The Environmental Studies

Teaching Controversial Issues in Environmental Education

Agiande, Denis Ube and Ushie, Christiana Alorye
Department of Environmental Education, Faculty of Education,
University of Calabar, Nigeria.
Received: November, 2017, Accepted: December, 2017, Published: December, 2017

Abstract
Many teachers steer clear of controversy in the classroom and therefore do not discuss environmental issues which can be controversial with their students. Controversy provides opportunities for increasing the quality of students' thinking and their ability to solve problems. It is intellectually stimulating. Jean Piaget, Lawrence Kohlberg, and other learning theorists address the importance of cognitive disequilibration in intellectual and moral development. Students benefit from opportunities to consider other people's view points and to defend their own. Productive conflict (as many scholars call controversial; debatable issues) tend to promote the development of cognitive and moral reasoning; it thus has a valid place in a learning environment. This paper explores controversial issues in environmental education and how environmental educators can utilize the opportunities these issues presents in the classroom situation for the teachers to guide the learners into higher thinking and communication skills that can help them get involved in practical ways of solving existing environmental problems and issues, and the commitment to ensuring that future ones are mitigated.

Key Words: Controversy, Environmental Issues, Education, Critical Thinking, Problem Solving, Group Learning.

Introduction

It has been observed by many scholars such as Kellough and Kellough (2003) that controversial content and issues abound in most disciplines in teaching, for example, in Mathematics, over the use of calculators especially in examination situations, in social studies, over values and moral issues, in science over evolution. In Environmental Education such as climate change, conservation of natural resources for future use in the face of poverty and lack, conservation of wildlife in the midst of people that relish the same as bush meat, etc. The issues that are controversial in Environmental Education occur because people have different views or viewpoints on the environment. If everyone had the same viewpoint, there would be no controversy and no issue. But because problems and issues exist that require both teachers and learners to make inputs, suggestions, proffer solutions, resolve conflicts and controversies, there is the need to take on controversial issues and teach them to learners. Environmental Scientists like Heinz-fry and Tyler Miller (2000) believe that it is more beneficial to both teachers and learners to understand a controversial issue in education by gathering information, scientific facts and data about such an issue and make sound decisions on it than avoiding such issues altogether as many teachers choose to do.

Cochrane (2007) proposed as an international norm in educating the young; the need to incorporate in pedagogical processes the discussion of controversial issues that are important to society; arguing that there is absolutely nothing wrong with dealing with those issues as long as certain guidelines are followed. Guidelines provided by a curriculum, a school district or professional bodies that regulate teaching and learning.

What is the nature of a controversial issue in Environmental Education?

Kellough and Kellough (2003) differentiated an "issue" from a "problem" in education as a starting point of clarifying what an issue is. The authors opined that issue differs from a problem in that a problem generally has a solution whereas as issue has many opinions and several alternative solutions. Several environmental educators under an umbrella project code named Project Learning Tree (PLT, 2006) explicated that the very nature of an environmental issue demands that its various components be identified and defined apart rather than giving an omnibus definition as a single term. They reason that "to assume an educated position about an environmental issue, we are obligated to consider various components and their definitions" (PLT, 2006). These authors identified the components as follows;

Problem: Is a condition in which something is at risk. Environmental problems involve the interaction of humans and the environment, and the risk associated with that involvement constitutes a problem.

Issues: Is a problem or its solution for which differing beliefs and values exist, usually involving two or more parties who don't agree. (If students don't understand the varying beliefs and values of the disagreeing parties, they won't understand the concept of an environmental issue).

Values: The relative worth an individual places on some aspect of the environment. Valuing of environmental issues may take the form of Aesthetic, cultural, economic, educational, egocentric, legal, recreational and social values.

Beliefs: Is the ideas held concerning the environmental issue, whether true or not but held by the players as belief(s) is strongly tied to a person's values. There are religious, personal, political and moral beliefs (Bahk, 2010).

The Players: Are the individuals, groups or both that are involved in an issue, i.e. people involved and where each stand on the issue.

Solutions: means the various strategies proposed by the players to resolve an issue.

