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Ethiopian students' relationship with their environment: Implications for environmental and climate adaptation programmes

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Abstract

Historically the voices of young people have been excluded from research and debates about how to respond to environmental degradation and climate change. To include the perspectives of young people in the climate change and adaptation debate, we conducted a Photovoice and draw-and-write project with 29 school students in Ethiopia, through which students were given a platform to explore their social representations of the environment. Thematic analysis of our findings suggested that young people have a deep appreciation of the moral, health-related and economic importance of the environment, a commitment to preserving it and a sense of responsibility and agency in relation to contributing to this preservation. Students saw environmental degradation as reversible, through a combination of commitment by themselves, local government, and the global community. We conclude by discussing ways our findings might best be taken up in school-level programmes to strengthen youths' existing social networks for the consolidation of 'green' identities, action and activism.

Keywords: Photovoice, environmental fragility, youth, Ethiopia

Words: 6,445

INTRODUCTION

There is growing concern, matched by a surge of studies, about the impacts of environmental degradation and a changing climate on children's health and well-being (Bernstein & Myers, 2011; Dapi, Rocklöv, Nguéfac-Tsague, Tetanye, & Kjellstrom, 2010; Sheffield & Landrigan, 2011). These paint a grim picture of the environmental situation facing many of the world's young inhabitants. As exemplified by the famines in the 1980s, Ethiopia's economy, like many other sub-Saharan African countries, is vulnerable to climate variability, such as changing levels of rainfall, which threaten crop yields and livelihoods (Conway & Schipper, 2011). International Alert, an independent peace-making organization, estimates that 46 countries, including Ethiopia, are at high-risk of violent conflict due to the effects of reduced rainfall and resource scarcity intersecting with other problems, such as rapid population growth and political instability (Smith & Vivekananda, 2007).

Sub-Saharan African countries are vulnerable to climate shocks and Conway and Schipper (2011: 227) argue that in countries like Ethiopia, "policy responses must aim to straddle institutional, social and ecological realities while simultaneously grappling with the extreme poverty found in Ethiopia." It is against this background, and our interest in highlighting opportunities for policy and practice, that we report on children's perspectives of the environment vis-à-vis their local realities.

Youth's perspectives on the environment

African youth are increasingly impacted by environmental and climate related issues, yet their perspectives are largely absent from research and policy arenas. This lack of the voices of youth, who as citizens of tomorrow will inherit the environment created by adults today, highlights the pressing *moral* need to include their vital perspectives in the environmental and climate change debate. Furthermore, there is a *political* need to include the voices of lay people in such debates as these voices inform and contribute to the global activism which in turn forces influential political decision

makers to take their environmental issues seriously. A key determinant of whether people will take up any political cause is i) whether they are *concerned* about the problem; ii) whether they perceive themselves as having an *agency* in relation to it; and iii) whether they see the problem as *reversible*. With the absence of these determinants, people, and youth in particular, will have little motivation to address the issues at hand. As such there is a need to examine the determining factors of concern, agency and reversibility in relation to youth's experiences of the environment, while also examining their views on which strategies are most likely to facilitate environmental protection.

Young people from lower-income countries are disproportionately absent from international debates about climate change, despite the fact they *inhabit* countries most significantly impacted by environmental changes. However, with the growing recognition of children's right to participation, researchers are gradually starting to consult youth from high-income countries on their environmental views. Some of these studies have explored: children and youth's perceptions of global warming (Aydin, 2010); their environmental knowledge, measured in terms of their knowledge regarding the association between the greenhouse effect and climate change (Liarakou, Athanasiadis, & Gavrilakis, 2011; Shepardson, Niyogi, Choi, & Charusombat, 2009); the morality of climate change mitigation (Sternäng & Lundholm, 2010); and their portrayal of, and relationship with, their environment, understood in terms of their engagement with nature (Kalvaitis & Monhardt, 2011).

Although informative, the majority of these studies illuminate children and youth's lack of environmental knowledge and commitment rather than providing information on their environmental agency at the local level, and as such provide few pointers toward how programmes can facilitate positive community action to tackle or adapt to negative environmental impacts (Elinor, 2010; O'Neill & Nicholson-Cole, 2009; van Zomeren, Spears, & Leach, 2010). What is noteworthy is that we have been unable to identify studies involving children and youth in Africa to explore their relationship with a changing environment. This paper therefore seeks to add to the small, but growing body of literature that considers children's perspective on the environment, by focusing on Ethiopian children's sense of environmental agency.

Locality and geographical space seems to play an important role in young people's experiences of the environment. For example, Myers and colleagues (2000) find students identify air pollution more often in urban settings than in rural settings. So whilst young people in both rural and urban areas are affected by climate change, such findings support the notion that children's representations of the environment are tied to their local and visible levels (*ibid.*) – emphasizing the need for research examining rural and urban differences.

