Challenges of Teaching Akan (Ghana) Culturally-specific Environmental Ethics in Senior High Schools: Voices of Akan IK-holders and Biology Teachers

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Abstract

Indigenous cultural groups have lived sustainably with their natural resources (land, water bodies, forests, wildlife animals and plants) by employing particular culturally-specific environmental ethics. These include spiritual perceptions about natural environmental resources, totemic beliefs and taboos. Consequently, many scholars in the country have recommended the integration of these culturally-specific environmental ethics in environmental policies and formal school curricula. The purpose of this research was to explore the views of Akan indigenous knowledge (IK) holders and senior high school Biology teachers on challenges they predicted could confront the teaching of Akan culturally-specific environmental ethics in the senior high school Biology curriculum. An interpretivist paradigm with an ethnographic, naturalistic research style, using in-depth conversational interviews was employed to explore the views of research participants. The perceived challenges included stigma attached to culturally-specific environmental ethics; requirement of proof and experimentation; the use of a foreign language in schools; formal education; loss of the fear for the gods and spirits in nature; centralised curriculum; democracy and political biases. The research concluded that being aware of the possible challenges to the teaching of the Akan culturally-specific environmental ethics can influence policies related to these ethics as well as guide Biology curriculum developers and stakeholders.

Keywords: *culturally-specific environmental ethics; Akan cultural group; Akan nature conservation; Ghana Biology curriculum*

Introduction

For centuries, many indigenous cultural groups have sustainably conserved biodiversity, land and water resources by means of their cultural values, care and respect for nature without being pressured and persuaded by government agencies (Freitas, Kahn & Rivas, 2009; Zeppel, 2006). These values of care and respect for nature are gradually being eroded through modernity, Western culture, Christianity, Islam, urbanisation, overpopulation and economic improvement. Meanwhile, there is a global outcry for conservation of biodiversity in light of the alarming loss of species and habitats (Awuah-Nyamekye, 2014; Horsthemke, 2009).

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Teaching a curriculum infused with indigenous peoples' value and care for nature may be crucial to the sustainability of the environment, both locally and globally. Also, it may enhance general educational goals and objectives regarding nature or environmental studies (Arhin, 2008; Shava, Krasny, Tidball & Zazu, 2010; Shava, 2016).

The relevance of integrating culturally-specific environmental ethics in formal school curricula and environmental policies has been advocated in Ghana (Awuah-Nyamekye, 2009; Eshun, 2012). This study is an exploration of the challenges of teaching these Akan ethics from the perspectives of Akan IK-holders and senior high school Biology teachers. The phrase 'culturally-specific' adopted for the study was drawn from descriptions of indigenous knowledge (IK) as a culturally-specific social practice (Fien, 2010; Kaya, 2015).

Theoretical underpinnings: African Environmental Ethics

African Environmental Ethics as a philosophical discipline embraces various human values and care for nature (Ojomo, 2011; Shava, 2013, 2016; Workineh, 2014). In the context of these ethics, which can be considered an African Indigenous Knowledge System, people, animals, and spiritual entities are inextricably interconnected with their natural environment; consequently the African environment is based on a three-way interrelationship between people, animals and spiritual entities (Ojomo, 2011; Mawere & Awuah-Nyamekye, 2015). Bujo (2009) proposed that in traditional African culture, the sacred and the secular are not clearly separated as in western cultures. For the traditional African, absolute consciousness of self is impossible without harmonious co-existence with plants, animals, minerals, land, water-bodies and spirits. Similarly, Tangwa (2004, p. 392) posited that African environmental ethics involves a harmonious tripartite interrelationship and described this as ethics of 'eco-bio-communitarianism'. Ogungbemi (1997, p. 208) described this as the 'ethics of nature-relatedness'. Kimmerle (2006) contended that the traditional African perceives nature to be infused with spiritual powers and this perception is the basis for the traditional African respect for natural ecological resources, and consequently sustainable utilisation. Awuah-Nyamekye (2009) suggested that African environmental ethics have deific dimensions. Mangena (2013) maintained that the spiritual relationship is signified through the use of totems. Arhin (2008, p. 94) described African environmental ethics as upholding the 'sanctity of life'. Bujo (2009) considered these ethics to be what the African person believes to be the basis for ecologically responsible behaviour: respect for creation, recognition of sacredness of all life forms and ecological rationality. Consequently, the importance of IK for the value and care for nature has been proposed for integration into formal school science curricula (Owuor, 2008; Muchenje & Goronga, 2013a).

