Impact of Environmental Challenges on Education

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Abstract

Environmental change and related issues are seen as important aspects of education. This paper details the possible impacts of climate change and associated environmental degradation on education and sets out associated responses. It argues that although the role of education in addressing environmental challenges is being increasingly recognized, the capacity of education to contribute to adaptation and mitigation measures has yet to penetrate mainstream development thinking. An attempt has been made to improve stakeholders' understanding of the relationship between environmental change and education. The challenges of environmental change require all concerned to look to fundamentals and examine the degree to which existing educational provision is adapted to and prepares people for radically different futures. Some recommendations are made in terms of making the teaching of environmental change explicit in the curricula and moving beyond a basic understanding of how the climate system works.

Keywords

Environmental Change, Environmental degradation, Adaptation, Stakeholders

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The environment is the total surrounding of an organism in a given area including the physical and non-physical surroundings (Ajayi,1998). Onuoha (2012) defined an environment as a set of conditions and forces that directly influence the organization/organism. The Oxford Advanced Learners Dictionary defines environment as the conditions that affect the behavior of somebody or something and/or the physical conditions that somebody or something exists in the natural world in which animals and plants live. It, therefore, implies that the environment is made up of all the physically visible and microscopic matters that affect the existence of organisms positively or negatively and an organism does not exist in isolation. It must co-exist with other matters. There are five divisions of the sphere of an environment according to Ajayi (1998). These are:

1) The atmosphere; is made up of the troposphere and stratosphere. The atmosphere consists of 78% nitrogen, 21% oxygen, and 0.003% carbon dioxide and water vapor as the most valuable component. This sphere is seen as veritably important because it aids biotic activities.
2) The stratosphere; which also is known as the ozone layer absorbs ultra-violet radiation. So, when such radiation is averted by the ozone layer from reaching the earth's surface in high intensity, numerous organisms (plants and creatures) are relieved.
3) The Hydrosphere; includes the world of water existing in form of water, lakes, and oceans.
4) The Biosphere; is the part of the environment that is known as the active part of the earth where plants and animals inhabit. It is made up of Aquatic and terrestrial bicycles. The aquatic bicycles contain fresh and salt water, while the terrestrial bicycle is the zone where certain life forms can exist outside water.
5) The lithosphere; is the solid part of the environment that contains rocks, sediments, and soil minerals.

Climate and Environmental Changes

Climate change indicates a long change in the average atmospheric conditions over a specific region and a significant period. The most general definition of climate change is a change in the statistical properties of the climate system when considered over a long period (en.m.wikipedia.org/w). As such, fluctuations over periods shorter than a few decades. The term sometimes is used to refer to climate change caused by human activity as opposed to a change in climate that may have resulted as part of Earth's natural processes (en.m.wikipedia.org/w). Some scientific journals think that'' global warming refers to surface temperature increases while climate change includes global warming and everything else that increasing greenhouse gas levels will affect'' climate change is also seen as a change in global or regional climate patterns, in particular, a change apparent from the mid to late 20th century onwards and attributed largely to the increased level of atmospheric carbon dioxide (CO2).

Environmental Crisis has Complex Impacts on Children's Education

Impact of Environmental Changes on Schooling

Environmental change interferes with all aspects of life including education. Numerous children are absent from school during heavy rains, especially in the townlets where there are no means of transportation. Such absenteeism affects children's academic performance. Climate change particularly affects women and girls. In some places, girls are kept at home doing household work while boys were allowed to go to school. In the hardship of drought, it is mainly women and girls that are bonded for collecting water—a burden that may also stop them from either attending school or taking their school attendance seriously. If there is a serious drought, it leads to a lack of food, which leads to hunger, which in turn affects the ability to learn children. Children frequently have to move with their families to places where there is safety from flooding, which also affects their education negatively by interposing their studies and potentially adding their distance from available schools.

