

# Influence of Nollywood Film in Mother Tongue on Students' Learning Outcomes on Contemporary Environmental Concepts

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Environmental education had existed in one form or another in Nigerian institutions, dating back to the late 1860's. Its strong resurgence in the 1990s on the education arena stems primarily from global public concern about devastating ecological crisis, such as pollution, biodiversity loss, global warming and ozone layer depletion, availability and utilisation of resources (energy), and the general degradation of the environment. The common "story" among the average Nigerian of the 1990s was that phenomenon of global warming and ozone layer depletion are traits of the developed nations. Today, the beats of that drum has changed. Learning outcome has continued to be a major concern for educators, researchers, and the need for learners to attain metacognition in this technology driven generation is required now than ever. Many Nigeria high schools are just beginning to embrace the use of modern technology as innovative means of communication in the teaching and learning process. This study seeks to experiment the use of Nollywood film to stimulate climate change communications in constructivist classrooms spiced with cooperative learning technique to positively influence learners' outcomes. The important question this paper seeks to answer is: Will Nollywood film significantly influence students' attitude, achievement, gender, willingness to act, and perceived personal threat towards global warming and ozone layer depletion? Mixed approaches of quantitative and qualitative methodologies were adopted in this study. The study employed a two-group pre-test treatment post-test quasi-experimental design. Intact classes made of 209 (102 male and 109 female) senior secondary I and II students from five different high schools were selected. Result did not indicate that Nollywood had favourable outcomes; and this may be linked to favourable entry behaviour for some students in the control group. Environmental educators and especially the climate change education community would find this study from Nigeria worthy of bridging the gap in literature of emerging studies on global warming, climate change, and ozone layer depletion in a multicultural setting. Furthermore, misconception in environmental science appears to remain strong and irrespective of the potency of the method of communication.

*Keywords:* students' learning outcomes, climate change, mother tongue, Nollywood film, Nigeria

## Introduction

The discovery of fossil fuel has clearly transformed and made human existence undeniably better off relative to when we were in the dark. However, our activities and unsustainable consumption of this energy has given rise to increase in the amount of greenhouse gases, trapped in our beautiful blue planet, which over the centuries has resulted into climate change with its hydra headed challenges (Aho & Bankole, 2018).

The scientific community has taken the bull by the horn with swift actions that will reduce dependency on fossil fuel and embrace alternative sources of energy at affordable cost for the vast majority of the global citizenry. Beyond these efforts, there must be a strong shift, as advocated by Leiserowitz and Howe (2015) in public policy and individual behaviour regarding energy, transportation, consumption, and the other contributory human activity. Likewise, preparing for and adapting to climate change impacts will require changes in current practices. Governments will need public support for and engagement in climate change solutions.

That scientific hypotheses and processes have always been tentative in principle, are not concepts for debate. Thus, Zabel, Duggan-Haas, and Ross (2017) argued that for decades by thousands of climate scientists, there were a substantial set of independent evidence that climate change is happening now. But, the debate among these scientists is in the scientific uncertainty about several details, such as the rates of change and interactions among components of the climate system; and this is in conformity with the nature of scientific research especially on a complex phenomenon like climate change systems. However, the central issues of anthropogenic climate change is no longer a nightmare, it is real and convincing now than ever, with an abounding “cloud of witnesses” in literature (The Intergovernmental Panel on Climate Change [IPCC], 2014) which has been the mitochondria sustaining the debate in favour of anthropogenic climate change (Above & Bankole, 2018). Climate change has continue to unfold itself in the form of extreme and slow events, leading to an additional risks to development (United Nations Institute for Training and Research [UNITAR], 2015) in many regions and communities around the globe. Sea level rising and coastal flooding; biodiversity loss; heat waves, droughts, and desertification; forest fires; decreased crop yield; and negative health impacts such as increased malnutrition, increased deaths, disease, and injury due to heat waves, floods, storm, droughts, and increased frequency of cardio-respiratory diseases (Adesina, 2010; IPCC, 2014) are some of these “cloud of witnesses”. Report in September 2016 shows that the arctic sea ice annual minimum tied the second lowest on record and the annual season of sea ice has drastically reduced in time by seven weeks, by implication limiting the breeding and feeding capabilities of polar bears (Hauk & Pickett, 2017). This is a vital signal and serious challenges for biodiversity in this region. And the spin-off effects of this problem are numerous.