Another useful backdrop to our study is the existing developing country research into various aspects of disaster risk reduction focused around youth (See Baker & Kyazze, 2008; Benson & Bugge, 2007; Tanner, 2010). These studies emphasise the agency of youth in relation to protecting themselves against natural disasters stemming from the changing environment but they lack insight into their overarching environmental views and fall short in giving youth *themselves* the opportunity to express their views (Conway & Schipper, 2011). They recommend that schools i) play a larger role in climate change debates and ii) raise young peoples' awareness of local hazards and disaster risk reduction strategies. Whilst these recommendations are well intended they tend to be generated by adults, with little attention to youth perceptions. To successfully address climate change and the deteriorating environment youth must be given the opportunity to participate in debates and identify their needs (McCee and Greenhalf, 2011). Lastly, in the literature, urban voices are largely ignored (Adger & Kelly, 1999; Bartlett, 2008; Leichenko & O'Brien, 2002). However, with two-fifths of Africa's population living in urban areas, urban areas are becoming increasingly important (Satterthwaite, Huq, Pelling, Reid, & Lankao, 2007; Swalheim & Dodman, 2008). The combination of poor infrastructure and poverty

amongst many urban dwellers leave them particularly vulnerable to climate change (Hardoy & Pandiella, 2009). However, according to Satterthwaite et al (2007), it is inappropriate to consider rural and urban areas separately. Urban areas and economies depend on rural environmental services and economic demand while rural populations depend upon urban markets for trade. The interdependence of these two locales demands both areas be given equal attention.

CONCEPTUAL FRAMEWORK

Social Representations Theory (SRT) – a framework for uncovering shared systems of social knowledge and associated practices – provides a useful starting point for exploring young peoples' representations of their environments. Moscovici (1973, 1984) characterizes social representations as systems of values, ideas and practices with two key functions: first, the establishment of order, through which people to orient themselves in their social and physical worlds; and secondly, the enablement of dialogue and opportunities for making sense of the world, often opening up the negotiation of new meanings and action plans (Campbell & Jovchelovitch, 2000; Freire, 1970, 1973).

In some situations, a social group will be exposed to diverse and competing systems of knowledge. Whilst each body of knowledge is valuable and valid in relation to the context in which it was developed, in such situations it is often the case that one system of knowledge comes to be seen as deficient and the other as superior. In such situations, a bias often exists towards the knowledge of more powerful groups (e.g. professional and expert knowledge), at the expense of the knowledge of less powerful groups (e.g. poor people, or children) (Jovchelovitch, 2007). In such situations, it is usually the case that the knowledge of less powerful groups receives less attention (Foster, 2001; 2003). Less powerful groups frequently have priorities diverging from those of researchers and relief agencies, which creates a disconnect between top-down priorities and bottom-up needs (Chambers, 1983; McLaughlin & Dietz, 2008).

The dialogue around climate change has not been exempt from this expert bias. Yet as top down strategies continue to fall short in meeting environmental needs, researchers and policy makers are beginning to recognize the need for attention to more diverse systems of knowledge and representations (Elinor, 2010). It is in this context that the voices of youth are increasingly finding legitimacy (Christensen & James, 2000).

Although the climate change literature is often clouded by a focus on populations as passive and vulnerable, researchers should not discount people's capacity for action (Bond, 2010). In relation to people living in fragile environments, it is their agentic capabilities and opportunities for collective action that allow them to engage in activities for the betterment of their local environment. SRT provides a framework for understanding how the poor and marginalized frame issues of importance, highlighting the ways people understand their abilities to exercise agency and to mitigate life threats and challenges. As such it provides a useful frame for our study, which seeks to understand not only how Ethiopian youth represent the environment, but also their views of how they are able to exercise agency in improving or adapting to it.

METHODOLOGY

This study received approval from a research ethics committee at the London School of Economics and Political Science, and has followed the British Psychological Society's Ethical Guidelines for Research with Human Subjects (BPS, 2004). Informed consent to participate and to publish their

photographs and drawing was obtained from the children and their guardians on the condition that their identities would not be revealed. Pseudonyms have therefore been used throughout.

The data collection, conducted by the first author, was facilitated by the Addis Ababa branch of an international climate change NGO, which had a particular interest in promoting environmental awareness amongst youth. The findings of this study have been fed back to the organisation to inform their programmes.

Study participants

Using convenience sampling, six urban schools, including a range of low and middle income government schools, were selected to participate in this project, with an average of five students participating from each school. Twenty-nine students, 16 males and 13 females, aged 12 to 16, participated in the project. Participating students were believed to be representative of Ethiopian students as determined by the teachers who nominated students of average ability whom they regarded as fairly typical of the students in their cohorts.

Data collection

To elicit and explore students' meanings and perspectives of the environment, participatory research methods, namely Photovoice and draw-and-write techniques, were used. Aside from being fun and conducive to students with different literate abilities, visual research methods like Photovoice and draw-and-write encourage youth to reflect on their inner and social worlds and communicate thoughts and feelings that may be difficult to articulate verbally (Pridmore & Bendelow, 1995).

