

**KNOWLEDGE IS NOT ENOUGH: Reimagining
Environmental and Sustainability Education in the Caribbean
as Environmental Consciousness Raising**

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This is a theoretical-position paper that seeks to advance thinking on environmental and sustainability education (ESE) for a Caribbean context. A critical review of literature and situational analysis of the Caribbean context are used to argue for the adoption of an environmental consciousness raising model to ESE, as negative events become more and more visible in the region. The islands of the Caribbean are small land masses with small carrying capacities and unique ecosystems that are particularly vulnerable to environmental degradation. At the same time, they are also striving for economic development. Two models of ESE are presented: technical rational ESE and ESE as environmental consciousness raising. The author advocates for the relevance of the latter for the region by building on existing work in the area both regionally and internationally and drawing upon salient sociopolitical and cultural features inherent to the Caribbean context.

Introduction

In 2017, a category five hurricane, Maria, devastated the island of Dominica. In the wake of the storm's passing, media reports internationally were filled with images of the destruction wrought by the storm. Writing for *The Guardian*, reporter Janise Elie's description is vivid:

...in the dead of night, the category 5 storm bore down on the island and lashed it for hours. Torrential rain and 160mph gusts tore off roofs, smashed through walls, uprooted trees and lifted roads. Communication towers snapped in two, schools were flattened and electricity cut. Nothing was spared.

In the few short hours between sundown and sunrise, the 29-mile by 16-mile 'Nature Island' – which boasted dozens of waterfalls, rainforests, nine active volcanoes and 365 rivers – was reduced to rubble, lurching from tropical paradise with a burgeoning eco-tourism sector, to abject poverty and ruin in a single night. (Elie, 2017, para. 2)

In October 2018, another extreme weather phenomenon took place on the island of Trinidad. In the space of two days, the island

received a full month's worth of rain. This led to heavy flooding in substantial parts of the country, including agricultural areas, residential areas, and roadways (Baig, 2019). The United Nations Office for Coordination of Human Affairs (2018) estimated this event affected 80 percent of the island, that is 150,000 persons, and resulted in the disruption of civil life. Since then, local experts (for example, Office of Disaster Preparedness and Management, 2019) have continued to caution citizens that such events will become more commonplace in the future.

These are only two of the more visible negative environmental phenomena that have recently affected islands of the Caribbean, a region, which, for many, conjures up images of a pristine paradise with beautiful beaches, clean water and untrammelled nature. In reality, the Caribbean faces many environmental and sustainability problems including water pollution; land pollution; air pollution; coral reef destruction; coastal erosion; loss of biodiversity; unhealthy communities; crime and violence; and extreme weather events (Barker, McGregor, Rhiney & Edwards, 2016; Thomas-Hope, 2013). While the reasons for these problems are complex and often include natural phenomena, the contributions of human activities to their occurrence are being increasingly recognised. For example, the link between the incidence of extreme hurricanes like Maria and manmade global warming has been discussed (Taylor, Clarke, Centella et al., 2018). The 2018 flooding event in Trinidad has been explained as a combination of coeval manmade effects, such as, poor solid waste management, unregulated quarrying, and unprecedented heavy rainfall linked with global warming (Baig, 2019). The events highlighted above have sharpened the sense of urgency among Caribbean communities and the call for action to mitigate environmental and sustainability issues. Moreover, this has put pressure on governments across the region to strengthen legislation to curb environmental and societal degradation. In response, for example, regulations were passed to reduce Styrofoam (a non-biodegradable polymer) use in 2019, on a number of islands, including St. Vincent and The Grenadines, St. Lucia, Barbados and Trinidad and Tobago. While these efforts are commendable, education is another area that has increasingly been recognised as a valuable pillar for creating and maintaining healthy environments and communities (United Nations Educational, Scientific and Cultural Organization, 2005).