The call to integrate African Indigenous Knowledge Systems in school curricula

The importance of infusing indigenous knowledge systems (IKS) into education has been highlighted by the New Economic Plan for Africa Development (NEPAD), the World Bank, the

United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United Nations Development Programme (UNDP), Local and Indigenous Knowledge Systems (LINKS) programme (Gorjestani, 2001; Odora Hoppers, 2002a, 2002b; UNESCO, 2005; Nakashima & Nilsson, 2006; Muchenje & Goronga, 2013b). Taking into consideration the Eurocentric nature of the African curriculum, there is a need for a paradigm shift with IKS recognised as a legitimate form of knowledge. Policy makers in Africa are therefore called upon to examine the general significance of IKS and its inclusion in the educational curriculum. Education is an ideal means of making IKS a comparable knowledge form that exists alongside Western forms of knowledge and technology (Odora Hoppers, 2009; Muchenje & Goronga, 2013b). Kimmerer (2002) asserted that a variety of intellectual modus operandi is needed to handle the multiple environmental sustainability issues which includes integration of indigenous knowledge (IK) on natural environment in formal school curricula. Presently, several countries have upheld the relevance of IK education and have included it in policy and formal education, notably Caribbean nations, India, Australia, and countries in Africa (Kesamang & Taiwo, 2002; Taiwo & Tyolo, 2002; Stears, Malcolm & Kowlas, 2003). Aikenhead and Ogawa (2007) contended that formal educational programmes are one of the key approaches to preserving, revitalising and maintaining indigenous environmental ethics embedded in the indigenous knowledge of local communities. Shava (2016) and Van Wyk and Higgs (2011) posited that the integration of African Indigenous Knowledge Systems into formal school curricula would be a way to remedy the epistemological imbalances in the curriculum for the development of twenty-first century citizens who are culturally aware. Ameyaw and Amankwah (2014), studying the inclusion of IK into school curricula in Ghana, proposed that the integration of IK would boost interest in student learning and enhance student comprehension of subject matter as well as lead to an appreciation of culture and the natural environment. The Ghana Education Service (GES) syllabus for senior high school Biology does not specify in its objectives that teachers are to integrate the indigenous knowledge of the students in what is taught in the curriculum. However, some examples on methods of conserving natural resources, under the topic of Humans and their Environment, include the use of "sacred groves and specific days of farming, fishing and hunting" (GES, 2012, p. 67). Thus, examples are given as indigenous cultural ways of conserving natural resources (Awuah-Nyamekye, Sarfo-Mensah, Amisah, & Owusu-Bi, 2014). Moreover, the syllabus includes local food preservation and local brewery production (GES, 2012).

Research design

This study employed an interpretivist paradigm with a qualitative approach, using an ethnographic naturalistic research style to explore the challenges of teaching culturally-specific environmental ethics in senior high schools from the perspectives of Akan IK-holders and Biology teachers. The choice of an interpretivist paradigm was premised on the belief in multiple realities from the responses of the Akan participants (Quaye, 2007; Bertram & Christiansen, 2014). Rich, detailed, in-depth qualitative data was collected from the custodians of the Akan culture, within their indigenous communities.

Research participants

The Akans represent 47.5% (over eleven million people) of Ghana's population (Ghana Statistical Service, 2012). The study participants were fifteen IK-holders and six senior high school Biology teachers who were purposively selected from some indigenous Akan communities within the Ashanti region of Ghana. The IK-holders included three chiefs, three traditional priests, three herbalists, three elders, three youth, six Biology teachers (three from urban and three from rural areas). This number of participants was considered large enough to provide data for the study and small enough to handle in terms of the qualitative interpretive nature of the data collected (Creswell, 2014). Data was generated in the following areas within the Ashanti region: Ejisu, Asaman, Agona, Paakoso, Gyakye, Asantemanso, Owabi and Bonwire. Participants were chosen based on their knowledge on Akan culture. The selection was guided by literature (Ntiamoa-Baidu, 2008), recommendations from informants working at the National Cultural Centre, Kumasi (Ashanti Region) and from other research participants using a snowball technique (Creswell, 2014).