Photovoice, born out of Paulo Freire's interest in eliciting the perspectives of marginalized people (Freire, 1973), was the primary source of data. It is a useful tool for gaining insight into the perspectives of youth, which are often overshadowed by the plethora of adult-centric research tools (Skovdal, 2011; Skovdal & Abebe, 2012; Vaughan, 2010). The trust a researcher conveys to a participant, particularly a child, when giving them a camera changes the power dynamics of the relationship, giving them power and control over the research process (Morrow, 2001; Wang & Burris, 1997). In addition, the flexible and casual nature of photography minimizes the formality associated with more structured methods like interviewing, which can intimidate or restrict a child's response (Schwartz, 1989). Moreover, carrying a camera encourages frequent reflection that allows participants to continually engage with the immediate world around them (Foster-Fishman, Nowell, Deacon, Nievar, & McCann, 2005). Lastly, Photovoice opened up for the opportunity for the students to personally benefit from their participation in the project, as each student's personal photographs were developed and given to them as a token of appreciation.

However, Photovoice is time, geographic and event sensitive as well as ethically contentious. It is not possible to take photos of the past or the future and it is problematic to take photographs of people in demeaning situations and in contexts different from your own. As such, to give students the opportunity to reflect upon the wider Ethiopian landscape, such as rural regions, and various life experiences, both past and present, which could not be easily captured with a camera, the students were encouraged to draw scenarios they wanted to share with us. The inclusion of drawing as a method enabled each student to contribute to the discussion.

An introductory workshop was held to enable students to contribute to the direction of the research project as well as discussing camera techniques, the ethical dilemmas of using photography as a data collection tool and potential problems they might encounter. After some brain storming, three questions were posed by the students to guide their photography:

1. What are the strengths of your environment?
2. What are the challenges facing your environment?

3. How do you engage and interact with the environment?

One week after cameras were distributed to the students, a second meeting was arranged to let the students hand in their cameras for development and share their thoughts on the experience. For the third meeting students chose the photographs they wanted to write about. Students were not limited in the number of photographs they could include here. They described the photographs, either verbally, with the first author writing down their accounts, or in writing. Then students were given the opportunity to supplement their photographs with drawings if they so wished. Each drew at least one picture. One hundred and seventeen photographs and ninety-three drawings were generated from this exercise. However, to ensure "equal voice" only the first eight photographs or drawings per student were analysed and included in this paper.

Data analysis

The data corpus consisted of drawings, photographs and their accompanying descriptions. Rather than exploring individual's experiences, we sought to map out the spectrum of social representations used by the group to describe and visualise their experiences and perceptions of the environment. As such we are not seeking to present stereotypical views held by the majority of the youth, but to assemble the diversity of perspectives available from our data.

We analysed the data from two perspectives: from the perspective of the drawings and photographs and from the perspective of the written descriptions. To tease out the social representations found in the drawings and photos, a three-step investigative framework (see Figure 2) was adopted. The first step involved exploring the way students visually represented their environment, prompted by the question: 'How do Ethiopian students see their environment?' In the process of answering this question, the drawings and photographs were divided into two piles depicting either perceived strengths or weaknesses of their environment (step 2). In the third step we recorded any accounts where students showed action in the environment.

Although this three-step investigative framework was used to examine the drawings and photographs, the accompanying descriptions were read before codes were assigned to each drawing or photograph. This was done to ensure that the views and interpretations of the analyst were not imposed on to the visual material, but reflected the child's written account.

