.2 %. Low enrolment of female gender in the polytechnic system signifies their low interest in vocational-related education as well as low enrolment of females in tertiary education in Northern Nigeria. It is been debated as to whether entrepreneurial education is considered by many females as a domain for men (Gray & Finley, 2005).

In terms of place of permanent residence, majority (57.2 %) of the students live in urban areas and the remaining 42.8 % lives in rural areas. This reveals that, the number of urban dwellers attending tertiary institutions are higher than their rural counterparts. This proportion is as a result of higher access and enrolment of urban dwellers to educational institutions in the area.

Test of normality

The test of normality of data sets on willingness to participate, academic discipline and place of permanent residence were conducted and presented in table 2. The results show that the value of willingness to participate, the academic discipline and the place of permanent residence are statistically significant ($p = 0.00, 0.00$ and 0.00). This indicates that the three variables are not normally distributed. Since for dataset to be normally distributed, no significant result is required. Also, the result of Kolmogorov Smirnov statistic of the three variables (table 2) indicated a gradual increase in values (0.271, 0.341 and 0.378) for willingness to participate, the academic discipline and place of permanent residence. This therefore justified the choice of nominal regression to examine the association between the variables, since the dependent variable which is willingness to participate was measured on ordinal categorical scale while the independent variables: academic discipline and place of permanent residence were measured in nominal categorical scales.

Table 2

Test of normality

Statements	Kolmogorov Smirnov Statistic	Sig
1. Willing to participate	0.271	0.00
2. Discipline	0.341	0.00
3. Place of permanent residence	0.378	0.00

a. Lilliefors Significance Correction

Model fitting information and goodness of fit

Results of model fitting information and goodness of fit are presented in table 3 and 4. The model fitting information (table 3) show statistically significant ($p = 0.048$) result, indicating that the model in place fits the observed data since for the model to fit the data set, the fitting information must be statistically significant.

Table 3

Model fitting information

Model	-2 log likelihood	Chi-square	df	Sig
Intercept only	58.752			
Final	52.673	6.079	2	0.048

Link function: logit

Table 4

Goodness of fit

	Chi-square	df	Sig
Pearson	8.358	10	0.594
Deviance	10.193	10	0.424

Link function: logit

On the other hand, the result of goodness of fit (table 4) reveals that both Pearson and Deviance are statistically not significant ($p = 0.594$ and 0.424), re-confirming the fitness of the model with the observed data set. Not significant results in goodness of fit is an indication that the model fits the observed data set very well.

Willingness to participate in advocacy campaigns on climate change

Results of student's willingness to participate in advocacy campaign on climate change crisis were analysed in percentage and presented in table 2. Taking students as a whole, about 47.2% and 35.6% of them were very much willing and willing to participate while only 1.7% and 4.4% were totally not willing and not willing to participate in climate change activism. These results show that students demonstrate high willingness to participate in climate change activism.

Table 5

Willingness	Frequency	Percentage (%)
Totally not willing	7	1.7
Not willing	17	4.4
Partially willing	43	11.1
Willing	136	35.6
Very much willing	181	47.2
Total	384	100.0

Source: Field Survey 2021

Impact of place of residence and academic discipline on willingness to participate

The regression coefficient of student's willingness to participate in climate change awareness campaign on place of permanent residence and academic discipline are presented in Table 6. The Nagelkerke value show that the result of Pseudo R^2 was 0.037.

This shows that only 3.7% changes in willingness to participate in climate change awareness campaign by the students is as a result of academic discipline and place of permanent residence. This further suggests that about 96.3% changes in willingness to participate in the awareness campaign by the students is determined by other factors different from place of residence and academic discipline. Hence, place of permanent residence and academic discipline are not significant determining factors in willingness to participate in pro-environmental behaviours.

Table 6
Pseudo R-Square

Cox and Snell	0.033
Nagelkerke	0.037
McFadden	0.014

Link function: logit

Parameter estimates

The test of parallel lines was conducted and the result revealed that the parameter estimate is not statistically significant ($p = 0.313$). This shows that the test of estimate did not violate the assumption of proportion oath.

Table 7
Parameter estimates

Parameter	Estimates	Sig
Rural	0.224	0.438
Urban	0	
Science	-0.638	0.026
Social science	0	

Link function: logit

The values of parameter estimate which reveals willingness of the independent variables is presented in table 7. The result shows that the parameter estimate for urban and rural dwellers are 0.00 and 0.224 respectively and it is statistically not significant. This means that students who leave in rural areas as place of permanent residence are 0.2% more willing to participate in the voluntary awareness campaign on climate change than those who leave in urban area.