Research conducted to determine peoples' environmental attitudes and viewpoints by the Council For Environmental Education (CFEE, 2007) shows that environmental issues tend to be complex and to have many ecological, political, social, legal and economic implications. People interested in an issue tend also to bring many emotions, biases, beliefs and need to the table.

Studies have shown that a lot has been achieved already in strengthening Environmental Education for the general public. This is particularly true in terms of teaching complicated and complex topics in environmental education and its objectives (Hudson, 2001). A solid base for environmental education already exists, this is because most environmental education is seen from a multifaceted perspective and they have ambiguity in context and meaning. Like in the United States, there are many leaders in the field, and these individuals have had an extraordinary impact on environmental education through the way they handle complicated issues or topics in Environmental Education. Studies have shown that there are many ideas proffered by scholars in this field that can be used to handle these complicated topics, these ideas and methodology can be incorporated in broad-based Environmental Education efforts to meet diverse needs. As scientists and educators, teachers of Environmental Education have the opportunity and the responsibility to utilize and expand this resource base to handle such complex and complicated topics in the course (Alexandar and Poyyamoli, 2014).

Preparation for and dealing with controversy in learning situations

Dealing with a topic that could lead to controversy, places an onus on a teacher to prepare well ahead to handle it when it comes. In some countries, school districts, and Teacher organizations provide strict guide lines on how such issues should be handled. For instance, Aggarwal (2004) stated that one of Indian school curriculum guidelines even for teacher preparation institutions exclude issues deemed controversial because India is a multicultural society prone to religious violence and political upheavals. Their teachers are trained to maintain secularity in classrooms. Elsewhere also in the America, Kauchak and Eggen (2001) reported that untenured teachers recruited to Teach For America (TFA) - a body that recruit teachers to teach overseas strictly forbid their teachers from teaching controversial issues in the host countries where they live and work. These cases are exceptions and not the rule. Kellough (2003) and his associate counsel that where such a censorship and teachers' freedom to engage in issues of controversy do not exist, teachers should prepare ahead of time before such issues ever come up because sometimes during normal discussion in the classroom, a controversial subject might emerge spontaneously, catching the teacher off guard. If this happens, the teacher may postpone further discussion until proper preparation for it, or get clearance from superiors on how to best handle it depending on its nature. Controversial topics can also come from nowhere for any teacher and this is perfectly normal.

Inyang-Abia (2005) suggested that as a professional practice, a teacher should analyze critically the learning context, and the target audience, before selecting the appropriate materials and personnel to commence

such classroom activity. Another area of preparation before handling issues of controversy include identifying potential problem areas in the curriculum or syllabus well ahead and carefully plan lessons and acquire materials needed to accompany the lesson such as fact sheets, newspaper cuttings, pictures, overhead slides, CD ROMS, policy guidelines or statements which can enable one prepare a fact/opinion table as suggested by Kellough and Kellough as shown below:

Fig. 1: A Fact/Opinion Table

Issues …….	
FACTS	**OPINIONS**

The above table is helpful to assist students in separating facts from opinions on a particular issue being studied for example, scientific facts about climate change and opinions expressed by people about the phenomenon. This can be hanged on the writing board or projected overhead in the view of all students during the course of the lesson or discussion.

A major goal of such a lesson should be to show students how to deal with controversy and make wise decisions on the basis of carefully considered information. Yet another goal is to help students learn how to disagree without being disagreeable-i.e. how to resolve conflicts and the need for students to learn the difference between conflicts that are destructive and those that can be constructive. In other words, to see that conflict (disagreement) can be healthy, and that it does have value. Teaching controversies can be done through structured debates, dialogues, discussions, presentation of position papers, talks and brainstorming sessions. Mcglaufin et al of (PLT, 2006) counsels that while teacher prepares to teach an issue that is controversial, students should also be allowed adequate time to do their own search and gather their information from books, newspapers, gazettes, magazines. The teachers should also be encouraged to sample opinions of public figures, politicians, activists, administrators, parents, peers etc. and to reflect on facts gathered to deepen their understanding and clarify their own viewpoints and consolidate their positions on the issue in question.

