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CLIMATE CHANGE AND ENVIRONMENTAL SUSTAINABILITY: A VISUAL COMMUNICATION DESIGN APPROACH

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Abstract

This paper answered calls from scholars to attend to a research gap concerning the visual representation of climate change. Scholarly research has proven that climate change is a critical issue in most parts of the world. This serious problem has not adequately been addressed. This paper, therefore, focused on one research question; how can visual communication images help in addressing the issue of climate change adaptation in Nigeria? Global warming in its totality does not only affect the environment but also individuals and species in one way or the other. It is quite clear that not everybody or persons in society are literate enough to understand or know about the extent of trouble or damage the issue of global warming exerts on the ecosystem. Imagery plays a role in increasing the sense of importance of the issue of climate change (saliency), or in promoting feelings of being able to do something about climate change (efficacy) – but few, if any, images seem to do both. Communications strategies should assess the purpose of their messages, especially regarding salience and efficacy. These image employed by the artist is intended to make people feel that climate change is important) and second, for efficacy ('this image can do something about climate change'). Adopting visual analysis as a methodology of enquiry, this paper examined visuals in educating people on the adverse effect of climate change on the environment. Findings from this study led to the conclusion that, through analysis of the changes in visual designs which very often is impelled by social, cultural, religious or political forces, the entirety of nations regarding the environmental issue can be adequately addressed.

Introduction

Climate change is a continual rise in the average temperature of the earth's climate system, which is usually caused by individuals as a result of adding excessive amounts of greenhouse gasses to the atmosphere which is quite harmful to mankind. The effect of adding an excessive amount of greenhouse gasses can be seen, when the ice melts in some parts of the world especially the north poles, sea level change the ecosystem in a very great magnitude and a

lot of other human activities. One such negative effect on the ecosystem is the negative interaction between species becoming more common across the globe leading to a decrease in the amount of fresh water. Climate Change and public engagement, The 2007 United Nations' Intergovernmental Panel on Climate Change (IPCC) report stated that climate warming is 'unequivocal' (Solomon et al., 2007). There are two road responses to the issue of climate change; mitigation (reducing
Greenhouse gas emissions) and adaptation (anticipating and adjusting to the inevitable impacts on society). Both adapting to and mitigating climate change will become increasingly important, and have major impacts on the way people live their lives.

The media act as powerful agents shaping, translating and interpreting information (Bell, 1994), and people rely upon media representations to help interpret and make sense of the many complexities surrounding climate science, governance and decision-making (Moser and Dilling, 2007). Through scholarly research, it has been proven that climate change is a critical issue in most parts of the world, this serious problem has not adequately been addressed, which may be due to a lack of ideas to diffuse the matter, insufficient funds/lack of revenue, lack of commitment by the authorities that is people in power. There could be more reasons or factors which may or may not be associated with the fact that most individuals are hardly enlightened about the global warming issue. Global warming in its totality does not only affect the environment but also individuals and species in one way or the other. It is quite clear that not everybody or persons in society are literate enough to understand or know about the extent of trouble or damage the issue of global warming exerts on the ecosystem.

Countries in sub-regions have the lowest per capita global warming missions in the world. The consequences of this might result in Africa taking the largest share of the problem associated with the climatic change. It is quite evident that part of the impact has already started unfolding in so many forms such as art quakes, air/ sea/water pollution, oil spillage, droughts, population displacement, famine and a lot of others. The issue of climatic change has caused or inflated high level of malnutrition and poverty, especially in Africa. Due to a low level of awareness, global warming tends to be very slow but gradually affecting millions of people and other species in the environment.

In this context therefore, it is quite possible to create awareness and educate the people through visual communication and psychological approach, to address the issue, so that humanity and other living and nonliving things could be saved. By this approach, society, in general, could influence change to the ways and means in which people interact with the earth and the ecosystem giving proper and adequate orientation. Psychologically speaking, individuals who are specially trained on such problems have related issues who understand the problem of climatic change could be employed to help foster solutions to the treating global problem. The solution to this problem or ways of tackling it is to be well exposed and better understanding of the factors that contribute to the situation faced by humanity.