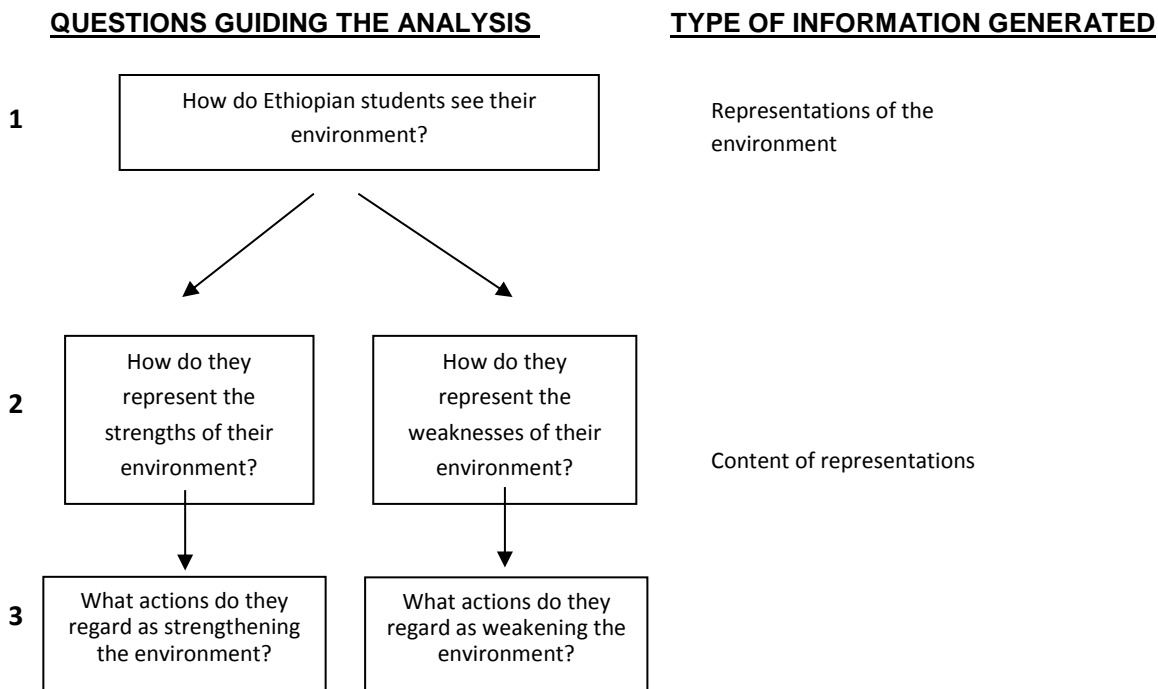


Figure 1: Data Analysis of drawings and photographs (adapted from Campbell et al., 2010)

The written descriptions accompanying the written material were also coded. Following the steps of Attride-Stirling's (2001) thematic network analysis, students' descriptions were read and re-read. The emerging topics were then coded, which combined with the codes of the visual material, led to a total of 71 codes. To move beyond description of the data to abstraction and interpretation, the codes were grouped together into 24 basic themes, which were eventually clustered into nine organising themes that in turn make up three global themes that highlight the symbolic field from which students understand the limitations and possibilities of their environment. Figure 2 provides an overview of the emerging themes, summarising the representational field of youth's perspectives of their environment. We will now discuss each of the three global themes emerging from our data.

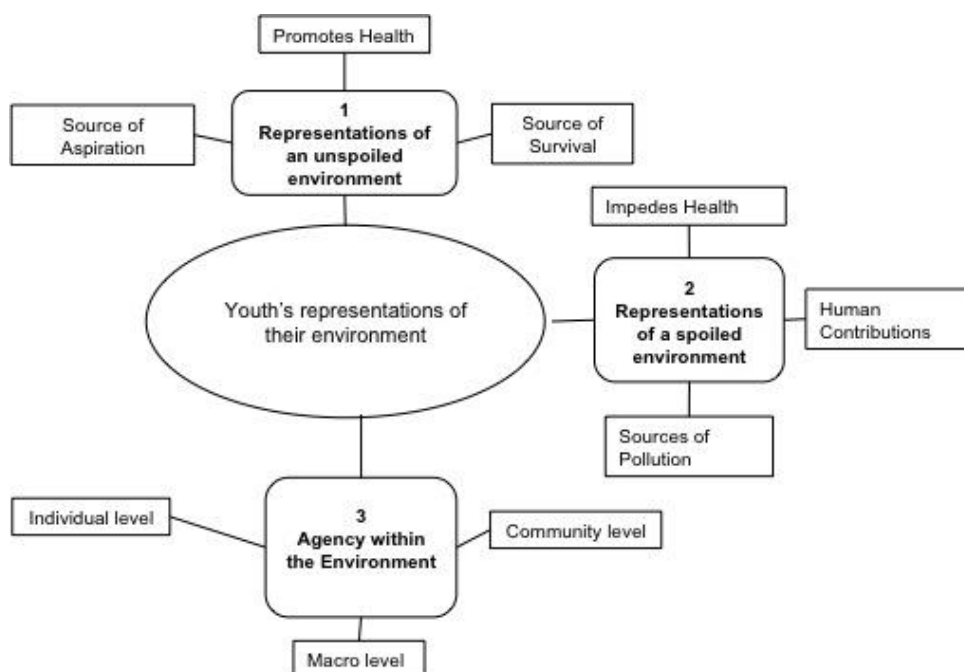


Figure 2: Thematic Network

FINDINGS

Unspoiled Representations of the Environment

The findings suggest that there was a marked contrast in the photographs and drawings of environments as being spoiled or unspoiled. Therefore, we categorized the data as unspoiled if it reflected a positive representation of the environment. More specifically, an unspoiled environment was viewed as ideal, largely unaffected by the harmful effects of pollution, resource depletion and climate changes. Not only did students provide examples of how their environment was unspoiled but they also saw an unspoiled environment as a source of aspiration as well as a vehicle for the promotion of health and the advancement of survival. Knowing how a particular group of students characterize a positive environment allows researchers to better understand the environmental aspects urban students value thus providing a starting point for NGOs seeking to design environmental awareness programs that will resonate with the experiences of this group of young people.

Source of Aspiration

To students an unspoiled environment served as a source of aspiration. They recognized an unspoiled environment as a source of beauty, idealizing plants and beautiful flowers. The majority of places described as beautiful were manicured gardens rather than wild nature.