This paper seeks to advance thinking on environmental and sustainability education (ESE) for a Caribbean context. It is a theoretical-position paper in which the author uses a critical review of literature and situational analysis of the Caribbean context to argue for the adoption of

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an environmental consciousness raising model to ESE in the region. In order to arrive at this position a comprehensive review of papers about research, policy, theory and practice, spanning the life of the ESE movement (over the last sixty years) in the English-speaking World was conducted. This review focused on articles published in well-established peer reviewed academic journals that could be accessed from reputable digital databases like EBSCO, Google Scholar, Proquest and CERIS, and other papers collected by the author who has been an educator in the Caribbean and North America for the last twenty-five years, and an active researcher/author in the field of ESE for the last eleven years. A funnel approach was used to navigate the literature, that is, moving from a broad international context to a more focused regional context. Articles and papers were categorised and analysed for major trends. Finally, these major international trends were juxtaposed with the Caribbean context to come to the position argued for in the paper.

The paper is structured in the following way. Following this introduction, a description of the Caribbean context is provided, highlighting those characteristics salient to the provision of ESE in the region. Next, a critical analysis of relevant international discourses about ESE is provided. This leads to a nuanced discussion of two forms of ESE: technical-rational, which is the usual form in which ESE is enacted; and ESE as environmental consciousness raising, which represents a form of ESE more strongly aligned with creating healthy and sustainable communities and societies for all. The final section of the paper argues for the appropriateness of environmental consciousness raising for a Caribbean context and suggests a way forward in adopting it.

Before moving on I would like to alert the reader to two caveats regarding this paper. Firstly, there are a number of closely related terms that refer to the overarching idea of education for creating and maintaining healthy, life sustaining environments in the long term for all. These include education for sustainable development, environmental education, climate change education and sustainability education. Later in this paper, some history of the evolution of the term ESE is provided. However, from the outset, it is important for the reader to understand that the term environmental education has been entangled with the terms sustainability and sustainable development for the last three decades. While there are those who continue to argue for environmental education as a separate endeavor (for example, Jickling, 1994), there are a growing number of scholars who opt to subsume all the terms indicated above under the

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umbrella of ESE, in agreement with the idea that this is a way “to reference multiple traditions of environmental learning that happen at all levels of education” (Environmental and Sustainability Education in Teacher Education, 2019, p. 1). In this way of thinking the term environment means all of the physical world, human and non-human. ESE therefore takes into consideration all of the activities that impact the continued health and well-being of the Earth and its denizens. This is the position this paper takes. Secondly, the Caribbean is a large region in the Americas, comprising the islands of the Caribbean Sea and all the land masses surrounding it. The focus of this paper is the Caribbean islands, specifically the island chains known as the Greater and Lesser Antilles, traditionally called the West Indies.

The Caribbean Context

The Caribbean is a region located between North and South America and comprises the Caribbean Sea and the land masses bordering it. The focus of this paper is the West Indies which comprises the island chains that stretch over three thousand kilometres from the Bahamas in the north to Trinidad in the south. Joseph Schwab (2013) reminds us that curriculum development is a complex process impacted by a milieu of contextually specific factors. In keeping with this observation, certain factors are particularly relevant to the conceptualisation of ESE in the region that have to do with the unique geological and socio-political histories of these islands. Geologically, some of the islands are volcanic, others are raised coral structures and still others are fragments of continental land masses. This means that the islands are all small land masses, with limited resources, limited carrying capacities, and therefore particularly vulnerable to environmental degradation, especially the effects of climate change. At the same time variance in geological formation means that the islands are ecologically unique and diverse. Flora and fauna vary considerably across the islands. Further, being islands, isolation has led to the evolution of unique species on individual islands that would be found nowhere else in the world. For example, the Red-Necked Amazon and Imperial Amazon are two bird species found exclusively in Dominica. In this respect the Caribbean islands, like islands in other parts of the world are rafts of unique ecosystems of planetary ecological importance.