Research instruments

The main instrument for data collection was an open-ended conversational interview which gave the participants the opportunity to express themselves unrestrictedly and to talk at length in a comfortable, relaxed manner (Burgess-Limerick & Burgess-Limerick, 1998; Denzin, 2008). Denzin (2008) and Knowles and Cole (2008) contended that interpretivist researchers mostly employ interviews in their quest to explore and describe people's perceptions, worldviews and understandings about a peculiar phenomenon. Kaya and Seleti (2014, p. 33) indicated that "an interview is a good and useful data collection instrument for discovering what a person thinks in terms of attitudes and IKS beliefs". Participants expressed themselves unhindered, during the unstructured interviews (in the local Akan Twi language).

During, the interview process, which was tape-recorded, questions asked of participants were rephrased for clarity, where necessary. Participants' responses are presented in the findings. The main conversational **interview questions** were:

> *Now, that you (the participant) have expounded to me the various ways you think your (Akan) cultural group's understandings, perceptions and practices for the value and care for nature (lands, plants, animals, waterbodies) should be taught at senior high schools, what challenges do you perceive would confront the teaching of your cultural values and care for nature in senior high schools and why do you have those views?*

Data analysis

The tape-recorded interviews were transcribed verbatim and the transcripts were analysed using thematic coding based on the inductive approach. Bamberg (2012) contended that data analysis is under way as soon as transcription starts. Firstly, the transcripts of each participant were read and I detected the patterns, regularities and commonalities in the responses of all other participants, which were then put into categories and colour-coded. The general

categories were based on participants' responses that were linked to the social, cultural, economic, political, religious, technological, biophysical aspects of the phenomenon under study (challenges of teaching Akan culturally-specific environmental ethics). I then identified themes by sorting and re-categorising the initial general categories into more in-depth and specific categories. I read the transcripts repeatedly to identify responses that were divergent, atypical or dissenting. Finally, the themes that were identified were discussed, revised, and supported with relevant literature (Miles & Huberman, 1994; Attride-Stirling, 2001; Bertram & Christiansen, 2014). Furthermore, to enhance the identification of themes, the texts that were not previously linked to themes identified, were re-scrutinised to search for any new themes in those texts that had not been colour-coded (Miles & Huberman, 1994). The findings of the study are presented and discussed based on the identified and established themes. Both trustworthiness and limitations of the study were taken into consideration as the research reported in this article is part of a larger study – PhD titled 'An Exploration of the Akans (Ghana) and Zulus (South Africa) Culturally-Specific Environmental Ethics: Implications for Culturally-Specific Senior High School Biology/Life Sciences Curriculum Development and Teaching' (Opoku, 2019).

Findings and discussion

The findings and discussions are presented here based on themes that had been established. Table 1 summarises the themes, the number and categories of participants who reflected the themes. These themes are discussed in detail after the table. Participant codes highlighted (**C1** for chief 1 for example) indicate which of the chief's statements were considered most important. Where the statements were similar, one quote was selected and presented, to reduce volumes of data presented and for reasons of data saturation (Miles & Huberman, 1994; Saumure & Given, 2008).

Table 1 *Key findings: Iterative curriculum innovation*

Themes	Categories of Participants and Number	Percentage of Participants reflecting this theme
Stigma attached to culturally-specific environmental ethics as archaic and old-fashioned	All participants	100
Demand for proof and experiments	All participant except E2	95
Use of foreign language in our schools	All participants	100
Formal education and modernism	All participants except H2 and Y3	90.5
Loss of the fear for the gods and spirits in nature	All participants except Tc3	95

Themes	Categories of Participants and Number	Percentage of Participants reflecting this theme
Considered a sociocultural belief that has outlived its relevance	All teacher participants and E2 only	33
Centralised curriculum and more Westernised curriculum	All teacher participants and E2 only	33
Democracy and political biases	All participants	100

Stigma attached to culturally-specific environmental ethics as archaic and old-fashioned

All participants indicated stigmatisation as part of the probable challenges in teaching of their culturally-specific environmental ethics in high schools.