Figure 3: Photograph of Urban Garden

“Here you can see the beautiful flowers that help make the city nice” Eden (15).

However, they differentiated between urban and rural beauty. In the urban environment, manicured gardens and flowers largely represented students' notion of beauty. By contrast, when beauty was represented in the countryside, it was more closely associated with the presence of trees.

A sense of pride in the unspoiled environment, both at the national and community level, was also expressed by the students. Students often equated the blue sky with a clean country, which served as a source of pride for the community.

Promotes Health

Students reported that an unspoiled environment promoted health, with fresh air, trees and a clean environment positively impacting a person's health.



Figure 4: Photograph of trees

"Trees are good for Ethiopian weather and important for Ethiopian people to be healthy because they provide oxygen" Tesdenya (13).



Figure 5: Drawing of countryside

“Life in the countryside has fresh air for breathing and comfort” Magdas (14).

There was a strong tendency to idealize rural areas. These were said to be more likely to promote a healthy environment because they had less people and cleaner air. As Noel (15) explained, “This is our countryside (rural area). There is good and comfortable air condition for the plants and animals”[Figure 6].



Figure 6: Drawing of Countryside

Also in relation to health, students valued an unspoiled environment's ability to produce medicinal plants. As Zion (14) explained, “there are plants we find in our country, which can be used to treat many different diseases.”

Source of Survival

Students reported various links between an unspoiled environment and the provision of life.



Figure 7: Photograph of Coffee

“This picture is how plants and trees are used in our home to boil coffee and also to make furniture” TSION (13).



Figure 8: Photograph of Cabbage

This picture shows how we use plants in our home, like cabbage seen here, for our food dishes” Shadi (16)

They explained that the environment gives them food such as cabbage, which is used to make important cultural dishes, and coffee, which is central to Ethiopia's culture and economy. This illustrates how students make sense of the environment at the local level and in the context of their culture. Coffee's centrality to all things Ethiopian, even the environment, cannot be ignored as the

students saw the production of coffee as one of the environment's strengths. Not only is an unspoiled environment necessary for human survival but it supports the survival of integral cultural practices, like the Ethiopian coffee ceremony. The provision of food is an important characteristic of student's representations of an unspoiled environment.

Although largely conceptualized in the rural setting, students identified environmental degradation as impeding their daily survival. The drawing below illustrates this tendency.



Figure 9: Drawing of Ethiopian countryside

“By planting trees and improving our soil, people in countryside can have better land and produce more food” Teddy (14).

For students, an unspoiled environment is closely connected to a productive environment, especially for farmers whose livelihoods depend on the land. While this recognition of the link between a rural farmer's livelihood and the environment is important, it suggests that students in this urban setting - being slightly removed from farming practices - do not necessarily see the ways in which a spoiled environment could impact their livelihoods as urbanites, compared to the ways in which they recognize a spoiled environment infringing upon livelihoods in the rural setting. [This further suggests](#) a mismatch between the way in which students view the urban and rural locale.

Overall, students held strong representations of an unspoiled environment. They understood that life could not exist without a proper functioning environment stemming from an unspoiled environment. From quotes stating, “trees are life” to comments about “water is life” students recognized the critical impact a healthy environment has on human and animal life.

Spoiled Representations of the Environment

Alongside positive representations, negative representations of the environment featured prominently in students' views of urban and rural contexts, centred around the three themes of impediments to health, high pollution levels and people's role in the spoiling of the environment.

Impedes Health

Students identified various problems with their environment, some of which impacted their health. As illustrated below, stagnant water, stemming from poor drainage systems was identified as putting the community at risk for disease.



Figure 10: Photograph of Stagnant water near school

“This shows stagnant water, which causes malaria and other diseases. This malaria is spread in the stagnant water by mosquitoes. Malaria is a big problem in African countries. We must control the stagnant water to stop the spread of diseases” Addisu (16).

While stagnant water is not a large problem in Addis Ababa because of the city's altitude, students identified its potential for increasing the spread of malaria, which is a problem for many rural citizens.

Poor sanitary practices were also seen as creating a spoiled environment. As depicted below, open defecation was a common concern for many students.



Figure 11: Drawing of Open defecation

“This picture shows the pollution that occurs when people go to the bathroom in nature. It causes problems for anyone drinking the water and spending time in nature. People can become sick from this bad practice” Ahmed (15).

In the same way that a clean environment invoked a sense of pride for the students, a spoiled environment elicited a sense of shame.



Figure 12: Photograph of boys posing to urinate

"I wanted to show how bad practice peeing in public is. When it dries it smells and causes sickness. It is embarrassing to have the roads smell like someone went to the bathroom" Kader (16).

In addition, lack of safe play areas was a concern for students, stemming from a shortage of clean, green spaces to play. They photographed peers playing on garbage receptacles to illustrate how current recreational outlets are unsafe and threatening to their health.



Figure 12: Photograph of garbage playarea

"This picture shows the children wasting their time in a garbage area because there is no other enjoyment area with fresh air. It may be harmful to their health and life. I hope one day this problem is going to be solved. There are some enjoyment areas but they are few and it costs money to get to them" Misikir (13).