These experiences and their negative impacts are no longer uncommon. Thus, the reality of anthropogenic climate change has come to stay. Once upon a time, Nigerians viewed this phenomenon as being a trait of the developed nations. However, emerging evidence within Nigerian communities has shown some increase in biodiversity loss, climate change, and desertification in the north (Felix-Ezeh, 2016), water demand and supply challenges, erosion, and coastal flooding especially in the south (Ojo, 2011). There are other forms of pollution from domestic and industrial operations including the Niger Delta region (Akhaine & Akali, 2011).

It may not be an exaggeration to label climate change as the most pervasive of all global environmental challenges confronting humanity today, impacting all aspects of our lifestyles and livelihoods in terms of health and wellbeing, food security, mobility, energy, water, vegetation, biodiversity, land, and other natural resources (Above & Bankole, 2018). It is currently threatening the very foundations of peace, economy, socio-political, and security in Nigeria as a result of the violent clashes between farmers and herdsmen. The herdsmen are moving down south for green pastures, due to desertification, for their cattle. The cattle were reportedly to have fed on farms, leading to economic loss for farmers, thereby provoking clashes between these two groups (Yaqub, 2018). This is obviously a major threat to the ecosystem along the Sahel region in West Africa and its economy. These challenges are much more impactful especially in developing economics with rich ecosystems which is

often the major source of their income for survival (Syrovatka & Hak, 2015), especially regions with fragile political system and poor people oriented governance. If these trends persist, the spiritual and material well-being and survival of humankind are at risk. What could be the appropriate way out of this challenging global dilemma?

Education is the fulcrum for elevating individuals and communities to better understand and appreciate the issues, challenges, and solutions to global climate change. The climate change education community advocates that education is an essential tool for encouraging the changes in attitudes and behaviour needed to help people address the causes of climate change, shift to more sustainable lifestyles, apply skills that support different modules of economies, and also adapt to the impact of climate change (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2015). There is evidence that some high school Nigerians students attribute the causes of global warming and ozone layer depletion to religion (Adelekan & Gbadegesin, 2005; Aabove, 2015). Therefore, education for sustainability should be seen as the antidote (Okebukola, 2008; Zabel et al., 2017), for climate change education reform for our next generation environmental scientists.

### **Nollywood Film and Mother Tongue Influence**

Films many times elicit emotions especially the audio-visuals scene that emerges from time to time in the film. This can lead to powerful cognitive and emotional influence on students (Berk, 2009) and enhance learning outcomes (Andrew, Franklin, Keith, & Henry, 2009) of abstract concepts. Since learners confuse and conflated global warming with ozone layer depletion (Grima, Filho, & Pace, 2010; Aabove, 2015), the potential influence of film is hoped to eliminate unfavourable outcomes in a constructivist class. Singsewo (2011) observed that critical-thinking is a feature of constructivism, creates opportunities to effectively handle environmental problems.

The story of the emergence of Nollywood in the Nigeria film industry began with the first Nigerian films on celluloid screened in theatres, made by Ola Balogun and Hubert Ogunde in the 1960s. Nollywood exploded into a booming industry in 1992 with a home video titled “Living in Bondage” delivered in Igbo language, henceforth most Nollywood films were produced in local languages of Yoruba, Igbo, and Hausa. This pushed most foreign media off the shelves. The popularity of Nollywood grew all over Africa and the West with millions of US dollars as revenue. In 2005, the industry was colloquially called Nollywood—“N” from Nigeria, having been derived from Hollywood like Bollywood of India was from Bombay. A documentary interview on Nollywood by Aljazeera Cable Network monitored Saturday 1st August 2015 in Lagos, reported that Nollywood is currently first in Africa and second largest world producer of film after India with over two billion viewers worldwide and generates more than 800 million US dollars annually, major revenue for the nation. About 80% of Nollywood actors and actresses are 30 years and below.