> **Chief:** *They do not respect our traditions and our culture … they keep saying these are age old stuff…* (**C1**, C2, C3)
>
> **Traditional priest:** *People make us even feel ashamed of our culture … they keep telling us, that is idol worship and archaic practices…* (TP1, **TP2**, TP3)
>
> **Herbalist:** *Even our own medicines they don't want to accept them in the pharmacy shops … make you look like you don't know what you are about…* (H1, H2, **H3**)
>
> **Elder:** *People make us feel some kind of shame when they talk about our cultural environmental practices as though they are not modern…* (E1, E2, **E3**)
>
> **Youth:** *They can argue with you and be telling you, you are living in stone age era, that's why you are following such things…* (Y1, **Y2**, Y3)
>
> **Teacher 1:** *People feel that you are not modern and don't even know what computers are about …*
>
> **Teacher 2:** *Even now Ashanti history they are phasing them out of our curricula at the basic and secondary schools because of the Western inclination of our political people…* (**Tr2**, Tr3)
>
> **Teacher 3:** *If there is anything that you can easily feel like you are getting outmoded about it, it is our culture now…* (**Tc1**)
>
> **Teacher 4:** *People still feel that the cultural practices for conservation by our forefathers which kept the environment like sacred groves is now looked down upon with gross impunity but the hope of restoring such is not lost…* (Tc2, **Tc3**)

Some participants bemoaned the fact that some people stigmatise the Akan cultural values, as well as the knowledge and wisdom embedded therein. Participants indicated specific sources of denigration of their culture: Westernised educated persons, Christians, Islam, as well as

students whose parents and guardians disdain local cultural practices. Some researchers have pointed out that African traditional thoughts and worldviews are considered inferior to modern science-oriented thought in many respects as African intellectual capacity is looked down upon by the Western world (Wiredu, 1997; Semali & Kincheloe, 1999; Odora Hoppers, 2001; Hountondji, 2002; Kincheloe & Steinberg, 2008).

Demand for proof and experiment

Almost all participants expressed the likelihood of students demanding experiments to prove the validity of some of the Akan ethical practices and perceptions. Only Y2 did not agree with the other participants.

> **Chief:** *We never asked why and said statements like 'what shows that a spirit will pounce on me when I go into that forest, that river or the other forbidden places' … but today's children would ask that we show them something to prove that this or that would happen if they go to some of the places we ask that they don't go…* (C1, **C2** C3)
>
> **Elder:** *The children would demand that we conduct some form of experiment to prove some of the claims and this may be very challenging…* (**E1**, E2, E3)
>
> **Traditional priestess:** *The way our current young people are very inquisitive, it is too much … they want to know everything but many of the things are not physical for us to explain to them…* (TP1, TP2, **TP3**)
>
> **Herbalist:** *If any of the children you are teaching ask deep spiritual questions about the way we do our things and the fact of spirits in plants and forest and so on to show them whether these can be real or not…you can come for consultation…* (**H1**, H2, H3)
>
> **Youth:** *There are a lot of things that are not well explained, we are only told to obey them… you cannot ask any of the elders to do something to show you whether what they say about some trees and rivers are true or not…* (Y1, **Y3**)
>
> **Teacher 1:** *One of the major challenges is the spiritual connotations that cannot be easily proven but our students are living in a scientific world and would want an experiment to prove almost everything but how would you prove the spirit aspect?*
>
> **Teacher 2:** *The demand for proof and experiment from students about such cultural practices would be a big challenge to handle…* (**Tr2**, Tr3)
>
> **Teacher 3:** *Science students have deep inquiry minds and would ask many, many questions… specifically demand that we make some experiments to prove them (cultural environmental ethics) and this will be very challenging…* (Tc1, **Tc2**)
>
> **Teacher 4:** *Surely students would ask us to prove what we teach (like spirit in water bodies) and, this is where there will be some difficulty…* (**Tc3**)