With the rapid rate of urbanization in lower-income countries, such as Ethiopia, man-made pollution can significantly contribute to student's representations of a spoiled environment.

Some students also expressed concerns about poor construction standards as a result of rapid population growth in urban areas, explaining that

"Construction happens so fast here and there is lots of pollution from it. And not only is there pollution but there are little barriers between the construction area and the rest of the place so anyone can easily get hurt" Feysel (14).

Sources of Pollution

The majority of students identified pollution spoiling their environment. As seen in the drawing below, air pollution was the most common form of pollution depicted, with frequent references to automotive and factory emissions.



Figure 13: Drawing of Factory pollution

"This pictures shows how bad factory pollution can be. It pollutes the river, the air and the land" Zelalem (14).

It is likely students see cars and factories as regular contributors to a spoiled environment because they are most familiar with these visible types of pollution. Air pollution was not regarded as problematic for rural areas, but was almost exclusively seen as a problem of urban areas.

Students repeatedly spoke of litter spoiling their communal environment, attributing this problem to a lack of designated garbage areas. Plastic was most frequently cited cause of litter.

As seen in the drawing below, one student specifically illustrated a potential gender difference in the pollution contribution of males and females.



Figure 14: Drawing of Anti-environmental actions by gender

Here the woman is throwing trash into the river and the man is cutting down a tree. In all the drawings depicting felled trees, men were portrayed as the perpetrators. This finding sheds new light on the ways in which gender roles are seen to influence anti-environmental actions (Zelezny et al., 2000).

Human Contributions

Students also reported that humans, both knowingly and unknowingly, contributed to the spoilt environment. They noted that people's carelessness negatively impacted the environment. Tamrat (14) explains, "even if students know it is bad to throw plastic materials they still do it out of carelessness and it has changed the beauty of the school."

Lack of knowledge was seen as a particular environmental liability. Lacking education, knowledge or being misinformed translated into people being ill equipped to engage in pro-environment actions.



Figure 15: Photograph of Child posing to urinate in river

"I took this picture because in Ethiopia many people remove their impurities in the river and other bodies of water. So it is critically polluted. But we can prevent this problem by teaching people. And the major problem of pollution and our problems with the environment come from people's lack of knowledge, which can be prevented by teaching people to use different methods. If we can stand together we can create a clean and beautiful environment" Sisay (13).

People's need for survival was given as one reason why people exploit the land. Abebe (14), explains

"People need to use the land for farming so they can burn and cut down trees to clear the land but they do not understand that this is not good for soil".

Excessive and unwise use of land was said to restrict its productiveness, in turn threatening people's survival. The findings show that students realize there are limitations both to people's agency and their potential contribution to an improved environment. They recognize people often have no other choice but to 'spoil' the environment due to a lack of other more environmentally friendly alternatives.

One drawing made a direct link between rapid population growth and excessive use of the environment's resources.



Figure 16: Drawing illustrating Rapid Population Growth

“Rapid population growth is a problem. When people have 15 children in the marriage home this is a problem for human beings. The building of the home must expand so people cut tree and use resources to make more food for families” Tesfaye (14).

Like many other developing countries in the midst of the demographic transition, Ethiopia has a high fertility rate. Large family size, indirectly and directly, impacts the way families use the environment. Whether their intention or not, parents may be forced to exploit the environment to provide for their family. Additionally, Tesfaye’s ability to orient environmental issues within the larger social context exemplifies the competency of students to understand the challenges facing their community.

Agency in the Environment

The third theme emerging from our analysis focused on students’ reports of their own active engagement in improving their environments, and their views of strategies through which the environment might better be safeguarded by themselves and others.

Individual level strategies for environmental protection

For students basic knowledge was a key resource enabling them to act responsibly and locate areas and identify strategies for environmental improvement.

Students also reported that knowledge was essential for behaviour change. They recognized that knowledgeable people could change and engage in the improvement of the environment. As Abel (13) explains, "In Ethiopia, those people that have knowledge about polluting things, remove their impurities in the proper place."



Figure 18: Drawing of Trash Removal

For students, knowledge fostered responsibility and awareness, which in turn facilitated behaviour change.

Students engage in their own environmental preservation strategies, such as keeping their immediate environments clean, as well as long-term adaptive strategies, like planting trees and gardens. They see these as helping to mitigate the harmful effects of climate change and the deterioration of their local environments. By planting trees, they see themselves as actively challenging deforestation in their country.

With little outside support, students had found resourceful and creative ways to mitigate the fragility of the environment.



Figure 19: Photograph of Garden

“This picture shows how people can use old pots and cups to keep the plants in. There are many ways to have a garden. People just have to think openly” Habitu (16).

Community and macro level strategies for environmental protection

Students identified the critical role of schools in transferring knowledge about environmental preservation. As Mehari (16) explains, “in my old school, we had an environmental program meeting every day. So we could learn how to treat the plants in our school. We have to be better people, which are why we are learning.” As seen below schools were also an example for the community.



