

The JOURNAL of
EDUCATION
and **HUMANITIES**

Vol. 3, 2020

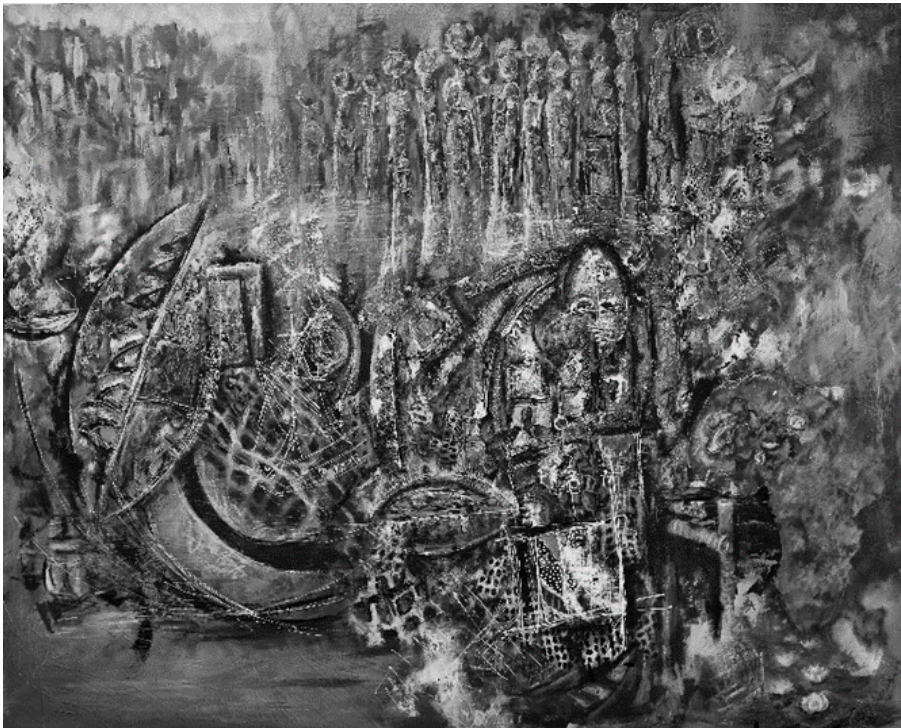


The Journal of Education and Humanities

Faculty of Education and Humanities

University of Guyana

Vol. 3, 2020



Front Cover Artwork:

Elodie Cage-Smith.

Ancestors' Journey, 2018.

Mixed Media, 48" x 59".

ISSN: 2518-2323

The Journal of Education and Humanities

Volume 3

2020

The Journal of Education and Humanities is published by the Faculty of Education and Humanities, University of Guyana. All correspondences should be sent to:

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University of Guyana, Turkeyen**

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The Journal of Education and Humanities

Faculty of Education and Humanities
University of Guyana

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THE JOURNAL OF EDUCATION AND HUMANITIES

Dean's Foreword

The Journal of Education and Humanities, in a number of ways, is not unlike such more established, venerable institutions as the annual West Indian Literature Conference and the *Journal of West Indian Literature (JWIL)*, which were founded with a particular mandate¹. At the time of their establishment, it was found necessary for the Literature Departments at the University of the West Indies (UWI) to prompt the generation of criticism of West Indian literature by Caribbean-based scholars, and while one provided a platform and a stimulus for new work, the other sought to provide an outlet for it, in addition, a reinforced codifier of identity in the study of West Indian Literature (Mc Watt, 1986)². Both of these had already been preceded by Edward Baugh's pioneering volume³ that sought to make available in one place the scattered pieces of criticism by Caribbean authors about the fast-rising Caribbean literature that had been previously defined and critiqued by foreign scholars and foreign perspectives.

The Journal of Education and Humanities (JEH) sets itself the task of achieving for the Faculty of Education and Humanities (FEH) at the University of Guyana (UG) what those noble institutions have done for Caribbean scholarship. It creates a refereed journal of international reputation, aided by a distinguished panel of editors and reviewers in order to assist in the generation of research at UG and provide another outlet immediately available to the local researchers.

The *JEH* endeavours to play a leading role in defining the academic pursuits in a number of disciplines in education and the humanities, particularly, for example, critical areas in the field of education in Guyana. The UG has been engaged in action research for decades, and still attempts today through these investigations, to solve the difficulties afflicting schools and the education

system. Three articles in this volume are of that type. They set the tone for the way this journal aims to shape the local education system in a fashion that is helpful in the identification of the more urgent national problems.

Guyanese literature has consistently been at the core of West Indian literature's advance since *The Windrush*⁴, but has since developed an identity of its own. The Guyana Prize for Literature brought about a multiplier effect in this growth of a literature that has not only diversified but has earned an exalted place in world writing. The *JEH* has a role in the generation of new critical attention to this literature. It is expected to increase the volumes of this new criticism and its various approaches which will become more accessible to the world. The sole article in literature published in this volume is an excellent demonstration of such an approach.

There is also one article that brings together concerns in language and in education. Similarly, it illustrates a major direction taken by linguistics research at UG. This paper is another sortie in the name of language rights against a reluctant education system, reflecting the role of a language department in a national university in support of crafting a progressive language policy.

The FEH at UG has an outstanding history of research in Guyanese history, and has developed an enviable collection of primary research through its Masters in History programme from the 1970s to the 1990s. The holdings in UG's Caribbean Reference Library⁵ have no equal anywhere in the Caribbean, and the *JEH* is poised to bring about a Renaissance in Guyanese historical research and historiography.

Another cutting edge advancement evident in this issue of the *JEH* is its treatment of the fine arts which extends the frontiers of academic treatment. This is another area of academic study in the FEH. The FEH has some of the most acclaimed Guyanese artists among its faculty, as represented in a selection of artwork from the most recent member of the Art department.

Both gratitude and congratulations are owed to the editors of *The Journal of Education and Humanities*, Volume 3, Alim Hosein, Tamirand Nnena De Lisser, Charmaine Bissessar and Nequesha Dalrymple, in whom the FEH places

trust and confidence for keeping up the standards to which the Journal subscribes.

Al Creighton

¹See Evelyn O’Callaghan, statement on *JWIL* and on the West Indian Literature Conference, in “About *JWIL*”, 2020.

²See Mark McWatt, Founding Editor of *JWIL*, Introduction to the First Issue, 1986.

³Edward Baugh, *Critics on Caribbean Literature*, 1978

⁴The British ship, HMT Empire Windrush that took the largest wave of post-war West Indian migrants on a voyage from Jamaica to London in 1948. This ship afterwards became archetypally associated with West Indian immigration and the journey into “Exile” of several West Indian writers who settled in Britain, there considerably developing West Indian Literature.

⁵Much of this is primary material from field work done in the highly reputable programme, the Masters in Guyanese and West Indian History at UG from the 1970s to the 1990s, including such publications as the History Gazette. Prominent historians leading this included Winston McGowan, Sister Mary Noel Menezes, Basdeo Mangru and outstanding graduates who joined the staff, including James Rose, Tota Mangar, Nigel Gravesande.

School Culture and its Implications for Teaching and Learning:

A Case Study of a Secondary School in Guyana

Jill Medford¹

Abstract

This study examines the culture of a traditional secondary school in Guyana. The study examines the elements of the school's culture, the efforts to maintain the traditional culture, and ways in which the principal, teachers, students and their parents influence, and are influenced by, the culture of the school. More importantly, the study demonstrates the unique cultural context of the school and the environment in which teaching and learning take place. The study highlights the peculiarities of the culture and explains why the members were doing things in a certain manner. Interviews and observations were used to collect data from students, teachers and principals. Data were also sourced from Ministry of Education documents and school records. The qualitative case study design guided the conduct of the study.