Nollywood film used in this study was focused on the concept, causes, and effects, and how to mitigate and adapt to the challenges of global warming and ozone layer depletion. The language of the film was Yoruba but sub-titled in English and acted by Nigerian movie super stars mostly very popular among the students. The film which lasted for about an hour was produced by the Lagos State Ministry of Environment for the purpose of public awareness on climate change. Literature appears to indicate that the use of language of the immediate community in the teaching of science predisposes learners to learning science concepts and that Yoruba language (YL), one of the three most-widely spoken languages in Nigeria, indicates to be a better medium of instruction at the lower primary school (P. A. Okebukola, Owolabi, & F. O. Okebukola, 2013).

What could be the experience at the upper secondary school within a cosmopolitan city like Lagos, where Yoruba is the language of the immediate community? This study seeks to experiment the use of Nollywood film presented in YL in a constructivist class spiced with cooperative learning technique to positively influence learners' outcomes.

### **Theoretical Framework and Pedagogic Influence**

The framework of this study is based on Ausubel's cognitive theory which stresses the relevance of meaningful learning and Novak's principle of visualisation of concepts. This theoretical principle is expected to stimulate meaningful learning of global warming and ozone layer depletion being abstract concepts as visualization takes place with the film. The application of the constructivist epistemological theory focusing on students' centred meaningful learning from known to unknown through the use of negotiations of concepts thereafter becomes appropriate.

When we watch a film or video emotions are created by the audio-visuals scene that emerges from time to time in the film. This can lead to powerful cognitive and emotional influence on students (Berk, 2009). In an experiment conducted in the classroom, film was found to enhance what has been learnt in text (Andrew et al., 2009). Results show that previews and summaries in educational films can enhance learning, and that visual scene repetition appears to further boost knowledge acquisition (Michel & Roebbers, 2008). It is against this potential influence of films and videos on learners' cognition and behaviour that necessitate its use as a pedagogic influence. The Nigeria film and video industry-christened Nollywood has gained tremendously wide acceptance national and internationally. Some studies have shown that learners are confused and have conflated issues related to global warming and ozone layer depletion (Grima et al., 2010; Aho, 2015). The constructivist epistemology, which engages learners in critical-thinking, has been predicted to positively influence students' learning outcomes especially with abstract concepts, such as global warming and ozone layer depletion (Aho, 2015). In line with this prediction, Singsewo (2011) believed that critical-thinking creates more opportunities for students to be able to analyse, criticise, and acquire knowledge to effectively handle environmental problems that they may be experiencing in future. Global warming and ozone layer depletion is an example of such problems that every youth in the nations of the world will have to deal with in the future and it is important that they are prepared now on how to deal with the effects of these challenges. The rationale for the use of constructivism in this study stems from the realisation that during the process of construction of knowledge, students share ideas by questioning due to critical-thinking, an alternative to meaningful learning which is opposed to fact-demanding questions, a feature found in a teacher centred classroom. Poor learning outcome has continued to be a major concern for educators, researchers, and the need for learner to attain meta-cognition in this technology driven generation is required now than ever. This study seeks to experiment the use of Nollywood film in a constructivist class spiced with cooperative learning technique to positively influence learners' outcomes. The important question this paper seeks to answer is: Will Nollywood film significantly influence students' attitude, achievement, gender, willingness to act, and perceived personal threat towards global warming and ozone layer depletion?

### **Study Context**

This study was conducted in Lagos, a cosmopolitan city host to different Nigeria ethnic background. Although Yoruba is the local language of the community, however, English language is official and widely

spoken. Six ethnic background operationally represented in this study are Yoruba, Bini, Igbo, Rivers, North Central, and North East/West.

### **Study Design**

Mixed approach of quantitative and qualitative methodologies was adopted in this study. The study employed a two-group pre-test treatment post-test quasi-experimental design. Intact classes made of 209 (102 male and 109 female) senior secondary I and II students from five different schools were selected, three from the experimental (47 male and 63 female) and two from the control (55 male and 49 female).