Sobel, (2004) therefore posited that it is only necessary that in teaching complicated topics with ambiguity in understanding some environmental concepts, it is necessary that such concepts should be clarified, to allay the fears of many participants in this field. The complicated nature of some of these environmental topics has created a lot of furrow among scholars. These Environmental problems have become increasingly difficult to understand and to evaluate, yet environmental issues are more often expressed in “sound bites” than explained by sound reasoning. Moreover, reasonable treatment of environmental concerns often falls prey to the political agendas of those who have a vested interest in an unsustainable, resource-extractive approach to economic development. The challenge, then, is to express the complexity of modern environmental issues in ways that are understandable and inviting, and at the same time to ensure that science continues to play an important role in explaining and evaluating environmental issues and in forging solutions to environmental problems (D'Amato & Krasny, 2011). For example, there is a large gap between what members of the general public hear and what they understand about environmental problems related to aquatic resources are also still complicated. Their concern is what industries release into water bodies, but most people do not understand that agrochemical used by these local farmers and the use of obnoxious chemicals for fishing also contaminates water for their own use. They exists a serious gap between what we know as individuals and what is to be known as a group from conventional sources (D'Amato & Krasny, 2011). Nor does the gap narrow for other environmental issues. Some measure of scientific acuity is necessary for comprehending these issues whose complication is further widened by personal belief system and convictions (Skinner & Chi, 2012).

Moreover, at times there have been efforts to "dumb down" the existing scientific underpinnings of environmental knowledge as a means of advancing an agenda that depends on an unsustainable, resource-extractive approach to economic development. This movement attacks Environmental Education almost across the board, claiming that the loss of biological diversity, declining health of aquatic resources, and human-induced climate change, among other issues, are not worth worrying about. The general thrust of these contrarian attacks is that there is no science behind the environmental concerns shared by a majority of the public; additionally, the argument goes, Environmental Education materials that fail to point this out are unduly biased (Sarkar & Frazier, 2008). Although this is due to their ambiguous understanding of the concept under discourse, but this anti-eco-education movement has abated somewhat, it will always be a critical factor in shaping the teaching complicated Environmental Education issues in the school system across the globe.

Blair (2009) further opined that Environmental Education must teach about complicated topics using sciences itself, which is a complicated phenomenon, and about the use of the scientific method, important supplements to belief systems and value judgments—to help teach, evaluate and respond to environmentally complicated topics. Educational materials that omit the important role of science and the general rules of scientific inquiry are damaging to the field of Environmental Education. Other scholars further suggested that the need to include science in educational efforts does not, however, excuse educators from the obligation to communicate in an understandable way that invites further inquiry from those who might be intimidated by scientifically complex subjects. A practical case in point is the case of *Pfiesteria*, When the first reports came out about the effects of *Pfiesteria* on fish stocks and humans in and around the Chesapeake Bay and coastal North Carolina, this toxic organism quickly became a hotly contested and debated issue discussed in the form of sound bites in a variety of media sources. Those who knew the most about the subject (including JoAnn Burkholder, internationally recognized expert on *Pfiesteria*) struggled valiantly both to express the problem in understandable terms and to identify areas of certainty and uncertainty. The National Wildlife Federation also became deeply involved in the issue; coverage in the organization's magazine and in activist materials was objective, backed by science, and communicated in understandable terms and, perhaps most important, in ways that invited further inquiry (Hudson, 2001; Sarkar, & Frazier, 2008; Blair, 2009; Strife, 2010).

When topics like conservation, environmental ethics, and methods of resources exploitation, totemism and other such topics are discussed, there are complications orchestrated by belief system, socio-cultural backgrounds and personal convictions. These topics are mad complicated because of the ambiguity with which the topics carry within the context of their discourse. It is therefore necessary that science methods can be employed to teach these topics to reduce the ambiguity and also complexity of understanding such topics. Science has provided the greatest evidence, to date, of the damage we have done and are doing to the planet. The need to rely on science to support Environmental Education programs and materials continues nonetheless, obligating scientists to learn new skills for communicating and making complex subjects understandable to the public.