1 Introduction

This study arose out of a recognition that the aspect of school culture has been ignored by local policy makers and even by some school administrators in their efforts to reform schools. The important role of school culture is receiving much attention, and has been for a long time, in the more developed and industrialized countries (Prosser, 1999), but in Guyana, and certainly in the rest of the Caribbean, emphasis on this aspect of school reform is sadly lacking. The absence of emphasis on school culture is related to the paucity of relevant studies that can be used for guiding education policy makers.

Research on school improvement has shown that school culture is an important factor that influences student achievement (Kruger, et al. 2007; Maslowski, 2001). Moreover, studies have indicated that a focus on creating and sustaining a positive school culture is vital to any efforts aimed at improving teaching and learning (Hargreaves 1995; Stoll & Fink, 1996; and Fullan, 2001; Maslowski, 2001).

Improving schools and students' performance is a definite concern of the Government of Guyana. This concern is more pronounced at the secondary school level where issues relating to poor academic performance, violence and aggression are prevalent. However, the strategies undertaken in regard to these problems seem not to be producing the desired results. For example, several strategies aimed at increasing learning outcomes and addressing some of the other internal problems at schools throughout the nation have been implemented in the last decade. Among these strategies are:

- (a) Plans to improve teacher education, based on the premise that enhancement of teaching skills would ultimately lead to improvement in students' performance.
- (b) Plans to have more trained Guidance Counsellors at schools as a solution to the problem of indiscipline.

(Education Sector Plan for Guyana, 2014 - 2018, Ministry of Education, 2013).

This research aims to bring about awareness of the importance of school culture, particularly to show how an emphasis on building and sustaining positive school culture impacts on the teaching and learning process. The research focuses specifically on one secondary school and highlights the cultural context in which it operates.

The following questions guided this research:

1. What are those elements of the school's culture that students are expected to learn?

2. What is the process through which students come to learn the culture of the school?

2 Review of the Literature

2.1 How School Culture is Defined

There are many definitions of school culture. Deal and Peterson (1999) define school culture as a powerful force that guides behaviour, something that ‘parents, teachers, principals and students have always sensed as special, yet undefined about their schools’ (p.2). For Deal and Peterson (1999) school culture is manifested in ‘complex webs of traditions and rituals that have been built up over time as teachers, students, parents and administrators work together and deal with crises and accomplishments’. They further point out that the cultural patterns of a school are ‘highly enduring, have a powerful impact on performance, and shape the ways people think, act and feel’ (p.4). Similarly, Barth (2001) sees school culture as a moral code that influences behavior. Maslowski (2001), while also pointing to the influence of school culture, has highlighted the concept in terms of its components by stating that the culture consists of ‘the basic assumptions, norms and values and cultural artefacts of a school that are shared by school members, which influence their functioning at the school’.

Lee-Piggott (2017) points to commonalities that exist in the various definitions of culture and concludes that:

Culture appears to be a shared phenomenon that is first created and learnt and protected (that) involves an intricate mix of beliefs, values, meanings and assumptions which are manifested in an array of symbolic representations, such as ceremonies, artefacts and relationships. Culture is also a strong determinant of individual and group norms, that is, their attitudes, behaviours and actions.

(p. 200).

Bolman and Deal (1991) see school culture as both a product and a process. These writers explain that as a product, culture ‘embodies the accumulated vision of previous members of the organization’ - those heroes and heroines who have contributed in significant ways to the image of the school and therefore serve as ‘exemplars of the core values’ of the culture. Further, culture as a process is seen as continually being renewed and recreated as new members are taught the ‘old ways and eventually become teachers themselves’, engaged in the process of transmitting the culture to others (p. 250). This suggests that while the participants in schools are involved in shaping the culture, they are also shaped by the culture in which they operate.

2.2 The Culture Climate Debate

The literature has pointed to the ‘overlapping’ (Hoy *et al.* 2006) and sometimes interchangeable use (Glover and Coleman, 2005, Van Houtte and Van Maele, 2011) of the terms ‘culture’ and ‘climate’ when referring to the human environment of the school (Cox-Story, 2010). For example, Schein (1985, 1992) sees ‘climate’ as a manifestation of culture and in this sense, both ‘culture’ and ‘climate’ are used to capture the ‘subtle spirit’ of a school. The term *climate*, along with *ethos*, has been used in the past to focus on relationships in organizations (Glover and Coleman, 2005; Hoy, et al 1991) but *school culture*, which draws heavily on organizational culture in the corporate workplace, has now entered the vocabulary of educators (Stolp and Smith, 1995). Lee-Piggott (2017) while pointing out the need for consistency in the use of these terms, noted that ‘ethos, like climate, are only surface manifestations of the of the much deeper organizational characteristic – culture, which is the most powerful, complex and taken-for granted concept in education’ (p. 199).

2.3 Elements of School Culture

Cultural anthropologist, Geertz (1973) suggested that the way to study a culture is by isolating its elements, specifying the internal relationships among those elements, then characterizing the whole system in some general way. This

suggestion was used by Colley (1999) who looked at the elements of values, beliefs, norms, assumptions, rituals, stories and artefacts in her study of Castle Elementary School. In Colley's study, her intention was to identify specific cultural elements of the school that would provide information about its identity and functioning. Geertz's ideas were also supported by Deal and Peterson (1999) who pointed to some key elements of school culture in their study of Granada Primary School in the high desert of Northern Arizona. The elements looked at by Deal and Peterson were the same as those looked at by Colley (1999).

Schein's (1985, 1992, 2004) classification of cultural levels which are used to explain the elements of an organization's culture has been applied to the study of school culture (Deal and Peterson, 1999; Colley 1999, Lee-Piggott, 2017). Schein's classification consists of three levels that differ regarding their visibility within schools and their consciousness among teaching staff. The three levels are artefacts, values, and basic underlying assumptions.

At the height of Schein's classification levels are artefacts. Artefacts represent the most visible and tangible level of culture and include the visible products of the group, such as the architecture of its physical environment; its language; its technology and products; its artistic creations; its style, as embodied in clothing, manners of address, emotional displays, and myths and stories told about the organization; its published lists of values; its observable rituals and ceremonies; and so on (Schein, 2004, p. 26).

Artefacts may be classified as either verbal or behavioral. Verbal artefacts are said to include myths which are often centered on actions or decisions taken by heroes and heroines of the school. Heroes and heroines are people who 'represent the articulation of past events that are seen as important for members of the school, people who represent certain individual characteristics that reflect what members of the school value, and they serve as role models for the students' (Maslowski, 2001). Behavioral artefacts, on the other hand, consist of customs, rituals and procedures that are manifested in the ceremonies, rituals and other symbolic practices of the school. In the context of

school culture, verbal and behavioral artefacts are preserved through a tradition of rituals and ceremonies (Deal and Peterson, 1992; Colley, 1999; Maslowski, 2001).

The second of Schein's cultural levels consists of espoused values: what has been described as good, right or desirable; what is considered important to pursue or worth striving for in school. Values are often translated into norms for behavior. Espoused values may be expressed in the school's vision, mission and motto (Lee-Piggott, 2017).

The underlying level in Schein's classification system consists of basic assumptions - what he calls 'non-negotiable values'. Assumptions are the unconscious, taken-for-granted beliefs, perceptions, thoughts and feelings – the ultimate source of values and actions (Schein, 1992).

Schein's 3-level theory of culture offers an iterative approach to understanding how culture operates in schools. The theory shows that culture can be analyzed at several levels, each emphasizing the degree to which the cultural phenomenon is visible - that is, from the very tangible overt manifestation to the deeply embedded, unconscious basic assumptions (Schein, 2004, p. 25). These factors are the basis upon which Schein's theory was selected as the theoretical lens used in this research of school culture.