Other than geology, the islands have been shaped by a rich socio-political history which continues to impact everyday life and ongoing development of the region. Indigenous peoples, were the first inhabitants of the Caribbean islands. Available evidence suggests they lived simple,

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low impact lifestyles that had little adverse long-term effects on the geography and ecology of the region (Olson, 1974). Between the fifteenth and the nineteenth centuries, the West Indies became an active battleground for the French, English, Spanish, Portuguese and Dutch. In addition to being strategic points of entry to mainland America, the islands were valuable agricultural assets where sugar, coffee and tobacco were grown for a global market. The activities of these colonising Europeans had significant impacts on the ecology and geography of the islands. Large swaths of natural ecosystems were destroyed to make way for the living needs and economic activities of colonists. The islands were also settled by diverse groups of people as time went by, including Europeans, enslaved Africans, and Asian indentured labourers. Many of these peoples were brought into the region through slavery or induced migration practices of the colonial powers. In the mid-twentieth century, post World War 2, many of the Caribbean islands were granted political independence from their colonial owners and left on their own to develop their own societies.

Today, the Caribbean islands remain politically diverse and socially multicultural. The political structures built on the colonial past have continued to vary from island to island, so that the French West Indies, British West Indies and Spanish West Indies still exist in many ways. While there are associations between the islands through organisations like The Caribbean Community (CARICOM), each island remains essentially autonomous and governs its own internal affairs. Also, continuing from its colonial past, many islands remain culturally and ethnically diverse. Across the region spirituality and religion remain important (Taylor, 2001). On the islands, complex milieux of Christian, Muslim, Hindu, African and Aboriginal beliefs exist in relative harmony. In this way, the Caribbean islands are unique human societies, meeting grounds of various worldviews, made even more complex by its heritage of slavery, induced migration and a deep psychological darkness inherent to these historical events (Chan Tack, 2019).

At present the region is classified as developing (Schmid, Swartz & Zegarra, 2018). Increasingly, the islands have adopted a neoliberal capitalist model of development which emphasises economic development as the pathway to overall societal development. On many islands tourism and agriculture remain main sources of economic activity, but there is a discernible shift toward industrial and knowledge-based economies as follows from the pathway of development dictated by the

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experiences of developed countries internationally. Additionally, in the absence of the European colonial powers since the mid twentieth century, due in part to proximity, the United States of America has become an increasing source of influence in the region (Parry, Maingot & Sherlock, 1987). Also, because of proximity to North America, life on the islands is characterised by a certain amount of transience. Emigration to the global north is relatively common, and the islands are still used by many persons as a transit point on their journey to the developed world.

Caribbean countries have inherited education systems based on colonial models, and, while there have been reforms, there are competing social, political and economic interests at work. The difficulty of implementing authentic forms of ESE has been discussed by Stevenson (2007) who suggests that the structure and syntax of our educational systems are antithetical to ESE. Plans for ESE must work with these realities if they are to be effective.

Relevant International Discourses about ESE

ESE has its roots in the 1960s with the growing vocalisation from scholars and concerned groups that human-caused environmental changes were having devastating effects on quality of life on our planet (Carson, 1962; Stapp, 1969). These concerns led to the creation of the Belgrade Charter (United Nations Environment Program (UNEP), 1975) which was later ratified as the Tbilisi Declaration (UNEP, 1977). These United Nations documents formally recognised manmade environmental degradation as an urgent issue, identified environmental education as a worldwide priority, and set out a brief but comprehensive set of defining goals and objectives for it. The early goal of environmental education was:

To develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions to current problems, and the prevention of new ones. (UNEP, 1975, p. 3)

The Belgrade Charter and Tbilisi Declaration set in motion a long program that led to the Decade of Education for Sustainable Development (DESD) 2005-2015 and are reflected today in the international plan to implement the Sustainable Development Goals by 2030 (United Nations, n.d.). However, it was clear that the newly fledged field would lack unity. The broadness of the defining goal quoted above, along with the further mandate in the Belgrade Charter (that “each nation, according to its

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culture, clarify for itself the meaning of basic concepts [such] as ‘quality of life’ and ‘human happiness’ in the context of total environment” (UNEP, 1975, p. 3), led to groups worldwide interpreting the stated goals and objectives in different ways as they began working to create practical programs of environmental education internationally. Questions that led to different directions included: What should be the balance between manmade and natural aspects of the environment? What knowledge, values and attitudes should environmental education emphasise? To what extent should programs foster activism and citizen action? What is a good balance between economic growth and environmental protection? The multiplicity of answers to questions like these even led some, like Disinger (1985) to speculate about the validity of environmental education as one field.