The information regarding global warming is not an easy one, if not properly handled can render society powerless, to effect possible changes to this life treating phenomenon. Human resources and creative ingenuity have to be employed in the process. The use of visuals in educating and enforcing change can be a psychological factor in learning and understanding the environment. Visual communication helps in creating awareness among the people concerning

global warming or climatic change adaptation. It could be a very powerful medium for creating awareness and learning new things because anything that controls the eyes can invariably control the mental processes positively. Visual communication design concepts can be used to educate people about climate change and adaptation, in this way the individual understands and becomes cautious about his environment or ecosystem.

People are more prone to wild impulsive behaviour during the full moon than at other times (Rotten & Kelly, 1985). When the eco-system is disrupted by the people, the conduciveness of the weather is no longer there; they become irritable, likewise, individuals become more irritable and aggressive when the weather is hot and steaming than when it is cool and comfortable (Anderson, Bushman & Groom, 1997; Rotten & Cohn, 2000). Exposure to a pleasant smell in the air makes people more helpful to others, (Baron, 1997). That is to explain further that the physical environment does influence our feelings, thoughts, and behaviors, invariably ecological variables, affect persons either positively or negatively, which is the essence of preserving the environment. Therefore people are supposed to be educated through visual cognition on the way to make the environment to be adaptable.

It is no longer an argument but a confirmed fact that climate change is real. Therefore a strong awareness needs to be created in a new, interesting and attractive way to catch the minds and attention of individuals in society. This campaign and awareness can effectively be carried out with visuals in the form of posters; flyers; flex bannerss and other forms of communication that will help broaden the perception of the general public on global warming. Therefore the urgent need to employ appropriate strategy in dealing with the issue of climatic change is very necessary.

Scientists, psychologists and artists including national orientation agencies and other organizations have in one way or another other engaged artists in creating visuals for climate change adaptation. This effort has helped in bringing changes to climate change in a particular way and makes the issues meaningful in everyday discourse. Stamm et al (2000) see climate change as a mass communication problem that has yet to be solved. Visual representation in a wider view is to clarify data, illustrate concepts, and engage a public informed through an ever-increasing arsenal of computer graphics and new media tools. They are documented advantages and problems associated with using images as a tool for visual communication in general and in the specific context of climate change.

Visual communication design representation can convey strong messages, and make them easy to remember. Images can condense complex information and communicate its content which is perhaps new and hard to understand. Visual presentation (images) can provide the basis for narrative, personal thought processes and conversation which also contributes to people's memory and issue awareness. Visualization as a graphics concept offers a lot of opportunities to communicate ideas in an instant using many different media in a variety of contexts such as awareness-raising campaigns, participatory planning exercises, education and so on. In a specific way, visual communication strategy has been used to bring environmental issues into the public eye via emotional visual appeals, highlighting the valuable role of such information in representing environmental issues like climate change adaption.

Myer (2013) asserts that a person's response to an image is not simply a rational one, but has an emotional, or affective component, and must consider the ethical and practical issues inherently tied to the use of visual presentation of climate change science. It is better to be conscious of the fact that some visions or visual presentations might instil feelings of fear or unease about the future. Strategically, this is one way in which people's attention could be attracted and motivated to act, because in this case of climatic change, it is difficult to appeal to people's positive desires.

In other words, the use of negative imagery needs to be managed properly because anxiety responses to sustained emotional visual appeal can simply end up triggering defensive psychological or cultural responses. The effectiveness of visual presentation as a stimulus for behavioral change depends on how people interpret them, and responds. Concept visualization and creation for the future will be subject to alternative interpretations, because people's perceptions, attitudes and behavioural disposition influence the kind of reactions they will have to different images representing climate change, the messages they take away and also whether they act based on information contained in the visual presentation.

This paper develops and evaluates a systematic and effective approach to communicating climatic change to the public. As far as climatic change is a global issue with wide-ranging impact, the message on it must communicate more effectively with many different groups, including partners, opinion former and stakeholders. The paper centres on the potential for concept visualization as a graphic idea in the design and production of visual messages of climatic change adaption. Concept and idea visualization for climate change by artists have considerable potential as a medium for communicating messages that can influence people's behavioural intentions.