Participants indicated that since several Akan culturally-specific environmental ethics have spiritual links to water bodies, forests, wild animals and so on, students would be likely to

demand experiments to prove such claims and the reality of spirits and deities inhabiting certain natural components. Horsthemke (2008) contended that for 'indigenous scientific knowledge' to be ascribed as 'science' there should be laws or hypotheses to prove this (pp. 338-339).

Use of foreign language in schools

All participants indicated the use of foreign language (English) in the schools as another challenge that would confront the teaching of Akan culturally-specific environmental ethics.

> **Chief:** *How could we develop if we should keep using other people's language? … Even when we are having traditional council meeting, they will be speaking English…* (C1, **C2**, C3)
>
> **Elder:** *The value and standard of the local language is even being lost now … if not used in schools it will be lost completely … when that happens all the deep meaning embedded in our proverbs and wise saying would all be lost.* (**E1**, E2, E3)
>
> **Traditional priest:** *Why is it that in many countries they speak their own language and use the same language in school but when you come to Ghana they say that if you cannot speak English then you are dull in school and they look down on you?* (TP1, **TP2**, TP3)
>
> **Herbalist:** *A lot of our children have wisdom to do certain things but the English language that is compulsory is a problem for them … I have made a lot of medicines that even professors in universities have not done but they still don't respect us because we cannot speak English.* (H1, H2, **H3**)
>
> **Youth:** *Using the English language is good but sometimes it looks like it is becoming too much … even if you are science student and you don't pass English you cannot further your education.* (**Y1**, Y2, Y3)
>
> **Teacher 1:** *Using the local language during the teaching of such cultural practices of environmental conservation would make it more interesting…* (**Tr1**, Tr3)
>
> **Teacher 2:** *It would be very interesting to teach such cultural things with the local language … if not the import of it would even be lost.* (**Tr2**)
>
> **Teacher 3:** *Language will be a bigger challenge to teaching such cultural environmental ethics in schools because currently most of the teachers don't even know and understand some of the deep words and proverbial sayings in the local language.* (Tc1, **Tc2**)
>
> **Teacher 4:** *The local language is even stigmatised meanwhile that is the best language for teaching such cultural things.* (**Tc3**)

Participants bemoaned the central place of a foreign language like English in the schools; students look down on their own local languages. Discontinuous use and preference for the foreign language somehow 'adulterates' the local language and gradually 'waters down' deep-seated knowledge and in-depth Akan wisdoms. The IK-holders may not be able to communicate accurately in English as Akan words and phrases do not always have direct English equivalents.

Several decades ago the colonial government insisted on the sole use of English in Ghanaian schools (Awoniyi, 1975) and Wiredu (1997) maintained that the situation has not changed. Additionally there has been gross disrespect and disregard for the vernacular language in the schools. Dei Ofori-Attah (2006) contended that the students would perform well academically if they are taught in their indigenous language.

Formal education and modernism

A total of 19 of the 21 participants (90%) reflected that issues of formal education and modernism were also likely to pose a major challenge to the teaching of the Akan culturally-specific environmental ethics.