The role of the teacher

Teaching about an environmental issue in the classroom may require a shift in the teacher's traditional role. The teacher will have to operate more like an umpire, rather than a traditional instructor, a facilitator of the learning process than a central figure. Bryce (2003) opined that, this will put the responsibility of the learning exercise on the shoulders of those concerned-the learners or the students. It is to give learners time to integrate their personal findings with useful tips, guidance and information from the teacher that will consolidate their personal position on the issue to be handled.

The teacher's presence should inspire and convey to students an unbiased, safe and supportive atmosphere that allows them to express themselves. Teacher can and should provide accurate factual information on the environmental issue when necessary and help them differentiate between honest, factually accurate information and propaganda/opinion by referring to the Facts/Opinion Table as the need arises. It must be emphasized however that the teacher's actions

and interventions is to facilitate discussion and to help students clarify their thoughts and opinions or find out how to think about an issue and not what to think.

This teacher's role of guiding the learners to information sources, how to clarify their opinions or viewpoints on any issue to be discussed, debated, investigated, etc. is according to Devito (2000) a process from the a starting point to the end that can be broken down into several specific roles. The roles are as follows:

- **The Encourager**: The teacher encourages and supplies member on both sides of the issue with positive reinforcement in the form of approval or praise for their ideas.
- **The Harmonizer**: The teacher mediates the various differences that are likely to exist among group members.
- **The Compromiser**: Tries to resolve conflict between the groups by offering compromises.
- **The Gatekeeper/Expediter:** The teacher keeps the channels of communication open by reinforcing both sides in the case of breakdown of communication.
- **The standard setter:** In this role, the teacher proposes standards for the activity and offers direction on how each should function in the groups.
- **The Group Observer and Commentator:** Teacher serves as an umpire and keeps records of the proceedings and uses same to evaluate the groups.
- **The Follower:** Here, the teacher's role is to go along with all others as part of the audience and not an active member of any particular group, it suggests the teacher's neutrality.

Instructional strategies

1. As pointed out earlier, controversial issues can be taught through structured debates, dialogues, discussions, presentation of position papers, etc., but the Council For Environmental Education (CFEE, 2007) caution that activities involving any of the above strategies must emphasize ways that minimize polarization of viewpoints and maximize quantity and quality of ideas. Devito (2000) also observed that one common but unproductive development occurs when members come to the group with their minds already made up. When this happens, the process degenerates into a series of individual debate on which each person argues for his or her own position. Instead members should be told to come equipped with relevant information that will be useful to the controversial issue. None should decide on the solution or conclusion they will accept. Any solution or conclusion should be advanced tentatively rather than with certainty. Members should be willing to alter their suggestions and revise them in the light of new information acquired.
2. Another strategy is to establish clear rules of behavior; the rules should first preserve the integrity of the individual such that personal attacks and name calling should be forbidden. The rules remind all that the conflict must be that of ideas, not people.
3. The views of individuals, for instance, may be influenced by their lifestyles; traditions, religions, or personal and moral beliefs. They should be reassured that it is okay to voice these convictions provided they are not meant to offend anyone.
4. Engage students in conflict resolution techniques such as reversing roles in arguments or negotiating a win-win resolution (so that everyone wins in some way).
5. Use questioning techniques to clarify and advance student's thinking. For instance, ask students to relate an idea in another way or to elaborate or to reiterate what they hear in order to confirm or clarify. Better still, ask students to apply an idea to a real hypothetical situation, or what they think about their ideas in the light of new information.
6. Take time after each discussion or debate or dialogue to analyze your student's views, thinking biases, styles of argumentation and think of consciously improving them for future use in other issues/areas.

Conclusion

Environmental educators, policy makers, organizations, advocacy groups have identified the complex nature of existing environmental problems and issues confronting our post-modern world. Many prescribe effective citizen involvement in the ongoing environmental debates and decision making process that involve a careful study of all sides of issues using critical thinking and problem solving approaches to clarify positions held on each issues along with the ability to differentiate between honest, factually accurate information from mere rhetoric, insinuations and sensational representation of these issue. Bringing some of these issues to the knowledge of young learners and engaging them in informed discussion on this issues help them acquire useful skills such as observing, discussing, comparing, contrasting, problem solving and critical thinking skills required to participate in solving existing environmental problems and the mitigation of future ones for the attainment of the currently anticipated Sustainable Development Goals (SDGs).