2.3 Types of School Culture

Several types of school culture have been identified in the literature. For example, Fullan and Hargreaves (1996) identified the individualistic and collaborative cultures. Individualistic cultures are marked by the presence of teachers working in isolation: they are professionally estranged from each other. On the other hand, collaborative cultures are marked by the presence of teachers working together as collaborators subscribing to a 'shared vision, shared language and mechanism for problem-solving' (Colley, 1999). Deal and Peterson (1999) make a distinction between toxic and positive (professional) school culture. The toxic culture is one that supports mediocrity, inertia, and

apathy. The desire for innovation and change or improvement is lacking in this type of culture. Moreover, in toxic cultures, teachers believe that students cannot learn and they do not feel they can do much about it. On the other hand, in schools with a positive and professional culture, one is likely to find improvement efforts and a set of norms, values and beliefs that reinforce a strong educational mission (p. 8).

2.4 The School Community

School principals play an important role in shaping the culture and influencing the teaching and learning process (Fullan, 2001; Fullan and Hargreaves, 1996; Sergiovanni, 2001; Stoll and Fink, 1996; MacNeil and Maclin, 2005), but their task is a shared one that necessitates the involvement of other members of the school community. Principals are expected to foster an atmosphere that helps teachers, students and parents know where they fit in and how they can work as a community to support teaching and learning. The important role of all stakeholders in the school community is summarized by Novak (2008) who noted that it is the principals who ‘communicate core values in their everyday work. Teachers reinforce values in their actions and words. Parents bolster spirit when they visit schools, participate in governance, and celebrate successes’ (Novak, 2008, p. 58).

3 Methodology

This study utilized the case study design, one of three types of ethnographic designs identified by Creswell (2012). Ethnographic designs are qualitative research procedures for describing, analyzing and interpreting a culture-sharing group’s shared patterns of behavior, beliefs and language that develop over time (Creswell, 2012. p. 462). In this study, the entire school selected for the study is regarded as a culture-sharing group.

3.1 Participants

The school at the center of this study has a population of 740 students and 32 teachers (13 males and 19 females). Purposeful sampling was used to select participants for this study. Fourteen persons representing the school in various aspects were selected for the study:

- Six Grade 9 students: three boys and three girls (average age of 14 years).
- One senior student, aged 16 years, and one past student, aged 28 (this individual did not graduate due to migration but maintained a close contact with the school while residing and studying abroad).
- Three teachers - one female and two males - two of whom were students of the school. One of these teachers served as a key informant for the study.
- The current principal and two former principals.

3.2 Methods

A multi-methods approach allowed for triangulation of data and validity of findings (Yin 2003). Data collection was done over a period of fifteen weeks, during the period of mid-March to August 2016.

Observation - A total of 50 hours was spent observing the school members during teaching and non-teaching sessions. School setting and artefacts were also observed during this time by means of unstructured observation.

Interviews - The teachers, principal and past principals of the school were interviewed individually using semi-structured schedules. Except in the case of the past principals, all interviews were conducted at the school during the respondents' non-teaching periods. Each interview lasted approximately 40 minutes. One focus group interview was held with the Grade 9 students. The interview took place during the students' lunch break and lasted 35 minutes.

Field notes and document search – field notes were recorded during and after periods of observation. These notes related to observed activities and events, as well as interactions between members of the school. The school's

magazine, its Facebook page and student handbook were used for additional information needed for the study.

3.3 Analysis

All of the interview transcripts, discussions and field notes were examined with the intention of identifying common themes that would point to a consensus regarding the key elements of the culture. Bogdan and Biklen (1998) stated that data analysis for qualitative research is about ‘systematically searching and arranging the interview transcripts, field notes and other materials that you accumulate to increase your understanding of them and to enable you to present what you have discovered to others’ (p.157).

3.4 Ethical Issues

Christian’s (2005) four codes of ethics for qualitative research guided the conduct of this study. The code of informed consent was followed by writing letters addressed to all the relevant stakeholders seeking permission to do the study. The issue of deception was addressed by informing participants of the nature and purposes of the research and assuring them of their safety as a participant in the research. Participants were also assured of their privacy and confidentiality of information they provide. Fictitious names are used throughout the report to protect the identity of the participants.

4 Discussion of Research Findings

4.1 Research Question 1: What are those elements of the school’s culture that students are expected to learn?

Students are expected to learn a number of main lessons during their first two years at the school. These lessons are intended to equip students with knowledge about the school’s culture as reflected in the assumptions (or beliefs), values and artefacts so that by the end of the second year, students would have a thorough understanding of what is expected of them.

Assumptions/beliefs

The vision and motto of the school centres around moral fortitude, industriousness and diligence. These are the espoused values that are translated into the core beliefs of the members of the school. Through a series of events, including the formal classroom instructions, students become aware of the essential beliefs of the school which may be summarized as:

- i. Students attending the school, by virtue of their performance at the National Grade Six Assessment examination (NGSA), are top achievers - that is, students of superior intellectual abilities who are capable of performing exceptionally well throughout their career at the school.
- ii. The school offers a unique product that makes it stand out among all schools in the country.

Once students have become acquainted with these beliefs, their expected behaviours would manifest their acceptance of all that is associated with being a member of the school. Evidence of this acceptance is seen in the language used by the participants as they expressed their perceptions, thoughts and feelings about the school.

I was a student here, and in my days when one thought of this school, one thinks of a school where there is a lot of moral values and social graces (Teacher 1).

What we have here is a programme of indoctrination that makes the students believe that when they come here they are better than others (Teacher 2).

We offer a unique product to our students... we stand out as one of the best of all secondary schools (Principal).

I was extremely nervous when I started here...I felt like I had high expectations to fill because I knew that the school had high standards (Student).

In Guyana, students who display superior intellectual abilities are referred to as ‘bright’ students and they are generally treated differently by their parents, teachers and members of the community where they reside. A higher set of expectations are placed on ‘bright’ students. This perception of ‘bright’ students was evident in the statement made by one of the students during the focus group interview:

Teachers here don't spoon feed you, they give you the assignment and you have to get it done. Homework is very important and I have learnt that when you get homework you better take it seriously.

Students' responses during the focus group discussion pointed to the ways in which the assumptions have been transmitted to them, the extent to which they are now aware of them and in turn respond to the expectations that are implied in the assumptions.

For example, one of the students described her early experiences of the school in the following way:

I knew that coming out of primary school I had to change my ways. At first, I did not understand it and I felt that the teachers were picking on me.

The student's comment reflect an awareness of the standard of behaviour with which students were expected to comply. It seems as though they were simply waiting to be told or be shown how they were to behave. The system for making students acquainted with guidelines for behavior was established as part of the formal curriculum.

Macionis (2011) noted that ‘how teachers define their students – as well as how students think of themselves – can become real to everyone and affect students' academic performance’ (p. 415). In the case of this school, the

teachers' assumptions led to expectations. These expectations are communicated to the students, who in turn interpret the actions of their teachers to mean that they have to be responsible for their own academic progress.

The interviews with the current and past principals pointed to several key factors that were reflective of the prevailing assumptions: (1) the importance that is attached to doing assignments and submitting them on time; (2) the parents' role in ensuring that students display good behavior at all times and perform well academically and, (3) the students not wanting to be seen as 'lazy' or incapable of doing well at school.

Values

Several values are shared by students, teachers and successive principals of the school. These relate to what is considered right and proper behavior in and out of school, deportment, ways of addressing teachers and others in authority, and students' academic performance.