In response to these types of criticisms, early champions of the movement wrote articles like “Yes EE does have a definition” (Hungerford, Peyton, & Wilke, 1983) and “The myths of environmental education” (Hungerford, 1975) in a bid to bring about order and encourage disciplinary progress. Despite these efforts, criticism of the United Nations interpretation of environmental education only increased following the adoption of the Brundtland Report: *Our Common Future* (World Commission on Environment and Development, 1987) at the Earth Summit staged in Rio de Janeiro, Brazil in 1992. This report was pivotal in establishing the concept of sustainable development, which put a particular spin on the economic and social dimensions of environmentalism, and later supplanted the term environmental education with the name education for sustainable development in later United Nations’ work in the area. In the years that followed a number of scathing criticisms of education for sustainable development emerged. For example, Jickling (1994) dismissed education for sustainable development as an oxymoron by pointing out that the terms sustainable and development precluded each other; while Sauv  , Berryman and Brunelle (2007) brought forward arguments to show how the economic agenda of sustainable development is at odds with health and equity for all. This, along with other philosophical debates that the traditional forms and purposes of schooling are at odds with the intent and purposes of environmental education (Stevenson, 2007), led to a splintering of the field. While some groups wholeheartedly took up the ideas of education for sustainable development, others chose different directions, based, for

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example, on post-structural (Bowers, 2009; Gruenewald, 2004; Kahn, 2008) and feminist ideologies (Davies, 2013; Russell, 2005).

Today, more than ever, ESE is a complex field with many voices. In an attempt to make sense of it all, several authors at various times have conducted mapping or classification exercises. One of the more cited classifications, Sauv   (2005) suggested, at the time of her writing, that there were fifteen currents at work within ESE. Sauv  's (2005) currents were: naturalist, conservationist/resourcist, problem solving, systemic, scientific, humanist-mesological, value-centred, holistic, bioregionalist, praxic, socially critical, ethnographic, eco-education and sustainable development/sustainability currents. She qualified her classification by using the metaphor of ocean currents in order to capture the fluidity of the field and emphasise that while there are different conceptualisations of ESE, these are not clearly separate entities but overlap, merge and depart in complex ways. Sauv  's classification, while useful, is inadequate to guide the field today, since in formulating criteria to classify currents, the author seemed to have assigned more importance to the term environment and less to the educational aspect of ESE.

The author herself admits this in a recent paper (Sauv  , 2019) where she reconsiders the factors that need to be taken into consideration for ESE to become more effective and inclusive. In response to this criticism, it has been suggested (Nazir & Pedretti, 2018), that there are two pivotal criteria which can be used to classify manifestations of ESE more broadly. These have to do with underlying understandings of the human-nature dynamic and the nature of teaching and learning. Moving forward in this paper, these two criteria are used to show that while there are indeed many currents at work in ESE, there is a dominant model (the technical-rational model) through which ESE is practiced internationally. This dominant model is evaluated and used as a counterpoise to present ESE as environmental consciousness raising as a viable alternative to it.