Figure 20: Photograph of proper trash removal

"In our school we can throw trash in the correct place. Hopefully other people will see this and try to do throw trash in correct place" Rommie (14).

Schools were seen to facilitate safe social spaces where students could negotiate environmental strategies and autonomously develop the most appropriate and relevant strategies for their local context. As the literature suggests, the school context provides students with a clear identity, which allows them to fully engage in their context as caretakers of the environment.

Also particularly interesting for this study was the relationship between one participating Ethiopian school, which had been twinned with a school in Scotland. Students wrote letters to one another and shared environmental ideas, which created a network between the two schools. Analew (16) explains, "by writing letters with our pen pals in Scotland we are able to share ideas about how to improve our environment." These links improved students' environmental conceptualizations, confidence and strategies. It provided them with a valued network to share ideas with like-minded peers across the globe. Efram (15) adds, "we can share particular things about Ethiopian culture and environment with people that don't know much. We begin to build relationships and share ideas."

Students reported engaging in collective action to facilitate positive environmental change. Kassaw (16) said how "people joined together to clean the area and make it enjoyable for the larger community". Collective action is an important strategy for improving the environment and reducing the harmful effects of climate change (Morser & Dilling, 2004; van Zomeren et al., In press). Students were also aware of the value of particular consciousness raising techniques. As Kamal (14) explains, "we can use simple drama to teach children about bad habits." This excitement for teaching other students and the community was also associated with concerns regarding the limitations of their ability to facilitate change and to encourage people to care. This is exemplified by Hiwat (15) who explains, "we need to know what kinds of projects are best to do and how to get the community to care about the environment." Mohammad (13) expresses similar concerns, "how do we challenge people who do not care to make a change?" These statements highlight youth's desire to make a difference but they also draw attention to youth's sense of their lack of opportunity and confidence in this regard.

Students talked about the district government's role in providing knowledge and action plans to citizens. As Degu (13) explains, "local governments can work together to spread knowledge and educate people in the community about trash." Students see the government as playing a key role in facilitating sustainable change. Students also recognized the government's responsibility to equip citizens with the necessary materials for engaging in responsible environmental behaviours. As Aster (15) commented, "the government should provide more trash cans, trash cans are very hard to find especially if you are not in city centre."

Students also highlighted the role NGOs play in improving the environment.

For students basic environmental knowledge served as a starting point for reversing the effects of environmental degradation. As climate change specialists point out the recognition of the reversibility of environmental damage is a vital precondition for pro-environmental action (O'Neill & Nicholson-Cole, 2009). People who sense their situation is inevitably doomed have little reason to change their behaviour.



Figure 17: Photograph of tree plant with class

“By planting a tree you can reverse the dirtiness of an area” Getnesh (16).



Figure 21: Photograph of traffic circle sponsored by NGO

“An NGO helped make this traffic circle beautiful by planting flowers in it. It has made our community so beautiful, with such a nice environment” Menelik (13).

Students suggested that NGOs that are sensitive to the needs of the people support the improvement of the Ethiopian environment in various ways from supporting environmental clubs to beautifying traffic circles. Overall, these findings show that students recognize the need for a diverse body of players to

fully and effectively improve the local environment and adapt to the changing climate. They see themselves as an essential part of this process.

DISCUSSION

Our findings highlighted a high level of student commitment to and concern for the environment. Students' acknowledged the positive resources afforded to them through a clean environment as well as the challenges arising from a deteriorating environment that hindered them. Their sense of regret, stemming from the way in which the environment was threatened both by (i) poorly informed or careless individual actions, (ii) poor community facilities and (iii) bad economic practices, bore witness to the depth of their awareness and understanding. For students, the nexus between the environment and their lives was clear, with the environment intersecting with aspects of their spiritual life (in terms of nature's beauty), their health and their personal and national economic future.

Despite their awareness of environmental misuse and weaknesses, students largely see the damage as reversible and feel they have some role to play in tackling the issue. This belief in reversibility helps to inform student's sense of agency. Students believe they have something positive to contribute to environmental preservation and improvement. Moreover, this sense of ownership and responsibility in regards to addressing environmental degradation and misuse goes hand in hand with students' belief that they themselves have a role to play in tackling local environmental challenges. However, students did feel they needed more support from schools and local government to enable them to address the issues at hand.

Students identified an assorted body of actors and agencies as resources for helping them take their environmental movement forward. They appreciated the importance of local government in facilitating an enabling environment for a better community-environmental interface. In addition to local networks, global networks, as seen in our findings through the link between one participating school and a Scottish school, can play a role in giving students a sense of common global purpose around the environmental cause. It is through these avenues of expression that students translate their knowledge into action and advocacy for the betterment of the environment. In these shared spaces, they can build upon their shared identity and explore possibilities and pathways for creating change (Campbell, Nair, Maimane, & Nicholson, 2007; Skovdal, 2010).