The Role of Imagery in shaping perceptions of climate change
Bauder (2010), examining the impact of imagery on public perception of 2009 Mexico oil spill, shows how imagery is key to shaping perceptions of real-world issues: 'Following the news, many believe that Gulf oil spill was an important but abstract story – until [imagery] became widely available showing plumes of oil gushing into the water at a furious pace, hour after hour and day after day'. In communicating complex concepts and abstract issues to the public, the use of imagery is an effective solution to global environmental change. In creating awareness of global warming some challenges may occur because of the nature of the intended message which can be abstract or complex, for example reaching out or communicating information via media of communication are often consumed with deep attention into it and in most cases discarded with getting to the intended pubic. It has been observed that global warming is very challenging in terms of communicating its effect on humans; however, the truth about it lies in the fact that its principal culprit which is carbon dioxide and other heat-trapping greenhouse gasses tend to be colorless gasses. This lack of direct experience makes it difficult and it's only a problem that requires effective use of signal, symbols or illustrations that explains any phenomenon by experts that have knowledge of global warming that is appropriate in this situation. Visual communicator on climate change adaptation believes that a sufficient amount of fear through visuals could serve as an effective motivator that can increase positive response to the issue of global warming.

This paper among other things is strongly suggesting the use of visual communication that could affirm rather than threaten the sense of self and basic world-view by the public. Fear-evoking images and risk information could be used but limited and always combined with messages and information that provides specific, pragmatic help in realizing doable solutions. Visuals for this campaign should provide social support and affirmation through visual gain by framing climatic change and solutions in ways that can link them to more salient issues such as improvement in the economy, kids well fair and development, and general health and safety of people. The use of visual in communicating information or messages has long been recognized in different fields of human activity which ranges from commercial, media, political campaign and a lot more. The cognitive advantage of visual information overwritten or verbal has been documented widely. For example, when mentally visualizing conditions that cannot be seen directly in the real world, like famines in remote countries, global warming, or the design of a proposed building. It's very important to note that, the intent of this visual illustration is not just to inform or engage emotion but also to influence the behaviour of the people through adverts and announcements of global warming or climate change adaption. This paper considers the visual works of artists for effective use of proper visualization on climatic change by using posters that could create awareness about global warming to all humans.

The Power of Images

Harper 2002:24 writing on the symbolic power of images 'Talking about Pictures: a Case of Photo Elicitation' opined that, "images produce a different kind of information, evokes feelings, and memories that are due to the photograph's or object's particular form of representation". It is therefore clear, that, meanings are extended to all forms of visual presentations because of the evoking powers of images.

An image in any design work is seen as a representation of the form of a person or thing in art, such as graphics, textiles, a painting or a photograph. Clement Emeka Akpang (2015) stated that images "as a form of visual representation of something, images constitute broader categories as drawings, prints, stamps and so on". He further states that images possess varying visual powers, representational and even abstractly contemplative as forms of communication and visual connections. What this alludes to is the fact that, the visual representation of images possesses powers capable of influencing not just people's emotions, but their thought processes and actions. The various theme and subject matter on climate change is largely responsible for this effect as well as the composition of the images, which can draw viewers and force them into contemplation or connection with an event, occurrence and so on. This ability to create connections or draw viewers into contemplative meanings making through themes and subject matter, encapsulate one of the greatest powers of images. This will be followed by a discourse and visual analysis of the poster as the crux of this paper, exploring the visual effects on climate change adaptation.
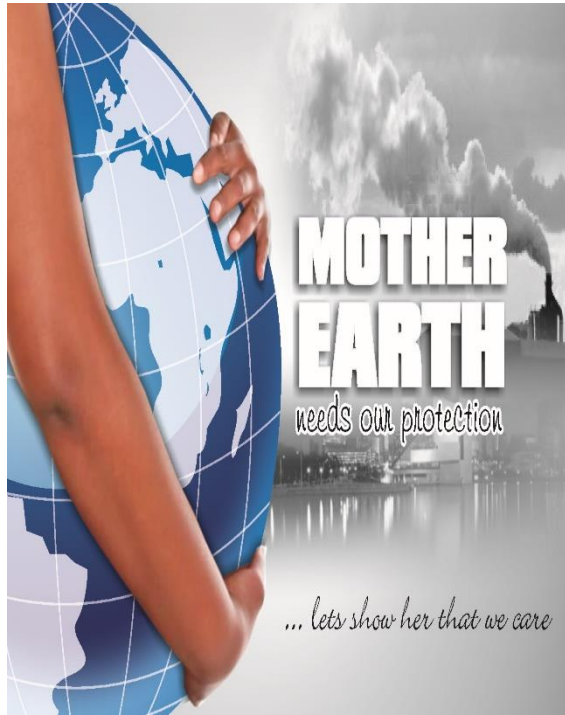
Presentation of Visuals