### **Instrumentation**

Four instruments were used, for attitude, it was a 41-item attitude to global warming and ozone layer depletion (AGWOLD). It also measured willingness to act in favour and perceived personal threat of global warming and ozone layer depletion. The second was a 14-item objective achievement test on global warming and ozone layer depletion (ATGWOLD) and the third was a 19-worded anxiety inventory on global warming and ozone layer depletion (AIGWOLD). The last was an unstructured interview. AGWOLD was validated by two high school science teachers, an environmental educator, a science educator, and a socio-psychologist. A pilot test administration of AGWOLD had an alpha value of 0.69 but 0.75 for the 209 samples of this study. A test-retest with an interval of three week between administrations, ATGWOLD had a reliability coefficient of 0.85, while the alpha value of AIGWOLD was 0.72. The Nollywood film used in this study was focused on the concept, causes, and effects, and how to mitigate and adapt to the challenges of global warming and ozone layer depletion. The film was acted by Nigerian movie super stars mostly very popular among the students. The film which lasted for about an hour was produced by the Lagos State Ministry of Environment for the purpose of public enlightenment.

### **Procedure**

Research assistants were trained for content knowledge (three weeks) and pedagogy (four weeks) along with practical sessions. The selection of global warming and ozone layer depletion as topics was based on literature (Grima et al., 2010) that students usually conflate these concepts. Samples irrespective of the group were randomly selected to form a cluster of five or six in a cooperative team with mixed gender and abilities (an experimental group had a team with two members from "River" ethnic group) with mixed gender, abilities but the same ethnic background.

Pre-test was administered to the entire samples. During the treatment phase, the Nollywood film was used by research assistants for about 10 minutes with different scenes to stimulate the constructivist class, the theme, or an aspect of the discussion in each scene was similar and others were related to the topic of each class. This was done in all the six lessons of the study. However, the film was not employed in the control group. The research assistant played the role of a facilitator providing the basic "structure". Students' view were sought on the concept and the process of shifting the students' view from their current knowledge to the unknown began as well as relating it to contemporary issue happening in the local community. The facilitator interjects the cells intermittently if required. This process of cycles of learning involved interactive question and answer, critical analyses, and negotiation of meaning leading to the discovery of new knowledge for the students. Each cooperative learning cell through a leader provided feedback on the group's consensus. The same procedure was followed for the control group except the use of Nollywood film. Post-test was then administered to the two groups.

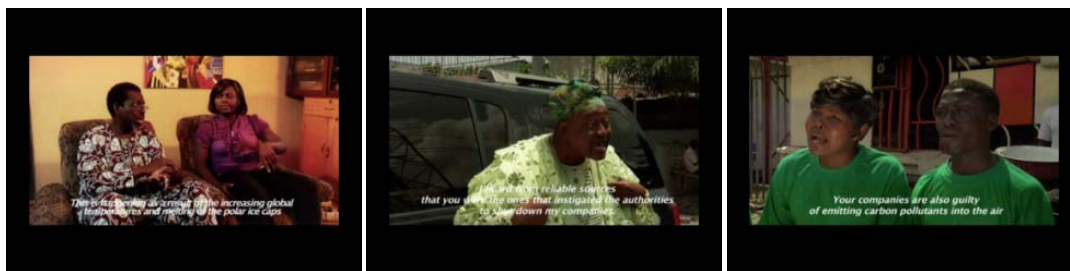


Figure 1. Three screen clips from the film.

## Findings and Discussions

Multivariate analysis of covariance was employed for data analysis.

### Findings on Attitude

Result from the analysis of covariance (ANCOVA) shows that Nollywood film had not significantly influence group ( $F(4, 209) = 0.31; p < 0.05$ ) AGWOLD. The descriptive statistics shows that male students in the experimental group had a mean attitude score of 49.79 and their female counterpart had a score of 49.97, a difference of 0.18 better than the attitude of the boys. This may be a reflection of a better emotional expression of women than men. In the control group, male students had a better attitude score of 52.27 than their female counterpart with a difference of 2.70. Irrespective of the group mean attitude score of 51.13 was obtained for male and 49.80 for female students, indicating a better a mean attitude score for boys than the girls by a value of 1.37. This difference in value is close implying that both sexes displayed very close similarity in attitude. The ANCOVA analysis provided further insight into the finding to prove that although male students had a better attitude the difference was not meaningful. Therefore, the Nollywood film was found not to significantly improve gender attitude to global warming and ozone layer depletion. The mean attitude score of the experimental group was 49.89, while the control group was 51.07 indicating that the control group had better attitude than the experimental by a difference of 1.18. The ANCOVA result shows that although students in the control group displayed better attitude than the control group, the difference was not meaningful, because there was no significant difference as indicated in the  $F$  ratio. Therefore, the Nollywood film did not significantly influence the attitude of students exposed to the film on global warming and ozone layer depletion. The outcome of this analysis appears to oppose the idea of Berk (2009) that film has strong emotional influence on learners. The reason for this may be traced to the absence of musical background that may convey emotional influence on the students and stress certain scenes in the film. What this paper may refer to as the theory of emotional influence, in view of Berk's (2009) discussion, which is based on review of extensive literature on the influence of video and films, that musical background plays a significant role in building strong emotions while using it for teaching.