> **Traditional priest:** *All they do in our schools today are white people's lifestyle … they don't do anything that is from here (Ghana) and that is why the children don't respect us … and they tell us that our time has passed…* (TP1, TP2, **TP3**)
>
> **Chief:** *Every other thing you do that doesn't look like European or American seem to be of no value … in the so-called modern times lifestyle.* (C1, C2, **C3**)
>
> **Herbalist:** *Some people see the practices as old fashioned…* (**H1**, H3)
>
> **Youth:** *Since we live in a modern society and schools now have many technological facilities… and these cultural practices do not sound modernized … it will be a challenge teaching it…* (Y1, **Y2**)
>
> **Elder:** *The way people see the world now and especially because what they learn in school are all white man's things … it will make the teaching of our cultural things difficult…* (**E1**, E2, E3)
>
> **Teacher 1:** *I have noticed that we usually don't have respect for things that are from our own culture and it is worse in our schools.* (Tr1, **Tr2**)
>
> **Teacher 2:** *The effect of the modern technology and Westernised education system poses a threat to survival…* (**Tr3**)
>
> **Teacher 3:** *Weighing cultural things as against our modern schooling system … the way our people love to look and behave as Westernised people … will pose a challenge to the teaching.* (**Tc1**)
>
> **Teacher 4:** *Many Ghanaians seem to think that anything from abroad (Europe, Asia and America) is the best compared to the indigenous stuff … it will be a challenge to teach them…* (Tc2, **Tc3**)

Participants expressed their concern on how modernity, technological advances and formal education have led to the current generation denigrating Akan culturally-specific environmental ethics. Millar, Kendie, Apusigah, and Haverkort (2006) indicated that the formal educational system of Ghana is predominantly Western and Eurocentric and that making attempts to infuse local traditional practices would be a challenge. Govender (2012) shared similar findings with Onwu and Mosimege (2004): in Africa's formal schools, Westernised education has a central place; valuable IKS of the indigenous communities is neglected.

Loss of the fear for the gods and spirits in nature

All participants except one (Tc3) expressed this theme as a teaching challenge.

> **Chief:** *The fear that was in us when we were young, now you can't see it again … people don't even believe there are spirits in the forests and our water-bodies anymore…* (C1, **C2**, C3)
>
> **Elder:** *The Christian prayers have removed the fear that there are spirits in forests, water-bodies and in some wild animals and plants … the people have no fear in them …* (**E1**, E2, E3)
>
> **Traditional priest:** *As for now, what is called 'fear' that made people not to touch things in nature anyhow and destroy our water-bodies, forests, lands and even killing certain wild animals is almost lost from people…* (TP1, **TP2**, TP3)
>
> **Herbalist:** *Years before, when you say that we don't enter this particular forest no one would dare enter because the gods and spirits would definitely arrest you…but now people seem to have no such fears…* (**H1**, H2, H3)
>
> **Youth:** *I can see that now people don't fear our elders and what they say much because they don't respect them, but I still fear those spiritual things about nature because I have seen mad people that I was told ate fish from one of the rivers that they said no one should…* (Y1, Y2, **Y3**)
>
> **Teacher 1:** *When I was growing up I used to fear certain places (like deep forest) because of what I was told … but students fear nothing these days…* (Tr1, **Tr2**)
>
> **Teacher 2:** *… currently people don't have 'fear' like the old times…* (**Tr3**)
>
> **Teacher 3:** *A bigger challenge to these cultural environmental conservation practices will be the issue of students and people in general who have thrown away the fear of destroying any natural resource…* (**Tc1**)
>
> **Teacher 4:** *Fear for the gods and spirits are being lost from people lately so it makes them even spoil things (natural resources) more…* (**Tc 2**)

Participants indicated the apparent loss of fear for the gods and spirits in natural components would pose a challenge to the teaching of Akan culturally-specific environmental ethics that have spiritual connotations. Some researchers have contended that the fear of the spirits and 'gods' in nature has helped reduce the alarming loss of biodiversity among the Akans (Oduro & Sarfo-Mensah, 2010).

Considered an irrelevant sociocultural belief

The teacher participants and one elder (a retired teacher) claimed that Akan culturally-specific environmental ethics are considered sociocultural beliefs that have outlived their relevance in society. Although only 33% noted this theme, it is likely that the phrases expressed would be commonly used by many teachers.