High academic achievement and exemplary behaviour rank high among the esteemed values of the school. Another esteemed value of the school is the display of social grace and moral standards. One of the teacher respondents made the following statement:

Way back when I was a student of this school, we were given strict orders on how to behave, especially out in the public... certain types of behavior were strictly forbidden.

This teacher explained that the school still promotes these values in the students but that the task of doing so is difficult because:

Students are not as receptive as before and don't seem to appreciate the values. Nevertheless, through our efforts to involve parents, students come to understand what is expected of them.

During the focus group interview, students expressed their views in relation to academic achievement and behavior and spoke of ways in which they felt challenged to live up to the expected values.

Sam, one of the students, said:

In Form one, I was sent to the office several times for failing to do my homework and for coming to class late. My teachers felt that I was impolite... though I didn't think that I was.

Sam explained:

When I was in primary school I didn't have to study to pass class tests, I would just write the test and pass. When I first came here I thought I could do the same thing, but the teachers here had a problem with me. It wasn't until I got to Form Two that I realized that all the students in the class were seriously doing their work, especially the girls, and I was not.

One of the girls from the focus group, Dianna, explained her situation as follows:

I was known as a talkative student at my old school but when I came here I felt that the teachers did not like me because they always wanted me to stop talking. I did not realize that it was my manner of speaking that caused the problem...There was so much about me that I had to change...I still talk a lot but I understand how to speak and when to speak. I understand that I cannot make sudden outbursts in class.

Tessa, another female student, explained the impact of the school's value system in the following way:

We all came from different family backgrounds but when you come here you are expected to behave the same way.

Students commented on the behavior of other students who seem not to confirm to the norms of expected behavior. One student responded with the following statement:

People outside of the school tend to think that once you are coming to this school you are a nerdy person; that you are all about the books and studies but that is not really true.

Another student explained:

Although a student may look as if he is not really part of the clan, like when he wears a baseball cap with his uniform on, that

student is probably outstanding in other areas – like science or mathematics. The thing is, at this school, we have lots of opportunities to show our uniqueness, while still being good at academics.

Artefacts

The study's findings point to numerous aspects of the culture that are set aside as having cultural significance. These include photographs of past principals and students, acquired trophies and other objects that signify past achievements of the school as well as displayed work of students, both past and present. Numerous photographs of past students and teachers are on display in the library and school office. Several plaques in recognition of achievement hang on the walls of the auditorium and the school's foyer. These serve as reminders of the levels in academic achievement to which students should aspire.

The school's uniform is another artefact that has significant cultural value. It is a mark of the school's identity. Great emphasis is placed on ensuring that students adhere to the rules and regulations for the school uniform. At this school, when reference is made to the school uniform the hairstyles to be worn by both boys and girls as well as their personal grooming are also implied. Teachers monitor students' attire and infringements may include an improperly tucked shirt, a twisted tie and a slouching deportment. The teachers' actions are aimed at impression management, and serve to bring students in line with the values espoused by the school administration.

One male student expressed his view in relation to the rule regarding hair styles and grooming:

My hair grows really fast and so within a week of going to the barbers teachers would give me a hard time. They tell me this is not what is expected of students of this school.

A senior female student of the school explained the significance of the school's uniform:

When I leave my home to come to school I keep in mind the fact that I am a student of ... school. I know that once I am in

uniform I must conduct myself with pride and dignity. Anything other than this would be contrary to all the training I received during my time spent here as a student.

4.2 Research Question 2: What is the process through which students come to learn the culture of the school?

The views expressed by the participants in this study suggest that students are policed into adjusting to the norms and expectations of their school. The socialization process that facilitates this adjustment is regarded as very important by the school administration. Rituals and ceremonies are two aspects of the socialization process for students of the school. The school practices the following rituals: a) Registration of new students, b) General Assemblies, and c) End of Term Mark Reading. Examples of ceremonies include the Annual Graduation Exercise.

Registration of new students is regarded as an important exercise at the school. This exercise, which commences before the start of the academic year, allows the principal and staff the chance to meet each new student with his/her parent(s). New students also get a feel of what being at the school will be like. All of the principals interviewed for this study spoke of their involvement in the registration of new students.

One principal made the following statement:

I enjoy the registration exercise...It as an opportunity for me to get to know each child. I also set the tone for what we expect of them when they come here.

General Assembly is held on a weekly basis in the school's Assembly Hall. It is addressed by the school's principal who uses the occasion to inform the student body and staff of issues or matters pertaining to school. The principal also uses the occasion to remind students of the school's mission and motto and reinforce the values of the school by highlighting achievements and reproofing actions and behaviours of students that reflect badly on the school. Apart from

the principal's role, it was observed during one of my visits that teachers kept a close watch over students' deportment and appearance during General Assembly.

End of Term Mark Reading is another ritual that is used by the school to encourage and reinforce the school's value for high academic achievement. This event is held at the end of each term when students assemble to hear and celebrate with those who have attained marks of 70% and above. One male teacher who was interviewed recalled his experience of the Mark Reading while he was a student of the school:

Mark Reading was an opportunity to recognize outstanding performances in every class at the various levels. What usually happens is that you get a lot of girls' names being mentioned so what we boys did was to make a lot of noise whenever a boy's name is called. That was our way recognizing our achievements and encouraging each other to strive to do better.

Students of the focus group interview related that the practice of boys roaring loudly at Mark Reading is still prevalent.

Apart from the rituals and ceremonies, students of the school learn about the culture of the school – its basic underlying assumptions, values and artefacts - through a comprehensive programme of history and stories told to them as part of their grades 7 and 8 Social Studies programme. Social Studies is taught once weekly for forty minutes. The methods used for teaching Social Studies include guest lecturers, discussions, role play and dramatization. Many past students are invited to serve as guest lecturers at the Social Studies classes.

Past students play an important role not only in getting students to learn the culture but also in ensuring that the culture is maintained. They are a major source of motivation for the current students; they are invited to serve as guest speakers at the Annual Graduation Exercise, they provide free counselling and motivational talks to students and contribute needed resources for the functioning of the school.

Parental involvement and support is one of the main mechanisms used by the school for promoting conformity to the expressed values of academic excellence and exemplary student behavior. All of the principals interviewed for this study agreed that establishing a relationship with parents of the students is vital for the attainment of the school's general and specific objectives. Parents are expected to attend parent-teachers' meetings and contribute time and resources for the progress of the school. They are also encouraged to keep a strict watch over their children to ensure adherence to the rules of the school.

Sam, the student who talked about the difficulties he had in adjusting to the school's culture, felt that his mother was very instrumental in helping him to adjust to the culture. He said:

My mother came down really hard on me and insisted that I study and do the right things. She told me that I was not going to cause her to come to the school and be embarrassed...that the teachers were right and I need to learn how to behave.

The student further stated:

I have learnt what is expected of me and I have adjusted. I now relate really well with my teachers and even more so with the principal. My grades have improved and I am among the top performers in his class.

5 Conclusion

This study has highlighted the culture of one secondary school, emphasizing how a positive school culture works. The key elements of the school's culture have been identified and discussed. These include the assumptions, values, norms, artefacts, history and stories of the school. Through rituals and ceremonies, coupled with the work of the principals, teachers, and parents' support and involvement, students come to learn the key elements of the school's culture. The arrangements through which students learn the culture are part of a deliberate and concerted effort to maintain a positive culture at the school. Students' views of the school evolve as they become acquainted with the

culture; they come to understand that they have a responsibility to uphold the tradition of academic excellence and outstanding moral behaviour as part of the school's mission.

This study brings to light the fact that the culture at a school is unique and therefore, one may argue that no single, externally-imposed measure that is meant to tackle general problems such as growing levels of indiscipline or poor academic performance will be successful for all schools across the length and breadth of Guyana.