Result shows that the use of YL in the Nollywood film had not significantly influence students' attitude ( $F(5, 110) = 0.78; p > 0.05$ ) to global warming and ozone layer depletion within the experimental group. Also, attitude mean scores show Yoruba, 49.65; Bini, 49.36; Igbos, 52.25; Rivers, 51.00; North Central, 47.75; and North East/West, 50.56. Within the control group result also shows no significant difference ( $F(5, 99) = 1.09; p > 0.05$ ) and attitude mean scores show Yoruba, 51.59; Bini, 51.63; Igbos, 52.50; Rivers, 44.00; North Central, 50.81; and North East/West, 48.94. Irrespective of the group, ethnic background had no significant influence on students' attitude ( $F(5, 209) = 0.91; p > 0.05$ ) and attitude mean scores show Yoruba, 50.48; Bini, 50.28; Igbos,

52.36; Rivers, 48.67; North Central, 50.00; and North East/West, 49.50. These results show that mother tongue has no influence on students' attitude irrespective of ethnic background or group.

### **Findings on Achievement**

The achievement means score of the experimental and control groups were subjected to ANCOVA, a statistical significant difference was found to exist between the two groups ( $F(4, 209) = 4.05; p > 0.05$ ). This significant difference was not due to better achievement scores of the experimental group. Hence, it appears that the Nollywood film on global warming and ozone layer depletion did not enhance learners' achievement on the two phenomena. The result obtained from this study appears to be at variance with the findings of Berk (2009) that film and video have been found to significantly enhance learning performance in the classroom irrespective of the discipline. However, the score improved relative to the pre-test but the outcome is in consonance with Berk (2009), Michel and Roebers (2008) reported that visual scene repetition appears to further boost learners' knowledge acquisition. In contrast to these submissions, Grima et al. (2010) and Ahoje (2015) appears to create a gap to explain the reason for this contrast that students irrespective of the technique confuse and conflate the phenomena of global warming and ozone layer depletion. In further support for the findings obtained in this study, Singsewo (2011) and Porter, Weaver, and Raptis (2012) found that no significant difference exists in learners' post-test score on awareness, critical-thinking on environmental concepts, and knowledge on climate change.

The result obtained on achievement scores shows that the experimental group had a mean score of 8.23, while the control group had a score of 8.97, indicating that the control group performed better than the experimental by a difference of 0.74. Findings reveals that YL did not significantly enhance students' achievement ( $F(5, 110) = 1.45; p > 0.05$ ) in the experimental group. In terms of ethnic background, mean scores shows that Yoruba, 7.98; Bini, 8.35; Igbos, 9.67; Rivers, 9.50; North Central, 6.50; and North East/West, 7.89.

The outcome from the control group also shows no significant difference ( $F(5, 99) = 3.15; p > 0.05$ ) and achievement mean scores show Yoruba, 9.85; Bini, 8.84; Igbos, 7.60; Rivers, 4.00; North Central, 7.82; and North East/West, 8.82. Irrespective of the group, ethnic background had no significant influence on students' achievement ( $F(5, 209) = 0.68; p > 0.05$ ) and achievement mean scores show Yoruba, 8.79; Bini, 8.55; Igbos, 8.72; Rivers, 7.67; North Central, 7.47; and North East/West, 8.50. The outcome of these results is an indication that mother tongue has no influence on students' achievement irrespective of ethnic background or group.