Technical-Rational ESE

My critique of technical-rational ESE is that the human-nature dynamic is regarded as anthropocentric and hierarchical. Humans are considered the most valuable aspects of the world, and all else exists for their benefit. The goal of ESE in this formulation is humans managing or saving the environment to ensure the survival and continued prosperity of humankind. This assumes that people are highly cognitive beings, with patterns of behavior mainly determined by rational thought. It also suggests that emotions and spiritual aspects of persons are little recognised or, at best, presumed to be ruled by thinking. The assumption is that when

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we know better, we do better. Such ideas influence what is regarded as education - seen as a mostly mental process or the cognitive development of people. Hence technical-rational ESE uses cognitive strategies which emphasise knowledge about ecosystems, processes, and their management. It seeks to bring the facts about environmental and sustainability issues/topics to the surface. The approach also often involves prescribing certain logical reactions for mitigating degradation of ecosystems; for example, bicycling, recycling, and purchasing carbon credits. Recent formulations of this approach have focused on getting people to think deeply about sustainability facts and/or their responses to them (for example, Kahn, 2008). However, I would like to point out the assumption in this variation, that knowing about ecosystems in a deeply rational way will lead to an appropriate feeling of concern for it, which will in turn act as a motivator for appropriate environmental and sustainability actions.

The following is a typical example of this model that many elementary and secondary educators should recognise. In teaching about plastic pollution, a teacher may begin by presenting students with a number of facts about single use plastic bags. For example:

- a trillion plastic bags are used around the world each year;
- only 3 percent of these are recycled;
- the rest ends up as litter in landfills and waterways;
- it takes five hundred years for plastic to break down in a landfill;
- millions of birds, fish and turtles die because they mistake plastic for food that fills their stomachs with toxic waste;
- and toxic chemicals are transferred up the food chain to bigger fish and humans.

Depending on the classroom, students may be afforded various opportunities to consider these facts, perhaps through viewing multimedia clips or working with statistics. The teacher will then lead students either directly or by guided discussion to an appropriate response for addressing this problem; for example, commitment to utilising more reusable bags. The educational sequence is clear. Having been exposed to knowledge about plastic waste and the solution for it, students are then expected to adopt the new behavior moving forward in their daily lives, since they have been taught about plastic pollution.

A survey of international policies and programs across the years, reveals the dominance of the technical-rational approach to ESE. Hungerford, Peyton and Wilke (1980), influential scholars in the early environmental education movement, clearly favored this approach to ESE. In advancing their agenda for ESE, they identified basic ecological principles as the knowledge components of ESE and created a list of behaviors which they called the new environmental paradigm for educators to include in developing ESE programs. A look at many environmental science programs, as recorded in popular course textbooks across the years, reflects this formulation, for example, Chiras, (2010). Victor Nolet (2016), a current champion of the sustainability education movement, clearly demonstrates a partiality for a technical rational formulation of ESE. According to Nolet (2016), learning for sustainability “helps students to see meaningful patterns of information, transfer knowledge and abilities to new situations and successfully engage a variety of thinking processes” (p. 11). His use of the terms “information” and “thinking processes,” along with his equating of education with knowledge transfer in his definition of ESE, demonstrates this.

Despite its dominance, a growing body of evidence has accumulated suggesting that the technical-rational approach to ESE is flawed. Kollmuss and Agyeman (2002) state that something is wrong with this dominant model for ESE, since rational knowledge does not always lead to care, nor does it lead to action. A gap therefore exists, which educators need to pay attention to, if they are serious about creating effective programs for environmental and sustainability learning. Kollmuss and Agyeman (2002) further suggest that the gap has to do with emotions, experiences and indigenous cultural knowledge that mainstream ESE efforts often ignore. Bowers (2017) provides additional clarification about the nature of this gap by carefully revealing how many epistemological and ontological underpinnings of mainstream ESE efforts are based on unstated western enlightenment ideologies such as political liberalism and laissez-faire economics. He questions the validity of these for global learners.

Many studies done over the years have also questioned the effectiveness of technical-rational programs in bringing about real change in people’s long-term behavior or reducing environmental and sustainability problems, for example, Dillon (2003) and Rickinson (2001). A more recent paper (Blum, Nazir, Breiting, Goh, et al, 2013), resulting from an international collaboration analysing ESE efforts in Singapore, Canada, Denmark and UK states, “... none of the research teams from the four nations were able to give any definitive statement about the successful

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enactment of ESD and CCE [education for sustainable development and climate change education] at the classroom level” (p. 213). Even more discouraging is a report by Tan and Pedretti (2009) about their work in Ontario, Canada, which speculates that rather than increasing concern for ecosystems, mainstream ESE programs seem particularly inadequate and may even be making students apathetic towards environmental and sustainability issues.