Plate 1:
Title: Mother Earth Needs Our Protection
Medium: Flex Banner
Size: 2 by 3
Artist: Ugwu Chijioke

Plate 1 titled "Mother Earth Needs Our Protection" is a poster that shows the world map, with two hands clutching it; it is an illustration depicting a pregnant woman. The hands were cropped out and merged with the world map to create an effect. In the work, the artist tries to compare the vulnerability of the earth to the fragility of the unborn child who needs absolute protection and care from the mother. This is from the hazards arising from man's activities like the inauguration of numerous industries, a gigantic amount of chemicals that emanate from these industries causing environmental pollution, and thus contributing to the temperature rise that causes global warming.
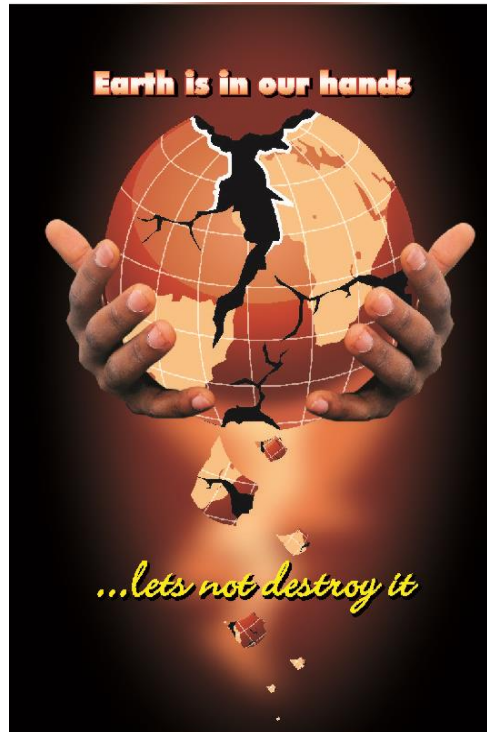
Plate 2:
Title: Earth in our Hands
Medium: Flex Banner
Size: 2x3
Artist: Ugwu Chijioke

The earth's Ozone layer protects all life from the sun's harmful radiation but human activities have damaged this protection. The artist in this work represented the depletion of the Ozone layer, showing a broken world with images from real life trying to bring it back to normal. Visual representation of climatic change that occurs over a long time which carries uncertain consequences in future may be problematic in representation. The role of imagery in shaping perceptions of climate change Bauder (2010), examining the impact of imagery on public perception of the 2009 Gulf of Mexico oil spill, shows how imagery is key to shaping perceptions of real-world issues: 'For many following the news, the Gulf oil spill was an important but abstract story – until [imagery] became widely available showing plumes of oil gushing into the water at a furious pace, hour after hour and day after day'. When communicating complex concepts and abstract issues to members of the public citizenry, imagery has been an effective Global Environmental Change 23 (2013)