### **Findings on Willingness**

The descriptive statistics on willing to act in favour of global warming and ozone layer depletion shows that the control group had a better response (4.35) than the experimental group (4.18). With respect to gender difference, the experimental group had 4.21 for male and 4.16 for female students. The control group indicates 4.36 for male and 4.34 for female. Irrespective of group male had a mean willingness score of 4.29 better than the female with 4.23 mean willingness score. ANCOVA shows no statistical significant difference for group ( $F(4, 209) = 0.05; p < 0.05$ ) and gender ( $F(4, 209) = 0.33; p < 0.05$ ) on willingness to act in favour of global warming and ozone layer depletion.

The outcome indicates that YL did not significantly enhance students' willingness to pay a price to control global warming and ozone layer depletion ( $F(5, 110) = 0.88; p > 0.05$ ) within the experimental group. In addition, mean scores from ethnic background indicate that Yoruba, 4.02; Bini, 4.29; Igbos, 4.67; Rivers, 4.50;

North Central, 4.50; and North East/West, 4.00. The outcome from the control group also shows no significant difference ( $F(5, 99) = 0.32; p > 0.05$ ) and willingness mean scores show Yoruba, 4.51; Bini, 4.26; Igbos, 4.30; Rivers, 4.00; North Central, 4.09; and North East/West, 4.29. Irrespective of the group, ethnic background had no significant influence on students' willingness ( $F(5, 209) = 0.27; p > 0.05$ ) and the mean scores show Yoruba, 4.23; Bini, 4.28; Igbos, 4.50; Rivers, 4.33; North Central, 4.20; and North East/West, 4.19. The outcome of these results indicates that mother tongue has no influence on students' willingness to pay a price to control global warming and ozone layer depletion irrespective of ethnic background or group.

### **Findings on Personal Threat**

The descriptive statistics on perceived personal threat of global warming and ozone layer depletion shows that the control group had a better response (3.28) than the experimental group (3.03). With respect to gender difference, the experimental group had 3.15 for male and 2.91 for female students. The control group indicates 3.27 for male and 3.30 for female. Irrespective of group male had a mean perceived personal threat score of 3.22 better than the female with 3.08 mean score. ANCOVA shows no statistical significant difference for group ( $F(4, 209) = 1.22; p < 0.05$ ) and gender ( $F(4, 209) = 0.25; p < 0.05$ ) on perceived personal threat.

Result shows that YL in the Nollywood film had not significantly influence students' personal threat ( $F(5, 110) = 0.78; p > 0.05$ ) to global warming and ozone layer depletion within the experimental group. Also, mean scores on personal threat show Yoruba, 2.98; Bini, 3.04; Igbos, 2.67; Rivers, 3.00; North Central, 3.50; and North East/West, 3.56. Within the control group result also shows no significant difference ( $F(5, 99) = 0.66; p > 0.05$ ) and mean scores on personal threat show Yoruba, 3.41; Bini, 3.37; Igbos, 2.80; Rivers, 3.00; North Central, 3.18; and North East/West, 3.24. Irrespective of the group, ethnic background had no significant influence on students' personal threat ( $F(5, 209) = 0.91; p > 0.05$ ) and mean scores show Yoruba, 3.17; Bini, 3.17; Igbos, 2.73; Rivers, 3.00; North Central, 3.27; and North East/West, 3.35. These results show that mother tongue has no influence on students' personal threat irrespective of ethnic background or group.

### **Findings on Gender**

Interesting findings emerged on gender. Analysis of the experimental group showed no significant gender difference in attitude ( $F(1, 110) = 1.97; p > 0.05$ ). Irrespective of ethnic group female students had mean attitude score (49.97) better than male (49.79) counterpart. Highest mean score for male was exhibited by North East/West ethnic group (56.33) and female by Igbos (51.88). Yoruba male ranked third with 49.17 mean score (out of five since there was no male in the Rivers ethnic group) coincidentally Yoruba female also ranked third—50.00 (tie with North Central female).

Also, analysis on achievement shows no significant gender difference ( $F(1, 110) = 0.46; p > 0.05$ ). Irrespective of ethnic group female students had mean achievement score (8.60) higher than male (7.72). Thus, female performed better by a difference of 0.88. Highest mean score for male was exhibited by North East/West ethnic group (9.33) and female by Igbos (10.38). Yoruba male ranked third with 7.87 mean score (out of five ethnic groups) however their female ranked fifth—8.06.