ESE as Environmental Consciousness Raising

In response to the troubling criticisms of the technical-rational model for ESE summarised above, a growing number of scholars such as Bai & Romanycia (2013) and Palmer (1998), have suggested that a different approach is needed. They suggest that a human-nature dynamic that is essentially ecocentric and equitable, characterised by humans living with the natural world in harmony, may be more effective in bringing about long-term environmental and sustainability learning. Reflecting these principles, Noel Gough (1987) has suggested that ESE should focus on educating people to live in ecosystems, rather than living in a compartmentalised way. These scholars, such as Wals & Dillon (2013), also suggest that humans are complex, existential beings of intentional consciousness, and educating them is equally complex. For these scholars, education is a slow process of transforming people, involving multiple, personally tailored experiences to bring about deep changes of consciousness (O’Sullivan, 2003). Some scholars, for example, Greenwood (2013) and Davies (2013) have explicitly stated that in addition to cognitive aspects, ESE needs to include significant embodied, emotional, and spiritual components. Fien (1993) in acknowledging that knowledge is not enough, included experiences in the living world as an essential component of his ESE efforts. Jensen and Schnack (1996) have long advocated that students need experiences and practice in how to actively participate in mitigating and addressing environmental and sustainability issues.

Putting these ideas together, Nazir and Pedretti (2016; 2018) suggest that ESE is about environmental consciousness raising. They define consciousness raising as an expansion of the self or realisation that enables seeing and being in ways beyond what are usually supposed possible in traditional programs. Applied to ESE, this means making ecocentrism facets of body, mind, and spirit so as to support the long-term

sustainable well-being of the planet in all its fullness. It requires people to change their ways of being; to give equal consideration to the intrinsic value of the more than human world, and act seamlessly from the notion that all life has a right to exist and flourish just as much as human lives. Environmental consciousness raising also requires a shift from notions of managing the environment by adopting proper behaviors, toward actively living to sustain the essential relationships that exist amongst people and environments.

Nazir and Pedretti (2016; 2018) posit three structures for environmental consciousness raising: *connecting* people to the environment; encouraging compassionate *care* for the environment; and building *agency* for the environment. Connecting to the environment implies the formation of personal, tangible bonds with the world. More than knowing about the living world it is about acquiring a sense of peace with the ecosystems that we are intrinsically a part of. Connecting to the environment requires multiple experiences that are immersive and provide multidimensional (physical, cognitive, emotional, and spiritual) opportunities which allow individuals to interrogate and transform their relationship with the natural world. Care means feeling for the environment as one would for a loved other. It is more than concern or the calculated valuation of material, economic or political factors. Rather, this type of care ascribes a significant non-cognitive component to compassion, or an innate compulsion that originates from a place of emotion and spirit. It is based on love and lovingkindness as described in the great wisdom traditions, and secular theories of an ethic of care, like Nel Noddings' (2002) work on the topic. Such care must be explicitly fostered through modelling by educators and active practice by students. Agency is about moving students from wanting and thinking about helping the environment, to feeling empowered to do so through autonomous compulsion rather than prescribed actions. Such agency requires building the motivation and skills within students to act or not act in ways they personally choose. This type of agency can be fostered through involvement in authentic projects where students work within the living world in healthy, life sustaining ways.

Some indications of what the pedagogy for environmental conscious raising entails have already been presented above. At its core, it requires experiences with others in the world, that are deeply engaging and allow people to build connections, care and agency with and for all human and non-human life on our planet. Nazir and Pedretti (2016) also suggest three other characteristics of pedagogy for environmental consciousness raising: authenticity, serendipity, and multidimensionality. Authentic

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learning experiences are direct, personal and occur in the real world as opposed to vicarious or abstract experiences. Serendipity refers to unplanned fortuitous occurrences which educators need to be alert to, that may allow learners to experience the wonders of the world around them. Multidimensional pedagogy provides opportunities to engage the senses, emotion, mind and spirit, and are crucial for personal transformation. Several recent papers have been published that suggest the utility and fruitfulness of environmental consciousness raising as an approach to ESE, for example, Giusti, Svane, Raymond and Beery (2018) and Gray and Colucci-Gray (2019).