In the global warming context, social learning is beginning to be accelerated through the use of visual communication of their motivating the substantial policy, technological and lifestyle changes. Visual on climate change highlights the impact of climate change as illustrated in plate: 2 titled "Earth in our Hands".
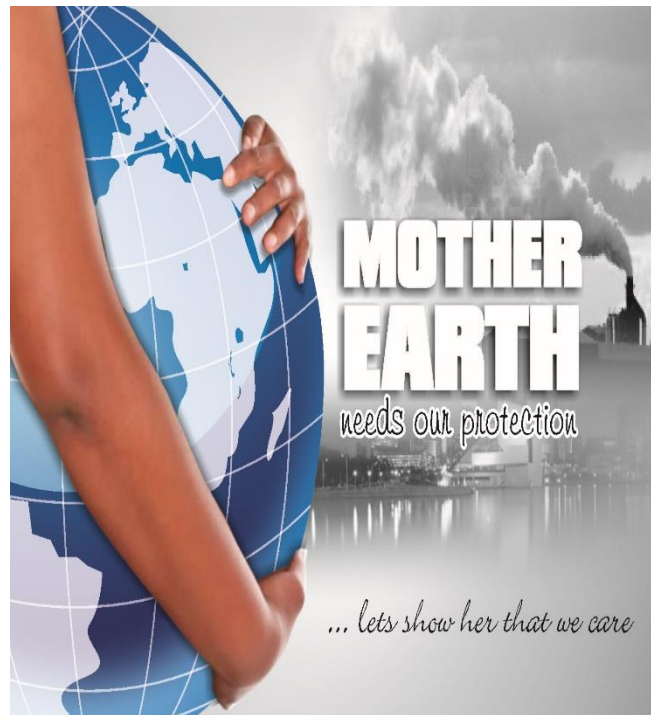
Plate 3:
Title: Global Warming
Medium: Flex Banner
Size:
Artist: Ugwu Chijioke

The artist, in plate 3, illustrates how the earth gets warmer and warmer due to pollution and carbon dioxide. This poster raises awareness to the general public to practice the reduction, reuse and recycling of these things that cause global warming. One of the greatest challenges that confront humans today is climate change. This is a result of human activities on Earth. Society is dominated and driven by ideas and products from science and Technology, which has increased global temperature and its greenhouse effect. In the above work the artist created a physical burning effect of the globe, to strike home the issue of climatic change. Here a picture of the earth is seen surrounded by tongues of fire, which depict the impending doom as a result of the change. The dominant colors in the work are red and black. Red signifies the danger of controlled human actions and black signifies the intended doom. Global warming is an international problem or disaster. Its effect and control have dominated virtually all facets of modern life.

Plate 4:
Title: Let's Save the World Together
Medium: Digital art
Size: 2x3 feet
Artist: Ugwu Chijioke

"Let's save the world together" in plate 4, here is an artistic representation of gaseous emissions from increasing industrial and so-called technological advancement. It is a monochromatic abstract design. The different tones of blue showing this climate change gave it an artistic expression. The cloud formation was seen over high-rise industrial buildings. Their colour variations are due to differences in temperature as it affects humans.

In the above poster, the artist gives his perspective through his work. Here the artist uses flames from industrial waste to tell the general public what could lead to global warming and the danger of welcoming it. This poster has been designed particularly to help promote awareness of global warming or climate change to help save the world.

Plate 5:
Title: It's Still a Beautiful World
Medium: Poster
Artist: Ugwu Chijioke

Plate 5: titled "It's still a beautiful world", is the artist's representation of the hope for the future if man should reverse the harmful or adverse effects of climate due to man's activity on earth. The little girl represents that hope, and she pulls back the curtain to reveal a new world free from environmental degradation as against the already polluted one. In this poster, there is a proper distribution of elements of design to control the viewers' attention and eye movement and that is intended to make a difference in how the viewer processes the information. This includes graphical images and text together. The representation of colours in this poster is another key element. Different colours were employed due to cognitive processing; culture and personal experience here added meaning to the new changes in the environment. It is important to know the meaning behind the poster to bring information across to the viewers appropriately.

Conclusion

Visual communication indeed has played a critical role in many environmental issues. Climate change adaptation is one of the most pivotal environmental challenges of our time that requires the use of imagery in educating people on this global issue. The psychological approach to learning and creating awareness cannot be overlooked. Moreover, the use of visuals in communication makes information less boring. The visuals will bring to the knowledge of everybody about the burning issue of climate change adaptation. Evidence abound of the effectiveness of visualization as a planning tool and its ability to enhance cognition.

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