The presence of positive environmental representations in our data should simultaneously caution researchers and activists not to wholly problematize local environments while also encouraging them to work with communities to strengthen communities' existing representations of the positive potentials of the environment, and their need to preserve and strengthen these. As previous research points out, negative representations have the tendency to be immobilising (Moser & Dilling, 2004; O'Neill & Nicholson-Cole, 2009). By building upon their 'unspoiled' representations, rather than focusing largely on 'spoiled' representations, students and the community at large are more likely to be motivated to play an active role in the process.

When utilizing the knowledge, experience and local representations of students, researchers should be able to design more localised and appropriate programs to address their immediate environmental concerns.

In a continent and country where little research exists on young peoples' experiences of their relationships with their physical environments, our findings provide a case study that supports wider calls for the potential benefits of incorporating local understandings and representations to be incorporated into pro-environmental policy. Furthermore, student's photographs and drawings contribute to on-going exploration of how local contexts shape the construction of representations, especially the impacts of urban locale on such representations. It is important that environmental

programmes, ranging from climate change adaptation projects to projects aiming to reduce man-made pollution, take into consideration the local context of the community and sub-community.

This exploratory study has provided valuable insight into the ways in which pro-environmental campaigners and schools might work together to fully harness the willingness and energy of youth. Together, environmental advocates and schools can build upon the nascent sense of commitment, agency and reversibility highlighted in our data to:

- i. discuss and brainstorm further strategies and develop pro-environment projects to provide additional opportunities for student participation;
- ii. to increase a sense of solidarity with other local students and other community members, around the importance of preserving the environment;
- iii. work with local governments to provide enabling conditions for such projects; and further develop international contacts between African and other youth in the global community to further develop their sense of common purpose in preserving the planet.

This evidence generated from this study suggests that schools could provide a fertile starting point for environmental work and discussion with youth who already feel a sense of commitment to the issues, as well as a willingness to participate in pro-environment activities. Our findings suggest that youth have the commitment and agency to make such efforts worthwhile. By incorporating insightful local knowledge provided by youth, researchers and officials from a variety of fields will be better equipped to work together in tackling the climatic issues of the 21st century.

CONCLUSION

How do our findings relate to wider debates in about children's participation and children's geographies? Politically, our work responds to calls for greater attention to children's voices, and the need for safe spaces in which children are able to develop and articulate their own visions of tomorrow's world – [as an important step in the direction of providing](#) opportunities for them to channel their optimism and energy into activism and to turn their visions into reality (Percy-Smith & Thomas, 2010). In relation to wider debates about children's geographies, it responds to growing calls for attention to the way in which place shapes children's identities and their opportunities for agency (Aitkin, 2001; Holloway & Valentine, 2000). Little attention has been given to these debates in African settings, particularly in relation to the environment. Our work has been framed by the view of children as competent social actors experiencing, (re)interpreting and (re)negotiating the possibilities and limitations of social spaces that have been structured largely by and for adults, spaces which varyingly enable and limit effective action by youth in their engagement with the natural world around them.

Our informants' sense of their place in the world was experienced and negotiated within environments rendered fragile in conditions of poverty, poor infrastructure and unregulated economic development. Yet even within unpromising conditions, they retained a strong sense of the spiritual and physical benefits of an unspoiled natural environment for themselves [as](#) individuals, as well as [themselves as](#) members of families and communities. They communicated a sense of hope and confidence in their potential to contribute to creating a positive social world, believing that they could contribute to tackling environmental degradation and facilitating the promotion of a sustaining and sustainable relationship with the natural environment.

However, children's agency is always enabled or limited by the willingness of powerful social actors to support their efforts towards positive social transformation (Abebe & Kjørholt, 2009; Skovdal & Daniel, in press). Ansell (2005) warns against over-optimistic assessments of the role children's voices can play in facilitating change, in the absence of wider political and economic change to provide social

environments that address their needs. The children in our study had a realistic sense of their limitations – repeatedly emphasising the need for partnerships between youth, schools and local government and NGOs in driving a pro-environment agenda forward. Consistent with Massey's (1999) view of [the construction of](#) identities and agency at points of engagement between diverse groups, children located their potential for agency at the point of engagement between themselves and supportive adults and social institutions, including schools, local government and NGOs in Ethiopia, and also in one school, globally, through a co-constructed sense of environmentalist solidarity with [Scottish](#) penfriends.

There is potential for young African people to be more influential participants in environmental movements than is currently the case. Adults, both globally and even in conservative African settings, may be more willing to respect and listen to young peoples' voices than is currently acknowledged, particularly in relation to a 'social good' that potentially impacts on all sectors of society irrespective of age. It is in this regard that global environmental movements could play a key role in advocating for greater attention to children's voices – both through providing supported social spaces in which youth can develop and rehearse compelling pro-environmental arguments, and through working with them as advocates and champions in persuading powerful adults to heed their voices and collaborate with them in [translating](#) their arguments into [policy and](#) practice.

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