6 Implications and Future Research

This qualitative research has pointed to the need for more extensive studies to be done on the role of school cultures in the context of the local education system.

School officials should be encouraged to address the problems of rising levels of indiscipline and poor academic performance by focusing on ways by which they may attempt to renew the culture of their schools (Colley, 1999, Kaplan and Owings, 2013). One of the ways through which this can be done is by organizing training programmes that build awareness of the importance of the school culture in promoting effective teaching and learning.

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Bridging the Gap - Inclusive Education in Guyana

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Abstract

In this globalized world, much progress has been made as regards inclusive education, specifically for children living with disabilities. The Government of Guyana recognizes and supports the need for an inclusive education system that will cater for children with disabilities. However, the existing policy is silent about education for youths and adults generally, especially those who have dropped out of secondary school for some reason or the other. This group of students also needs quality inclusive education for capacity building. The government needs to prepare a welcoming environment for this group of students which comprises those youths and young adults who live in households from the lowest socioeconomic quintile (UNICEF, 2017). This would require the government of Guyana to rewrite the education policy to include out-of-school youth and adults to fill this existing gap.

1 Introduction

In recent years, there has been much talk about inclusive education. Educational institutions have been undergoing many changes and challenges with respect to how, when, and where people learn. Caribbean governments have been affected by the influences of global issues - for example, those of climate change, poverty due to the economic policies, diversity due to immigration and migration of people, leadership challenges and challenges of inclusion. Additionally, there has been increased discourse on accreditation and quality assurance of tertiary education. These have all affected the education of citizens of all countries of the world. “Education for Sustainable Development” is defined as that which allows every human being to acquire knowledge, skills, attitudes and values necessary to shape a sustainable future. It also means addressing issues related to teaching and learning (UNESCO, 2014). “Every

human being” in this regard means that no one should be left behind; that is, the education system should provide inclusive and equitable quality education (UNESCO, 2017; Blessinger, Sengupta, & Makhanya, 2018).

The technological revolution has also contributed to how people learn. Despite all this advancement, however, there are 774 million adults who lack basic literacy skills. Three quarters of this number live in fifteen countries. Even when they are in wealthier countries, many leave school with no qualifications, some drop out due to the irrelevance of what is being taught, and some are educated in settings detached from the mainstream education (UNESCO, 2009). Children will never develop into fully-rounded adults if they are not provided with knowledge, skills and attitudes required for living in any society.

The way in which students are being assessed has also contributed to some of them dropping out of school. According to Ocadis (n.d) standardized tests are used to verify what students have learnt from a curriculum and to assist in their placement at a college or university. This puts students at a disadvantage because the tests are too generalized, being focused more on the content rather than on the needs of the students or the opportunity for application in given situations. As a result, such tests tend to put students at a disadvantage, because low scores are associated with students being denied promotion to the next grade, students dropping out of school, and in some private schools, to teachers’ dismissal (Concordia University, 2012).

According to the World Bank Report (2004), outcome measures such as exam results can be controversial, thus making them more difficult to use than the access/efficiency outcome indicators. For example, test results do not take factors such as educational leadership, availability of instructional materials, pedagogical skills of teachers, teacher and students’ attitudes and motivation, as well as the length of instructional time into consideration (The World Bank, 2004). In other words, the input is not being measured against the output, which then questions the quality of the standardized tests. There are national systems in place in Caribbean countries to measure, monitor and assess learning outcomes, such as the Secondary School Entrance Examination (SSEE) (The World Bank,

2004). However, The World Bank (2013) recognizes the need for systemic changes within the education sector if learners in the Caribbean are to be given an opportunity to realize their full potential. With particular reference to Guyana, UNICEF (2017) avers that there needs to be more monitoring and evaluation to assess teacher absenteeism, the kind of academic support offered to students with reading and other academic challenges, innovation in student assessment and evaluation, grade repetition, and to ensure the implementation of policies for inclusive education.

Inclusive education for early school leavers takes many forms, be it formal, informal or non-formal. Out-of-school youths with learning disabilities may be characterized as those with speech or orthopaedic impairment, mental retardation or with multiple disabilities; or those with learning disabilities and emotional disturbances, among others (Wagner, 2005). Wagner (2005) found that inclusive education in this regard means placing students with and without disabilities within mainstream classes with the accompanying structural changes - that is, teacher training and learning strategies for inclusive education, and curriculum, school buildings, and physical facilities that are appropriate for all children at all levels (Chassy & Josa, 2018; UNICEF, 2017). Without a structured education system, one that provides the opportunity for inclusion and equity, disabled youths and adults in the population will be deemed excluded. Many youths and adults have been excluded because of their cultural backgrounds, their ethnicity - as in the case of some indigenous peoples of Guyana who live in the hinterland regions and the riverain areas - or because of an actual physical or other disability (UNESCO, 2009). It is therefore imperative that action be taken to ensure that youths and adults have access to quality education in an environment that is free of discrimination.

Youths and young adults need education for empowerment. They need education for capacity-building and democratic citizenship. These early school leavers were once children with special needs who have now grown. The education that they have received is inadequate to sustain them for the rest of their lives. They have a right to retool and re-engineer their education.

According to UNESCO (2009) adults need to be provided with learning opportunities as well, since the ultimate goal of inclusion in education is concerned with an individual's effective participation in society and reaching his or her full potential.

2 Historic Overview

The Guyanese educational system consists of five educational levels, of which, most emphasis is placed on the first three categories: mainly the nursery, primary and secondary levels. It commences at the nursery level at the age of two years nine months and is completed at the secondary stage between the ages of sixteen and eighteen years. These three levels are perceived as the compulsory education period where students are expected to successfully complete each grade before being promoted to the next grade. In the past, when students failed, they remained another year in the same class or until the examination was passed before being promoted. After three attempts, most of those students dropped out or were expelled from the institutions. This system saw many school-aged children passing through the system without their academic or other needs being fully met. According to the laws of Guyana, parents have a responsibility to ensure that children go to school and learn the basics of reading, writing and arithmetic, and if children were found wandering out of school during school hours, parents can be fined and the child or children compelled by the court to attend an elementary or industrial school (The Legal Aid Clinic, n.d).

The Legal Aid Clinic states that it is "compulsory for children under 18 years to go to school from 5 -15". This period is based mainly on academic performance as a measure of success and does not necessarily assess whether all the children's physiological or physiological needs are met. Many such students were expelled from school after repeatedly trying to pass the examinations, while there were others who dropped out of school. Some parents sought the help of other schools to absorb their children who were thrown out or dropped out, but the schools were not able to address their problems in learning (Armstrong & Barton, 2007). As a result, the society finds itself with a diverse

group of illiterate individuals, some of whom have not been able to receive a school-leaving certificate, and some due to other social and economic reasons. The Convention on the Rights of the Child categorizes such persons as individuals with ‘special educational needs and children with disabilities’ (United Nations, 2002). However, The World Bank (2003) views early school leavers as those individuals who have not accessed a source of more general education, such as social interaction, building social capital and identifying guiding principles for one’s life. In other words, they are unable to contribute fully to society at their present educational level. This does not mean that their educational careers should come to an end. It suggests that the Early Childhood Policy should be reviewed to make inclusion and equity more prominent as regards youths and adults from a very early stage. The policy in its present form addresses human rights, but in practicality, it addresses learners for free education up to eighteen years old only. In other words, the rights of youths and adults should be respected and should be specifically included in a policy document.