Similarly, from table 7 above, statistically significant result ($p = 0.026$) was found between willingness for social science and science students (0.00 and -0.638). This result reveals that, academic discipline is a significant determining factor for students' willingness to participate in voluntary awareness campaign on climate change.

Discussion

Although no statistical difference in willingness to act in pro-environmental behaviours was reported (Andrian, 2015) between arts and science students, the students in the study area have exhibited high level of willingness to participate in the voluntary activism against climate. This result may not be unconnected to attitude and awareness level of the subject matter by the students during their secondary school education and the polytechnic. Since the curriculum of subjects offered by most of the students in secondary school such as Geography, Biology, Chemistry, Physics and Agricultural science contain concept of climate change (Eze, 2019). It was observed (Kiran et al., 2011) that, students most especially in the developing economies demonstrate high level of concern about the environment and show strong willingness to act against climate crisis. This finding is in support of earlier work of Hasan & Akhter (2011), Odjugo, (2013) and Adejoke et al. (2014) who observe that awareness of weather patterns is an important determining factor for willingness by population to take part in pro-environmental attitude and concern. However, students were suggested to have less willingness to participate in processes that might ameliorate global warming (Michal et al., 2020).

Concerning results of the relationships between place of permanent residence and willingness to act, the outcome shows no significant difference in willingness among rural and urban dwellers in the area. Sabrina, (2020) in his work on determining a significant difference in environmental attitude between urban and rural students observed that there is no statistically enough evidence to conclude that the attitude toward the environment among rural and urban population exists. However, students who live in rural areas as a place of permanent residence demonstrate more willingness to act than their urban counterparts. This reflects the view of Emily et al., (2009) who reported high environmental concern among rural residents in Canada. The slight difference in willingness between rural and urban dwellers could perhaps be related to the level of engagement of rural dwellers with the natural environment. Majority of rural residents in Northern part of Nigeria engage natural environment more through farming, fishing, fuelwood gathering, water harvesting and hunting among others. This could have translated the reason for slightly higher willingness of rural students. This result is at variance with Emily et al (2020), Eze (2019) and William (2007) who reported that students who reside in urban areas had higher attitude and willingness to participate in pro-environmental behaviours than their rural fellows.

Social science students show more willingness to participate than their natural science counterparts. This is perhaps because the nature of social science courses is such that they are built on human interpersonal interactions. Most science students are limited to laboratories, workshops and drawing studios, the activities which limit their human interaction. Conversely, due to attitudes developed by science students during their preceding/earlier education high willingness to act was observed compared to non-science counterpart (Andrian, 2015). This is further supported by the study conducted by Hye-ryeon et al. (2021).

Conclusion

Willingness by groups or individuals to face environmental problems with the aim of providing necessary strategies for addressing it, is a reflection of the level the issue is understood (Eze, 2019). While attention in previous work was focused on perception and utilization of relevant approaches in climate change awareness, willingness to participate in knowledge dissemination as well as good understanding of determining factors for willingness to act is crucial in getting the awareness activities done. In this study, the students of ATAP were interviewed on their willingness to participate in voluntary climate change awareness campaign and to examine the influence of field of study and place of permanent residence on willingness to participate. The result of this survey has demonstrated that majority of the students (82%) interviewed are willing - very much willing to participate in the campaign, while 6% are not willing - totally not willing to participate. The result further shows that even though only 3.7% changes in willingness to participate is accounted by place of permanent residence and field of study, the students who leave in rural areas and those studying Social Science related fields/disciplines demonstrate more willingness to participate in the voluntary awareness campaign than their counterparts in urban dwellings and those studying natural science courses.

Recommendations

For generalization and understanding of a broader picture of students' voluntary willingness in climate change activism, this study recommends that:

- further studies should focus attention on large sample size and incorporation of many tertiary institutions of learning in the country.
- Again, similar studies should be replicated in another polytechnic in Nigeria in order to ascertain the results obtained in this survey.
- Similarly, since the effect size of place of usual residence and field of study were so negligible in determining willingness of students to participate in voluntary climate change activism, more socioeconomic and demographic variables should be tested in order to increase our understanding of the dominant determining factors for students' willingness to participate.

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