Environmental Change and Curriculum

Education regarding the effects and management of environmental change should be undertaken intensely. Though the school curricula include topics related to environmental change in the subject of social studies, the content is not sufficient to equip students with knowledge of how to address its remedies and causes. It is

suggested that in both the primary, secondary, and tertiary levels of education environmental education should be included across different subject areas so that students can protect human lives and the environment. The children are not yet properly educated on how to deal with the adverse situations caused by climate change due to a lack of knowledge. It is crucial to enable the young ones to tackle the challenges they would face as they leave school. It will take a long way toward making them effective and efficient policymakers when they assume their respective places in the governance of the nation. In primary and secondary school education, this curricula reform would take place in the subjects of Social Studies and Citizenship Education; in the tertiary institutions, it would take place through the departments of Geography and Environment Studies. Currently, these areas fall short for students to create a deep understanding of environmental change and its impact on society. Emphasis should be placed on the following areas in particular:

- The meaning and the concept of environmental change and how it affects human lives and property;
- Aims and purposes of studying environmental changes;
- The effect of environmental change on local crops and the global economy;
- The definitions of related concepts: greenhouse gas emissions, climate system, reservoir, sink, etc.;
- The impact of environmental change on transportation, industry and commerce, education, human settlements and housing, health and sanitation, forestry, freshwater resources, coastal water resources, and fisheries;
- Environmental Change and Disaster Risk Management;
- Individual respect for the environment;
- The production of carbon dioxide by human activity and the impact on the climate;
- Ways to reduce emissions (mitigation) and respond to and manage the impacts of environmental change (adaptation).
- The basic science of environmental change;
- Environmental impacts, sustainability, and energy use;

It is recommended that environmental education should be taught as a separate subject and, if possible, made one of the compulsory subjects offered in the schools. Such studies would allow students to actively create knowledge and information related to environmental change. The areas of study must be properly integrated to enable students to gain a deep understanding of how issues such as environmental change affect all aspects of life.

Direct and Indirect Impacts of Environmental Change on Education

Direct effects due to infrastructure damages and possible injury can disrupt the learning process for a long time. Most directly, environment-related disasters can interrupt children's and adolescents' education by damaging or even destroying schools and relevant infrastructure, like bridges and roads that connect communities to schools. Such damages can disrupt education for many days and even weeks – and in countries with limited alternative education modalities during disasters, this can lead to missed classes and lower academic performance compared to other schools in the country. Climate disasters can also cause injury to parents, students, and teachers – resulting in absenteeism.

Indirect effects not only increase absenteeism, dropouts, and threaten to learn, but also negatively impacts the well-being and security of children and adolescents. In addition, the environmental crisis affects the social and environmental determinants of health – clean air, safe drinking water, sufficient nutritious food, and secure shelter. Children and adolescents have to bear the burden of disease related to environmental change, compromising their physical and physiological development. The availability of water is another challenge in a changing climate. The scarce water supply comprises a risk of contracting food-borne diseases which can generate long-term health problems and increase absenteeism. Food security and nutrition are also threatened as children and adolescents may not be able to obtain sufficient and nutritious food either at home or at school, which is proven to have compounding effects on their academic wellbeing. Another indirect but key impact of

climate change on children's education is a risk to livelihood security and income. This situation reduces household income and purchasing power. Parents may not be able to afford school costs (transport, school materials) and children, especially adolescents, may be expected by parents to miss school and support livelihood or household activities. In more extreme cases, households may decide to migrate. Evidence suggests that relocation and attending classes in a different school generally translates to dropouts or lower academic performance. Thus, the education sector needs to provide effective and preventive actions to protect the most vulnerable children from the impacts of environmental change.

Role of Stakeholders/System in Environmental Change

Climate change threatens various stakeholders in the field of education. Children have to bear the brunt of environmental change. The mechanisms through which climate change may impact students are complex. But it is not only students who will be affected by environmental changes. Parents and communities will also experience challenges related to injury and mortality, inability to cover school expenses when livelihoods are damaged by extreme weather events, and potential relocation due to heavy damage to shelter or livelihoods. Teachers and school staff may be unable to offer education services if they fall ill or if the main roads and bridges connecting to schools are damaged. In addition to people, schools and the built environment are susceptible to climate change impacts. There is ample evidence suggesting that extreme weather events can destroy or heavily damage education infrastructure and disrupt education. Other challenges include water scarcity with increasing temperatures, reduced availability of quality school meals, and increased costs associated with heating and cooling. Finally, education authorities are also affected. Ministries of education will require additional funds to implement new policies, train staff, recruit and train qualified teachers and integrate climate change considerations into education sector planning processes. Climate change poses significant threats to these essential stakeholders and systems in education. These threats are summarized below.