A comprehensive and cohesive policy that addresses inclusion needs to be developed involving all stakeholders. With a diverse population such as this in Guyana, everyone needs to be supported, especially those from the far-flung interior regions of Guyana. The teachers and other stakeholders are important, since they are the ones who will be using and benefitting from the policy and who will be expected to follow the policy guidelines. Parents, family members and others stakeholders (civil society, non-governmental organizations, from the immediate communities and other government officials) as well as the business community will also have a distinct role to play.

3 Statement of the Problem

While the Government of Guyana recognizes the need for an inclusive education system that will cater for all children including those with special needs, its policy is not explicit on the provisions for the needs of youths and adults who find themselves with an incomplete education because they may have

dropped out of secondary school for one reason or the other. In many cases, apart from their socio-economic situations and special learning difficulties, many persons require a second opportunity to acquire those knowledge and skills that they may have missed. In order to address this problem, the Government of Guyana needs to ensure that there is a welcoming environment where a policy can be designed to ensure that the needs of youths and adults who have not completed their secondary education successfully are being met. It is for this reason that an action research has been conducted to find out the gaps in the present education policy so as to ensure the writing of a new one to include education for all, including youths and adults.

4 Justification of Change

In justifying the need for inclusive education and equity for youths and adults, the United Nations Conventions on the Rights of the Child declares that all children have fundamental rights to an education and to experience full involvement in society (Frankel, 2004). In addition, the Salamanca Statement reaffirms the pledge of “Education for All” acknowledging the rights of youths and adults with special needs to obtain an education within the regular education system (UNESCO, 2009). The argument here is that youths and adults do not attend the regular school systems, but usually attend post-secondary institutions, most which are government-owned.

Fox (2007) acknowledged that there is a problem with inclusiveness in special schools. She was of the view that while some attempt was made to provide alternatives to the traditional secondary academic programmes, teachers had problems with slow learners, especially those with multiple disabilities. Besides, the teachers could not cope with the students. Fox (2007) also stated that successive governments of Guyana were committed to providing equal access to quality education to all Guyanese children and young people. The Policy of Equal Access and more Inclusiveness (Ministry of Education (MOE) 2003-2007 Strategic Plan) stated that the MOE was committed to giving all Guyanese, regardless of age, race or creed, physical or mental disability, or socio

-economic status, the best possible opportunity to achieve their full potential through equal access to quality education as defined by the standards and norms outlined by the Ministry. The real problem with this policy is that it was focused on mainstream students rather than those youths and adults who are looking for a second chance. Fox (2007) recognized that there were problems of inadequate resources such as financial, human and other resources; different needs to curricula approaches; and that inclusive education required different approaches to curricula, lower pupil teacher-ratios, specially-trained teachers, specialized equipment for learners, and in some cases modification of physical facilities.

There have also been issues of access and participation of indigenous children in remote hinterland and riverain communities, but little or no success in addressing these issues. A study was piloted in Guyana in 1998 using the *Escuela Nueva* approach in the hinterland regions of Guyana. It was initiated in Columbia, then used with significant educational aims in some Latin American countries including Guatemala, initially with a strong emphasis on physical access (Ajodia-Andrews, 2007). In her work, Ajodia-Andrews (2007) pointed out that change agents, resources, experiences of children with special needs and attitudes and perceptions toward persons with special needs were some barriers to inclusive education in Guyana. Therefore, for the purpose of this paper, inclusive education refers to post-secondary education for all ten administrative regions of Guyana, regardless of specific locations, religious affiliation, social or economic status. It is for these reasons that I am proposing that a policy be specially developed for inclusive and equitable access to education for youths and young adults who have not sufficiently met their needs at the secondary level. According to Armstrong and Barton (2008) inclusive education is that education which is designed to meet the special needs of learners who are excluded for many different reasons.

Evidence collected from interviews reveal that post-secondary educational institutions in their present format are all structured on the premises of normal and normative ways of thinking about teaching and learning and the desired outcomes (Armstrong & Barton 2008). The findings of the research

conducted with the various stakeholders revealing that most post-secondary educational institutions have become increasingly restrictive and coercive because of the ways the curriculum, pedagogy, and performances of students have been structured. They also reveal that the policy is too general in its present form and as such needs to be restructured to meet the needs of this special group. They further revealed the view that stakeholders should have a meaningful role in the review and enforcement of the policy.

In terms of applying the policy in the classroom, it was a unanimous decision that teachers need education and training on how persons with special needs should be schooled and that the necessary facilities and equipment need to be improved. There should be ongoing staff development as the policy is inadequate in its present form.

In terms of the policy being applied, the interviewees suggested that an organization should be designated to ensure and see the implementation and monitoring of the policy. It will ensure that all post-secondary institutions should have policies on inclusive education and that the institution - that is, the Ministry of Education - should have timelines by which the policy should be enforced.

This paper proposes that the structural imbalances in the education system be transformed. They must be transformed to meet the needs of all youths and adults who are suffering from some form of disability resulting in their exclusion. Inclusion and education are not ends in themselves, but are means to an end (Armstrong & Barton, 2008). For these reasons, any education that is provided should contribute to the realization of an inclusive society with a human rights approach which is a central component of policy making. Liasidon (2012) opined that inclusion is inexorably linked with the principles of equality and social justice in both educational and social domains. It is for these reasons that the existing policy concerning education for children should be perceived as piece-meal, since it still falls short of including youths and young adults who have not completed secondary school or whose educational needs have not been met.

5 Proposed Solution

In today's society there is increased diversity in the population, which means that mechanisms should be put in place to address the deficiencies and needs of youths and adults. It, therefore, means that the proposed solution will be to rewrite the policy document in such a manner that it includes specific information relating to diversity and inclusion with respect to post-secondary education for youths and adults. That policy should have the needs of youths and adults clearly stated. For these reasons the policy should be rewritten to include the specifics of addressing diversity and inclusion. The goals of the policy should be clearly stated to include:

- The development of human resources
- Democratic citizenry
- Development of our societies

Its effectiveness will be based on viable and multifaceted implementation, enforcement and governance strategies such as those discussed below.

5.1 Personal Inclusive Leadership Policy

As an educational leader concerned with the improved proficiency of inclusive schools, the inclusive Educational Leader has the responsibility to help teachers to develop the skills and perspectives needed for efficient and effective teaching and learning. According to Nuri-Robins, *et al.* (2007) educational institutions must change in order to respond to the demographic shifts in society. In this regard, all the administrative regions of Guyana will need to respond to this shift, and not only selected regions. The personal inclusive Education Leader will ensure that the necessary tools and equipment will be provided so that students will be able to achieve the desired learning outcomes. This may mean budgeting and having a policy of accountability and transparency that ensures the availability of specific materials and that prescribed instructional approaches are selected, purchased and implemented. Nuri -Robins, *et al.* (2007) have outlined a number of guidelines to engage inclusive educational leadership policies:

- Assess the culture and develop a culturally-proficient vision for the institution
- Establish standards for holding teachers accountable
- Provide training and support systems for conflict management
- Help faculty and staff members learn to distinguish between behaviour problems and cultural differences
- Examine policies and practices for overt and unintentional discrimination
- Change current practices when appropriate
- Model and monitor school-wide and classroom practices, and
- Articulate the cultural expectations to all with whom you interact.