**Advocating for ESE as Environmental Consciousness Raising
in the Caribbean**

Across the Caribbean, the intrinsic value of local ecosystems and susceptibility to environmental and societal degradation has been acknowledged (Thomas-Hope, 1996). Despite this, initiatives for environmental and sustainability education are relatively new (Maharaj-Sharma, 2015), and only sporadically developed in the region (Collins-Figueroa, Phillips, Foster-Allen & Falloon, 2007). At the turn of the millennium, a project was conducted that sought to map the state of sustainable development policies. The project revealed that most islands had a sustainable development policy in place, and most of these named education as an important strategy for mitigating environmental and societal degradation (Bedasse, 2002). Since then, guiding curriculum documents used by school systems have been revised to include some provision of ESE during school years. For example, the latest version of the biology curriculum used at the final years of high school on a number of islands, in its introduction, links biological knowledge to “...the foundation for understanding the opportunities for promoting the well-being of humans and other living organisms in the environment” (Caribbean Examinations Council (CXC), 2018, p. 4). Since 2004, CXC has also developed and offered Environmental Science as a curriculum offering for advanced-level students (Caribbean Examinations Council, 2018a).

Exactly how these curriculum guidelines are being translated into practice, is a more difficult question to answer, since few studies exist on the practice and impacts of ESE in the region. These few studies, for

example, Maharaj-Sharma (2010, 2015), seem to suggest that, as with the international context, the technical rational model is the prevalent form of ESE practiced by educators regionally. Furthermore, these programs are having limited impacts on local communities and societies. Maharaj-Sharma (2010) conducted a study of young people's views on conservation derived from their school experiences. She found that while there was a general disapproval of human activities that threatened the environment, students indicated a lack of willingness to actively work to mitigate environmental threats. In other words, students suggested that their formal education emphasised knowledge about the environment, but knowing about environmental issues did not translate into long-term pro-environmental changes in behavior or practical transformation for them.

In addition to these concerning findings, there are strong indications in the local literature that the limitations of a technical rational approach have been recognised and something more is needed. Based on a content analysis of Jamaican curricula, Ferguson (2008) noted that depictions of nature in these curricula sometimes alluded to nature's divine dimensions thereby providing opportunities for engagement of students' alternative views of the world. George and Glasgow (2002), based on a study of a rural community in Trinidad, noted that villagers' working knowledge contained significant non-westernised indigenous perspectives. Both sets of authors concluded that cultural aspects are deeply entwined with Caribbean peoples' existing epistemologies and ways of learning, and that these need to be taken into consideration in developing effective programs of ESE in the Caribbean. Collins-Figueroa (2007), speaking from her significant experiences working in a Jamaican context, advocates for a holistic approach to ESE in the Caribbean. By this she means, among other things, including elements that take into account alternative epistemologies and experiential aspects of the educative process. Kalloo (2014) provides evidence of the fruitfulness of putting these ideas into practice. She reported moderate positive outcomes of a local ESE project aimed at promoting students' environmental learning by providing authentic inquiry experiences with birdwatching. Physical experience and positive emotional engagement emerged as major themes for explaining the successes of the project.

Based on the assertion that traditional approaches are having limited impacts, and building on the suggestions of local scholars that something more is needed, this paper posits that environmental consciousness raising can be a productive approach in the Caribbean context. There are several reasons supporting this position. Firstly, it represents a *serious* response to ESE as required by small island states that

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are committed to development within the limits of sustainability and recognise their ecological value and vulnerability to environmental degradation. At its heart environmental consciousness raising considers biophysical and economic facets by building from a broad definition of environment that emphasises care for all aspects of the human and more than human world. In other words, well-being must be for all, not for the benefit of one species or group at the expense of other(s).