> **Teacher 1:** *The cultural environmental practices are seen as a sociocultural belief and a superstition…* (**Tr1**, Tr2)

Teacher 2: *The practices are currently seen as sociocultural beliefs … and [regarded as] superstitious…* (**Tr3**)

Teacher 3: *In these days the cultural aspects of most ethnic groups are considered sociocultural beliefs that will not help the world now…* (**Tc2**)

Teacher 4: *The beliefs and practices of our cultural group are being castigated now as sociocultural beliefs that have outlived their relevance…* (**Tc1**, Tc3)

Elder: *Our educational system has looked down on our culture and just embraces foreign cultures … and label our cultural practices as sociocultural beliefs…* (**E2**)

Evident in these excerpts are teachers' Western interpretations of the cultural practices of many African communities and their view that culturally-specific environmental ethics might be simply regarded as outdated sociocultural beliefs that have outlived their relevance. Wiredu (1997), Kincheloe and Steinberg (2008) as well as Awuah-Nyamekye (2014) all proposed that traditional thoughts and worldviews are becoming considered inferior to modern science-oriented thoughts.

A centralised and Westernised curriculum

All teacher participants claimed that the Westernised nature and the centralised curriculum system used in the country would pose a challenge to the teaching of the Akan culturally-specific environmental ethics.

Teacher 1: *We would have to decentralise the curriculum and then we could bring those aspects into them…* (**Tr1**)

Teacher 2: *The teaching will be feasible in small communities and rural areas … because our curriculum is centralised and inclined more to the Western curriculum patterns…* (**Tr2**, Tr3)

Teacher 3: *The major issue with the curriculum now is the fact that it is centralised, and this will make it challenging in the teaching … because of the diversities of cultures…* (**Tc1**, Tc2)

Teacher 4: *The centralised curriculum will pose a challenge … because most of the aspects have spiritual connotations…* (**Tc3**)

Elder: *The school curriculum would have to be decentralised to make this feasible…* (**E2**)

According to the teacher participants therefore, decentralising the curriculum would make the teaching of the Akan culturally-specific environmental ethics more feasible. Berkvens (2009) and Muchenje and Goronga (2013b) posited that curricula lacking the local context of the people lead to cultural discrepancies.

Democracy and political biases

All participants made references to democracy and politics as strong forces that could thwart the teaching of Akan culturally-specific environmental ethics.

Chief: *The so-called democracy has affected us so much … political leaders will remove it (our cultural value and care for nature) and put western things there…* (C1, C2, **C3**)

Elder: *Everything is politics now … even if the government make them teach the cultural environmental ethics in the school … another government will come who will not agree and this will make it very difficult to continue it…* (**E1**, E2, E3)

Traditional priest: *Even our job here, there is politics in it … the same thing that will happen in the schools if people don't stop politics…* (TP1, **TP2**, TP3)

Herbalist: *Because of democracy even if something will benefit everybody, someone who has more political power and hate such cultural things could fight it so much that they will remove it from schools…* (**H1**, H2, H3)

Teacher 1: *They have been changing the school curriculum every time there is a new government … this is pathetic, it's like there's no national goal; it is all political goals!…* (Tr1, **Tr3**)

Teacher 2: *How can we move forward if we throw away our own culture and go to take another country's culture? It is only politics that can cause this…* (**Tr2**)

Teacher 3: *I only hope that the teaching could be sustained looking at the fast pace at which governments come and keep changing the curriculum…* (**Tc1**)

Teacher 4: *Our democracy and political biases are not helping us achieve a common national goal and this I think will pose a challenge in this new wave in an attempt to teach cultural environmental ethics in schools…* (**Tc2**, Tc3)

Dei (2000) also contended that indigenous knowledge, despite its relevance, might be confronted with socio-political biases.

Conclusions

This study's findings have highlighted the key challenges to teaching culturally-specific environmental ethics in senior high schools using the Akan cultural group as a case. The challenges are presented to inform Biology curriculum developers, curriculum implementers and other stakeholders on matters they would need to address or be conscious of in their quest to teaching indigenous or culturally-related environmental ethics.

Notes on the contributors and their contributions

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Percentage contribution

Areas of contribution	Author	Percentage contribution
Conception or design of the paper, theory or key argument	Opoku	50 %
	James	50 %
Data collection	Opoku	100 %
	James	0 %
Analysis and interpretation	Opoku	70 %
	James	30 %
Drafting the paper	Opoku	50 %
	James	50 %
Critical review of paper	Opoku	30 %
	James	70 %

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