References

Aggarwal, J. C. (2004). *Teacher and Education in a Developing Society.* (4th ed.) New Delhi, Vikas Publishing House PVT India.

Alexandar, R. and Poyyamoli, G. (2014). The effectiveness of environmental education for sustainable development based on active teaching and learning at high school level- a case study from Puducherry and Cuddore regions, India. Journal of Sustainability Education, 7:1-20

Bryce, N. K. (2003). *Discovering your personality spectrum*: Understanding your values, insight learning foundation; Mesa-Arizona, U. S. A.

Cochrane, E. (Ed). Environmental Ethics in Wikipedia (The Free Mobile Friendly encyclopedia) at https://en.m.wikipedia.org accessed 11/09/2015

Council for Environmental Education (CFEE,2007). *Project Wild*-K-12 Curriculum and Activity Guide; Houston, Texas (FEE & WAFWA Publication)

D'Amato, L.G. & Krasny, M.E., (2011). Outdoor Adventure Education: Applying Transformative Learning Theory to Understanding Instrumental Learning and Personal Growth in Environmental Education, *The Journal of Environmental Education*, 42:4, 237- 254

Devito, J. A. (2000). *Human Communication: The Basic Course*. New York. Madison, Wesley and Longman Publication.

Dorothy Blair (2009): The Child in the Garden: An Evaluative Review of the Benefits of chool Gardening, the Journal of Environmental Education, 40:2, 15-38

Heinzer, F. & Tyler-Miller, G. J. (2000). *Critical Thinking and the Environment: A Beginner's Guide for Living in the Environment*. Pacific Groove, Brooks/Cole Publishing Company, U. S. A. https://doi.org/10.1641/0006-3568(2001)051[0283:CFEEIA]2.0.CO;**2**

Hudson, S.J. (2001). Challenges for Environmental Education: Issues and Ideas for the 21st Century: Environmental education, a vital component of efforts to solve environmental problems. *BioScience*, Volume 51, Issue 4, 1 April 2001, Pages 283–288,

Inyang-Abia, M. E. (2005). *Curriculum Dynamics and Professionalism in Teaching*. Port Harcourt, Double Diamond Publications, Nigeria.

Kauchak, D. & Eggen, P. (2011). *Introduction to Teaching: Becoming a Professional*. 4th edition, Boston, Pearson Books Publishing.

Kellough, R. D. & Kellough, N. G. (2003). *Teaching Young Adolescents: A Guide to Methods and Resources*. 4th edition, Upper Saddle River, N. J., Merill Prentice Hall.

Mo Bahk (2010): Environmental Education through Narrative Films: Impact of Medicine Man on Attitudes toward Forest Preservation, *The Journal of Environmental Education,* 42:1, 1-13

Project Learning Tree (PLT, 2006). *Pre K-8 Environmental Education Activity Guide*.

Project Learning Tree (PLT, 2006). *Secondary Environmental Education Program: Exploring Environmental Issues: Places we live*. McGlaulin, K. (eds), American Forestry Society Publication.

Sarkar, S., & Frazier, R. (2008). Place -based investigations and authentic inquiry. *Science Teacher*, 75(2), 29 –33.

Skinner, E.A. & Chi, U. (2012). The Learning -Gardens Educational Assessment Group (2012): Intrinsic Motivation and Engagement as "Active Ingredients" in Garden - Based Education: Examining Models and Measures Derived From Self Determination Theory, *The Journal of Environmental Education*, 43:1, 16-36

Sobel, D. (2004). Place - based education: Connecting classrooms and communities Nature Literacy Series Vol. 4. New Patriotism Series 4. Great Barrington, MA: The Orion Society.

Strife, S. (2010). Reflecting on Environmental Education: Where Is Our Place in the Green Movement? The Journal of Environmental Education, 41:3, 179- 191