5.2 The Leader as Advocate

All educational leaders must have a vision and a mission that govern their actions. If schools are to be culturally responsive, then school administrators will have to lead by example. This means that the leader will have to provide the necessary professional development training for teachers and will have to ensure that the school provides activities that will benefit all learners with special needs. In this way, the leader will become an advocate for inclusive education. Improving the school environment will be a major priority, and this includes physical facilities. As an advocate, educational leaders will have to demonstrate their position for inclusive education by being aware of themselves and the implications of traditional practices. According to Bakken and Smith (2011) the leader as advocate will have to ensure that the hierarchical system is restructured to become a more inclusive design where the school's social organization determines the kinds of interactions with the teachers, staff, students and members of the community. Brown (2004) also stated that the advocate should have meaningful engagement with the communities and districts in which the educational institutions are located. It therefore means that as an advocate, the leader will have to align his/her practices with culturally proficient behaviour, while working with others to make similar commitments in the organization. According to Bakken and Smith (2011) leaders as advocates

influence others to make changes in their values, beliefs and attitudes, while Nuri-Robins, *et al.* (2007) posited that educators need to address their own cultures and manage the differences.

5.3 Culturally-Relevant Pedagogy

Gloria-Ladson-Billings (1994) coined the phrase “culturally relevant pedagogy” which describes pedagogy that empowers students intellectually, socially, emotionally and politically by using cultural referents to impart knowledge, skills and attitudes. Culturally-relevant pedagogy refers to effective teaching in culturally-diverse classrooms (Irvine, 2009; Fuglei, 2014). This means that teachers and students should participate in culturally-relevant teaching and learning as this provides opportunity for bridging the gap between students’ homes and their school lives, while at the same time, meeting the expectations of the curricula of the district, country or region. Using the experiences, knowledge, as well as the cultural and linguistic heritage allows teachers to design lesson plans that are relevant to students’ lives. It is for these reasons that schools need to transform the social, cultural and pedagogical life of their institutions as well as the physical organization. According to Stead (2014) quality teaching is focused on student achievement, including social outcomes. In other words, curriculum goals should be aligned to allow the resources, which include information and communication technology usage, the task design, and the teaching and learning practices, to be effectively aligned. Lee (2003) posited that the teacher and students should engage constructively in goals-oriented assessment. Culturally-relevant pedagogy is a very important aspect of inclusive education for youth and adults with special needs. Barton and Armstrong (2007) are of the view that there is no such thing as one kind of inclusive education for disabled children and one for the rest of the school. This means that “inclusion is fundamentally about issues of human rights, equity, social justice and the struggle for non-discriminatory education and should be at the heart of inclusive policy and practice”.

5.4 Stakeholders Response to Diversity

Any proposed change must include the engagement of stakeholders. These may constitute members of civil society, teachers, students, businessmen and women, educational officials, members of non-governmental organizations, parents, media outlets and other community members (Saxena, 2014). Engagement of stakeholders provides an opportunity for collaboration and for shared goals and objectives of the institution to be communicated, which means gaining an understanding of the concerns and expectations of the stakeholders (Randall, et.al. 2009). Collaboration and communication are 21st Century skills needed for the total development of learners in a changing social and economic environment, so in order to establish an inclusive educational environment, leaders need the support of relevant stakeholders.

5.5 Philosophy for Inclusive Practice

A person with a philosophy of inclusive practice allows for sharing in decision-making and provides staff with information and training as well as models behaviours that are congruent with the vision and values of the organization, and is usually goal-oriented (Dufour & Eaker, 1998). In addition to the characteristics of inclusive practice, the leader must provide supportive conditions. In other words, inclusive practices include a part of who we are and what we do. Wenger, Mc Dermott and Synder (2002) are of the view that distributed leadership comes from both informal and informal leaders within the community. Here it is shown that leaders need to gain community and staff support that will contribute to capacity building of the youths and adults who receive schooling in post-secondary institutions. The principle of inclusion emphasizes the active participation of every learner within the natural environment of his/her community (Frankel, 2004). It is for this reason that school leaders need to respect and value the diversity of each learner, acknowledging that he/she is a contributor to society regardless of his/her abilities. In implementing inclusive education, the policy must focus on students and teachers, parents, community members and other stakeholders developing

good relationships. In other words, members of the group must develop and display a team spirit where they feel a sense of belonging while creating a new vision for their communities.

The need arises for the Ministry of Education to raise the consciousness level of individuals and groups within the society on the importance of inclusive education for all. This can be done through more stakeholder consultation and collaboration. Stakeholders in this regard refer to community leaders and businessmen and women, teachers as the main stakeholders, students and educational leaders. Teachers as the main stakeholders need to understand their roles and responsibilities of which meeting students' needs is the most important. Students should be motivated more and the Ministry needs to ensure that adequate materials and resources are provided to support learning activities, and that businessmen and women will employ these students within their businesses. They therefore need to understand the vision and the mission of the MOE so that they can get on board in making the venture successful. Parents should also be reminded of their roles as regards their children's education, and finally, there is the need for more monitoring and evaluation of the programme as it develops. Raising the consciousness level of these stakeholders on the need for inclusive education can also be promoted through daily newspapers, social media such as Facebook, YouTube, Twitter, and TV programmes. Training for educational leaders and professional staff development of teachers should be provided on an ongoing basis.

5.6 Change Process

If the existing policy on inclusion is to be rewritten to include the policy that governs the education of youth and adults, it will call for a radical transformation of how things are done in and around post-secondary educational institutions. To facilitate this process of change will require engaging the community, revising educational leadership and management, as well as raise issues relating to curriculum development and diversity. In other words, this

change will involve all key stakeholders. This will require a plan of action to be prepared in order to facilitate the change process. This plan of action should include an examination of the policy and identify any gaps that may exist.

The school leader then proceeds on the course of transforming the institution. Randall *et al.* (2009) state that transformational leaders influence followers to look beyond self-interest, while cultural proficiency begins with wanting to know how best to serve the educational needs of the students irrespective of the demographic characteristics of the school. It therefore means that this will be the time to influence stakeholders to start accepting change. This means providing the context for them to assess, for them to make decisions, and for them to be able to identify barriers to inclusive education and work aggressively toward correcting them.

According to Randall *et al.* (2009):

- The leader will provide inspirational motivation where stakeholders examine the ways in which essential elements of cultural competence enables them to serve better all demographics of students
- Provide intellectual stimulation where stakeholders make the commitment to teach the students in an inclusive environment, and
- Provide individualized consideration: the leader will mentor, instruct and coach fellow educators and members of the community. As far as individualized consideration is concerned, the leader may ask such individuals directly how they can contribute towards an improved inclusive environment.

This process will take continuous effort on the part of the administration in getting the stakeholders to buy into the change process. It will mean providing on-going professional development sessions where there is both collaboration and communication, where there are meaningful discussions taking place, and a listening and speaking process for both sides, that is, stakeholders and leader. Stakeholders will be trained to promote students' academic well-being as a priority. In order to achieve success, the leader will have to develop and demonstrate skills that reflect inclusion, such as team-building and engagement

of the community. Systems will be set up to monitor activities and to see that they are in-keeping with the stated goals and objectives of the policy. This can be viewed as a life-long learning process as every day, new challenges arise. However, as success is being achieved, the leader and stakeholders can celebrate, even calling in the media, which will in turn inform the community. In this way, the change will impact all concerned.

6 Conclusion

Inclusive education for youths and adults should be welcomed and supported by structures that are designed to ensure the provision of an education where both the deficiencies and needs of learners are being met. Inclusion is not about differences but about the opportunity for all students to benefit because of the richness and varied experiences that will be made available. This in turn will make the lives of these youths and adults more meaningful.

Developing, implementing and monitoring a policy for youths and adults is a timely move, especially when there are so many outside influences due to the forces of globalization. Enforcing this policy allows youth and adults to have a second chance at building their own self-concepts and capacity at a time when they can relate more to what is being garnered. It is a time when youths and adults need the kinds of knowledge, skills and attitudes that will help them to correct their mistakes as well as to improve their lives towards making them gain academic success, develop and maintain cultural competence and develop critical thinking skills (Bakken & Smith, 2011). It is therefore imperative that the Government of Guyana amplify this aspect of the policy that speaks to the education of youth and adults.