- Parents and communities have a key role in ensuring that children feel supported in their education and that household conditions are conducive to learning. This means that children should feel safe at home and that they receive support from their families to engage in homework and extracurricular activities.

  Impacts of Environmental Challenges

  - Mortality and injury due to extreme weather events
  - Psychological stress
  - Inability to cover school expenses as climate events affect livelihoods
  - Relocation due to heavy damage to a shelter or failing livelihoods
- Teachers and school staff should ensure that the material being taught to students and extra-curricular activities are relevant and of good quality. Teachers and school staff are also responsible for creating a safe environment at school where children feel encouraged to participate and interact. Additionally, teachers and school staff should mentor and nurture individual students' interests and learning needs.

  Impacts of Environmental Challenges

  - Difficulty accessing schools if roads/bridges are damaged
  - Teachers unable to educate due to illness
  - Teachers unequipped to teach students who experience post-traumatic stress disorder after a disaster
- Students are the main recipients of education and the benefits this accrues. In addition to the responsibilities of attending classes, being respectful, and completing assignments, students can also play major roles in improving the education system they belong to by defining and actively participating in school events that are relevant to their local concerns.

  Impacts of Environmental Challenges

  - Difficulty to access schools if roads/bridges are damaged
  - Psychological stress

- Migration resulting in disrupted education
- Absenteeism due to illness
- Impaired learning due to air pollution, lack of nutritious food, or extreme temperatures in the classroom
- Absenteeism as children support household livelihoods during climate events

➢ Schools and the built environment should create an atmosphere that will help students feel safe and comfortable learning. High-quality infrastructure facilitates better instruction, improves student outcomes, and reduces dropout rates.

Impacts of Environmental Challenges

- Damage/destruction of schools and key infrastructure like roads and bridges connecting remote villages to schools
- Water scarcity
- Reduced availability of school meals
- Increased costs associated with heating and cooling

➢ Education authorities should identify emerging issues that need to be addressed to ensure students have access to good quality education – including developing policies and strategies to reduce barriers to education, updating the curriculum to include relevant material, and ensuring that teachers receive adequate training to impart good quality education.

Impacts of Environmental Challenges

- Additional costs to governments to address impacts of climate change on education and learning
- Requirement to update risk assessments and policies based on the latest scientific knowledge
- Requirement of new policies
- Requirement of additional expertise

Within these stakeholders, it is key to state that certain groups are more vulnerable and exposed to these climate threats depending on whether their geographic location is prone to climate disasters and also on their socio-economic situations, particularly poorer children or adolescents with disabilities, and minority or migrant groups. Governments need to identify these groups and include them in their priority actions.

Some Educational Strategies to face Environmental Crisis

Stakeholders of education have made some progress in integrating environmental change into education planning, but substantial work remains to be done. The following areas are proposed for urgent actions to ensure children's education and learning are not undermined by the negative impacts of environmental change and to help education stakeholders to tackle the environmental crisis.

- Improve learning and skills in schools to address environmental challenges. Education is essential to prepare societies to prevent and manage risks associated with the climate crisis. Here, Ministries of Education and schools can play a major role in ensuring that students have access to relevant education on environmental change.
- Enhancing data and improving the evidence base to inform climate and education policies and develop sustainable financing mechanisms for climate-resilient education systems.
- Ensure continued education and support of all children and adolescents, teachers, and families under different environmental scenarios.
- The education sector's leadership in tackling the climate crisis is critical. For this, education stakeholders will need to strengthen their capacity in understanding and act on the climate crisis and proactively participate in relevant climate change policy-making and financing processes at international, national, and sub-national levels.
- The curriculum planners should ensure that they put in place core knowledge of, and information about, environmental change as part of compulsory education.

- Teaching of the causes and consequences of environmental change, including potential societal impacts, should form part of the core knowledge offered to all students, especially at the primary and secondary levels of education, but also at the university level.
- As part of the science of climate change, students should learn about the potential impacts of unmanaged climate change, as well as options for adaptation and mitigation, to enable a complete and robust understanding. In other words, the teaching about climate change impacts should go beyond a basic understanding of how the climate system works.
- Attitudinal changes toward everyday practices related to climate change can only be addressed through curriculum change.
- Education about climate change should be made interesting through the use of innovative methods and techniques. Preferably, the discovery method should be employed to effectively reinforce the content for students.
- Policy makers, school administrators, teachers, parents, and students should embark on raising awareness of climate change.
- University lecturers should be motivated to carry out research in various fields of knowledge related to climate change so that innovative research can contribute to practical solutions.