Secondly, environmental consciousness raising as discussed in this paper implies a more profound approach to ESE. Environmental consciousness raising as presented above is different from the usual form of ESE in several important ways. It extends the term environment to intentionally encompass human and non-human aspects of environment. It deliberately identifies connecting, care and agency as underlying structures for ESE, and provides deeper explications of what these mean in practical terms. Connecting to environments gives expression to the transformative aspect of ESE. Rather than leaving care and agency to chance, environmental consciousness raising explicitly recommends building them into programs. Pedagogical strategies for realising these structures include direct modelling and deeply engaging experiences in the living world.

Thirdly, ESE as environmental consciousness raising is a more contextually relevant approach than currently existing approaches. It is rooted in different epistemological bases, ones that allow for multidimensional worldviews inherent in the Caribbean identity, which become parts of the educative process. The structures of connection, care, and agency provide opportunities for the expression of cognitive, emotional and kinesthetic aspects of being and learning. The notion of building connections provides space for indigenous and multireligious perspectives local people hold, that can supplement canonised western knowledge about living within healthy ecosystems. This means that in addition to scientific knowledge about the natural world, understanding can be deepened by including the various spiritual beliefs of people. Additionally, the formulation of ESE as environmental consciousness raising explicitly provides for the teaching of care and agency in programs. These aspects are only weakly developed in traditional programs and need to be directly strengthened in the Caribbean, where people have long struggled with the negative legacies of violence and helplessness born out of colonialism. Pedagogies that directly teach lovingkindness and

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encourage empowerment are a necessary part of a consciousness raising approach.

But what might ESE as environmental consciousness- raising look like in the Caribbean in a practical way? While its main objective is to transform and empower individuals to make healthy choices and mitigate current environmental and sustainability problems, (as the reader has probably already realised,) there is no exact formula for it. This state of nascency means that there are strong possibilities for something authentic and relevant to develop in local Caribbean contexts. While this is a point of optimism, a word of pragmatic caution is necessary here. It is well acknowledged by the academic community that ESE is stuck in the theory-practice gap; that is, a situation in which there are many well developed theoretical positions, but where there is also a lack of transition into successful practical programs (Dillon, 2003; Rickinson, 2001). Stevenson (2007) argues that radical transformation of educational systems, and by extension educational policies are necessary if we are to move from theory to successful practice in this area. As such, while ESE as environmental consciousness raising as presented in this paper may be an intriguing idea, the point needs to be emphasised that it needs to be couched within a deeper systemic change in education, if it is to have a significant impact in the region. Some of the types of changes required for example, opportunities for contextually based, multidimensional, care-based and experiential learning are indicated earlier in the article are not yet common education practices within existing formal education structures. Bringing about these changes will require much careful thought and long-term, sustained action.

One immediate way forward that the author intends to pursue is to enact comprehensive research efforts aimed at:

- Recording local indigenous wisdom about living in environments;
- Critically analysing current efforts of ESE with a view to transforming them into environmental consciousness programs;
- Developing new programs of ESE that directly enact the structures of environmental consciousness raising and deepen our practice of them through action.

Conclusion

If ESE is to advance on the islands, we need to re-vision ESE to prepare its peoples to be active agents in mitigating present environmental issues

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and sustaining healthy environments for all. Thomas-Hope (1996) clearly reminds us that in this venture knowledge is not enough:

Bombarding people with more and more information about the nature of the environmental crisis and the numerous cases of doom and gloom is unlikely to change the situation. Certainly, it has not forced people to make the kind of hard decisions about global and national economic systems or personal life-styles that would tackle the environmental dilemmas. (p. 89)

Responding to this powerful insight, conceptualising ESE as environmental consciousness raising can prove a productive paradigm, one with which Caribbean environmental educators can move forward. Teasing out the structures of connection, care and agency into practical education programs can be a part of the way forward to restoring, creating, and sustaining healthy spaces for all on these islands.

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