Further analysis on willingness shows no significant gender difference ( $F(1, 110) = 0.17; p > 0.05$ ). Irrespective of ethnic group male students had willingness mean score (4.21) higher than female (4.16). Highest mean score for male was once again exhibited by North East/West ethnic group (5.00) and North Central female (5.00). Yoruba male and female both ranked fifth with mean scores of 4.04 (in a group of five) and 4.00, respectively.



Finally, with respect to the experimental group significant gender difference existed in personal threat ( $F(1, 110) = 1.97; p < 0.05$ ). Irrespective of ethnic group male students' personal threat mean score (3.15) was higher than female (2.94). Highest mean score for male was exhibited by North Central ethnic group (4.33) and female by North East/West (3.33). Male and female students with Yoruba background both ranked forth with mean scores of 3.04 and 2.94, respectively.

Result of the control group showed significant gender difference in attitude ( $F(1, 99) = 5.41; p < 0.05$ ), but no significant gender difference exists in achievement ( $F(5, 99) = 2.88; p > 0.05$ ), willingness ( $F(1, 99) = 0.11; p > 0.05$ ), and personal threat ( $F(1, 99) = 0.14; p > 0.05$ ). Irrespective of ethnic group male performed better than female students in attitude, achievement, willingness, and personal threat. Irrespective of the group—experimental and control, result indicates a significant gender difference in attitude ( $F(1, 209) = 4.43; p < 0.05$ ), but no significant gender difference exists in achievement ( $F(1, 209) = 0.00; p > 0.05$ ), willingness ( $F(1, 209) = 0.61; p > 0.05$ ), and personal threat ( $F(1, 209) = 2.72; p > 0.05$ ).

### Qualitative Outcome

Analysis of the data collected from some of the interviewed students in the experimental group indicates that they were fascinated by the film and rated it as a very pleasant experience that stimulated their interest and understanding on global warming and ozone layer depletion. They expressed the desire to use motion pictures in learning science especially abstract concept “to make it look real”. The control group interviewed and experienced the use of cooperative learning as “first time in a long time”. In the course of the interview, the fifth school (the control group with 59 students) were discovered to belong to a climate change club for about a year. Thus, they had better entry behaviour which appears to have influenced the outcome of the control group.

Interview was conducted to obtain better insight of the quantitative results. We found out that some participants in the experimental group with Yoruba background were not fluent in speaking their mother tongue. The reason was that “we hardly speak Yoruba at home and this is especially true about my mother” (female, 15 years). “We have always spoken English at home”, because “our parents says it will enhance our academic success now and in the future, still I understand Yoruba but not too well at least to relate with friends” (male, 16 years). Another student claim that proficiency in English according to the parents is a “reflection of home status and improves the way the society values you” (female, 16 years). Many participants from other ethnic background were born in Lagos and were able to converse fairly well in Yoruba, “this is any important key to our survival in Lagos else you can lose out” (female, Igbo, 16 years) and “it helps us to relate with our friends” (male, North East/West, 15 years). Generally, they were fascinated by the film and said it was a very pleasant experience that stimulated their interest and understanding. However, many students were not able to concentrate on the sub-title but paid attention to the audio-visuals which was relatively easy to comprehend.

### Conclusion

This study attempted to assess the influence of Nollywood film on students' outcome in terms of attitude, achievement, and willingness to take action and perceived personal threat. Although the result of this study did not indicate that Nollywood had favourable outcomes which may be linked to favourable entry behaviour for some student in the control group. Science and climate change educators would find this study worthy of bridging the gap in literature of emerging studies on climate change related concept especially in a diverse

multicultural setting like Nigeria. Furthermore, misconception in science appears to remain strong, irrespective of the potency of the learning method.

Results obtained appears to indicate that mother tongue does not significantly influence learning outcomes, including gender, in a multicultural city, but may be better in rural communities with stronger preference for mother tongue for instruction and at home, thus, supporting results obtained in reference studies. The outcome on personal threat is stronger for the girls and significant, indicating support for previous studies. The study appears to open issues related to policy implementation within the study context and influence of westernised home.

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