Conclusion

Climate and environmental factors have an immense effect on the existence of humans as well as other low creatures. This paper has so far discovered that changes from time to time occur in climatic and environmental conditions partly as a result of natural forces and partly as a result of human activities. It is believed that human beings have very vital roles to play in making the environment very conducive and habitable. It is widely known that human beings to a large extent lack the awareness of the need to be environmentally friendly. They destroy natural environments through actions like deforestation, pollution, desertification, production of greenhouse gases, etc. This paper thinks that our education system can play an immense role in creating the needed awareness about environmental friendliness. It, therefore, suggests that policy statements in favor of environmental education be included in the national policy on education, which presently lacks such. Finally, there is also a need to incorporate climate change issues into education planning, as well as to include education system priorities and climate action needs into climate change policy and financing.

References

1. Ajayi, P.O.S. (1998). Comprehensive geography for secondary schools. Pg. **178-184.** Amanchukwu, R. N., Amadi-Ali, T. G., Ololube, N. P. (2015). Climate change education in Nigeria: The role of curriculum review. *Education*. *5*(3). Pg. **71-79.**
2. Amanchukwu, R. N., Ezekiel-Hart, J. (2013). Youth conflict challenges and management for self-actualization in a developing nation. International *Journal of Educational Foundations and Management.* 1(2). Pg. **78-96.**
3. Bangay, C., Blum, N. (2010). Education responses to climate change and quality: Two parts of the same agenda. *International Journal of Educational Development*. *30*(4). Pg. **359-368.**
4. Institute of Development Studies. (2013). Climate photo-audio stories: bringing climate research findings directly to east African farmers. Retrieved May 22. 2015. from: www.ids.ac.uk>Research.
5. IPPMedia. (2011). Can climate change impact education achievement? Retrieved from http://www.ippmedia.com/frontend/index.php?l=30822.
6. (2015). *Journal of Education and Practice.* www.iiste.org ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol.6. No.30. Pg. **226.**
7. Lee, A. (2009). Addressing climate change transcript: Chevron. Retrieved May 2014. from http://www.chevron.co m/documents/pdf/addressing_ climate_change_transcript.pdf.
8. McLaughing, C. (2001). Visionary leadership. Retrieved from http://www.vissionarylead.org.

9. Nwankwoala, H. N. L. (2015). Causes of Climate and Environmental Changes: The Need for Environmental-Friendly Education Policy in Nigeria. *Journal of Education and Practice*. *6*(30). Pg. **224-234.**
10. Orusha, J. O., Alukogu, C. T., Onogu, B., Nwaigwe, M. O., Ohuaka, P., Tim-Ashama, A. (2012). Integrating climate change issues into agricultural education teaching and learning in Nigeria. *Advanced Research Journal of Educational Research and Review.* 1(5). Pg. **57-67.**
11. United Nations. (2014). IPCC Report: 'severe and pervasive impacts of climate change will be felt everywhere. Retrieve fromhttp://www.un.org/climatechange/bl og/2014/03/IPCC-report-severe-and-pervasive-impacts-of-cli mate-change-will-be-felt-everywhere/.
12. UNESCO. (n.d). (2014). Climate change education for sustainable development at UNESCO. Retrieved September 8. from http://www.unesco. org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development /climate-change-education.
13. UNICEF. (2013). Chair of the United Nations inter-agency committee (IAC) decade on education for sustainable development. Retrieved September 2. 2014. from www.unicef.org/education/bege-61668.html.
14. UNICEF. (2010). Climate change. Retrieved March 20. 2014. from www.unicef.org/cfs/...UNICEF-ClimateChange-Resour manual-Dolores-c.pd.
15. World Bank. (2011). World Bank Institute global dialogue series on climate change: The road to Durban. Retrieved from http://wbi.worldbank.org/wbi/stories/world-bank-institute-global-dialogues-climate-change-%E2 %80%9C-road-durban%E2%80%9D.
16. www.epa.gov/climatechange/basics.
17. http://issuu.com/thenation/docs/oct_11__2013.
18. https://www.coursehero.com/file/154569298/It-is-getting-hot-Call-for-education-systems-to-respond-to-the-climate-crisispdf.