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Appendix

Interviews were conducted with two persons concerned with policy development from the Ministry of Education and the University of Guyana, and three heads of continuing education institutions (post-secondary institutions). A semi-structured interview guide was developed and questions were asked to gain these persons' perspective on the policy as it is and where changes needed to be made. The following is a list of the questions that were asked:

1. What is the policy as it relates to post-secondary education institutions?
2. Do you think there should be a national policy on inclusive education for post-secondary institutions?
3. Who should be the advocates for that policy?

4. What should be the expectations of the policy?
5. What roles and responsibilities should stakeholders play and take on in the development of the policy?
6. What are the expectations of such a policy?
7. How should the policy be interpreted?

Lecturers from post-secondary institutions were asked the following three questions

1. Are you aware of the policy on inclusive education for youth and adults?
2. How is this policy applied in regards to teaching and learning and in your classroom as a whole?
3. What provisions are in place for students with special needs?

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Rereading Jan Lowe Shinebourne's *Timepiece* Against the Backdrop of Guyana's Imminent Oil and Gas Era

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Abstract

A rereading of Jan Lowe Shinebourne's 1986 novel *Timepiece* against the current backdrop of Guyana's imminent oil and gas era highlights the character Ben Yansen's resistance to major societal change. In this paper, Ben's efforts are seen through the lens of Albert Camus's interpretation of Sisyphus's paradoxical victory as he perpetually rolls his rock up the mountain. An examination of four structural elements – the novel's prelude, final paragraph, epilogue and three-part structure - shows how the narrative appears to elevate Ben's Sisyphean rebellion. A reflective study of Ben's ideology encourages the contemporary Guyanese reader to cautiously consider his own response to the imminent oil and gas era.

Guyana has moved rapidly from being relatively invisible on the world stage to being thrust into international headlines, reports of which speak to the grand scale of imminent and exciting positive economic changes in the country. In early 2018, Guyana topped the list of countries in the world for the amount of resources discovered, ahead of the more well-known United States, Cyprus, Oman and Norway (*OilNOW*, "Guyana tops..."). Sonya Boodoo, a Senior Analyst at Rystad Energy, predicted that Guyana would be "ranked among the 30 largest nations in the 2020s for offshore oil services" (*Guyana Times*). By December 2018, the thrill of discovery hit a feverish pitch as the United States oil company ExxonMobil made its tenth discovery and the Director, Department of Energy, expressed elation at the country being "on the cusp of transformational development" (Staff Editor, *Stabroek News*).

Yet, in spite of these grand predictions, concerns exist both internationally and locally about how Guyana should deal with the impending economic and other intersecting types of change, whether the population is

equipped to deal with such changes, and whether these changes will affect the country negatively (Staff Writer, *Stabroek News*; Staff Reporter, *Guyana Chronicle*; Katona). Robin Mills, writing for the Middle-Eastern news outlet *The National*, acknowledges the oil finds as being “important for the global industry,” while pondering several of the possible perils for Guyana including “unrealistic expectations of sudden wealth; an influx of outsiders; and environmental damage”. Similarly, local Chartered Accountant Christopher Ram expressed that “...we become increasingly reliant, if not dependable [sic] on Esso Exploration and Production Guyana Limited and its two partners, Hess and Nexen, for our future economic development. Indeed, our future is practically in their hands now” (Wilburg). In fact, Guyana's offshore has been carved into petroleum ‘blocks,’ many owned by giant foreign companies (*OilNOW*, “Who's who...”).

Since Guyana only gained independence about half a century ago, it is not difficult to perceive the current divvying up of the country's highly valued non-renewable resources as an echo of colonialism. This divvying up can also be seen through the newer lens of neo-colonialism, a kind of control that Kwame Nkrumah defined as being “...exercised through economic or monetary means.” The current economic dynamics in Guyana's oil and gas era, when contextualised through Raúl Prebisch's theory of dependency – in which a ‘core’ or developed entity, in order to advance its already hefty economy, feeds off of an underdeveloped ‘peripheral’ entity – become disturbing. According to Vincent Ferraro: “Prebisch and his colleagues were troubled by the fact that economic growth in the advanced industrialized countries did not necessarily lead to growth in the poorer countries. [Rather]...economic activity in the richer countries often led to serious economic problems in the poorer countries.” One must consider that what was troubling to Prebisch and his colleagues in theory, might soon become troubling in practice in Guyana's landscape.

This apprehension has little to do with global relations in the sharing of the earth's natural resources and more to do with the imbalance of the effects borne by the peripheral country. Nkrumah's words clarify an idea such as this:

“The struggle against neo-colonialism is not aimed at excluding the capital of the developed world from operating in less developed countries. It is aimed at preventing the financial power of the developed countries being used in such a way as to impoverish the less developed.” Certainly, with this awareness, international conversations can attempt to address this imbalance. However, when these discussions are not had, or had but unsuccessfully so, it is the peripheral population that must devise measures of negotiation.

The majority of the local population is left on their own to navigate social, environmental, cultural, psychological or political changes brought on by the new economic currents. Ram’s above-mentioned statement, for instance, gives the impression that a passive Guyanese population has been consigned to the outcome of the oil and gas sector. Perhaps so. Yet, it must be considered whether individual efforts to temper any dubious effects brought on by the latest technological momentum and second influx of western commercialism, matter. Is an individual’s efforts at reducing his use of plastics at home, for instance, worth anything if there is an oil spill? Or, for example, can an individual choosing to study poetry in the humanities effect any balance even as the majority of the population, immigrant and national, sees the logic in rushing for training in the new oil and gas sector? Or, does an individual’s choice of a minimalist or non-consumerist lifestyle appear laughable in an approaching age of amenities? Parameters such as these and many more, which Guyana as a dependent country will be negotiating, are as yet undefined. The landscape will change in its own time. At this point though, one thing is evident – the imminent oil and gas era will force the local individual to re-evaluate the validity of his current lifestyle and to decide whether his choices aggravate or alleviate any imbalance that may emerge. Yet, will the individual who makes a small unit attempt - whatever it is - at balancing any dubious giant effects experience the Sisyphean sensation of endlessly rolling a rock up a hill?

To further contemplate this question, a rereading of Jan Lowe Shinebourne’s novel *Timepiece* seems worthwhile. Such a rereading, three decades after the text’s initial 1986 publication, allows us to see her character

Ben Yansen in a new light. Framing Ben as a single agent attempting to balance the large-scale effects of technological change in Guyana in the '60s –'70s provides the opportunity to question the worth of our own forthcoming attempts, or lack thereof, on the changing Guyana landscape of the early 21st century. The novel realistically chronicles images of a deteriorating sugar industry set against the backdrop of the transition to Independence; there is political and industrial turbulence and a surge of individual aspiration to economic gain and social mobility that often ended in emigration. By comparison, contemporary Guyana is set in a scene of an even more deteriorating sugar industry, but this time it is against the gigantic unfamiliar backdrop of the discovery of oil and gas that will bring about changes.

In spite of *Timepiece*'s Sandra Yansen being the protagonist, the one who by moving to the city meets change head-on, it is her father, Ben, whose role as the sceptic and opponent of inevitable change who makes for an interesting study. Whether Ben was right or wrong in resisting change is not the question this paper addresses; rather, the concern is an examination of his choices and an estimation of the inherent merit in his lifestyle, questions that the narrative itself seems to be meticulously composed to address.

Ben is a single man who resists the urbanization, formal education and commercialism taking place on his landscape. His battle seems futile. Yet, he embraces it. In this regard, Ben appears very much like Sisyphus rolling his rock up the hill only to watch it roll down again. The comparison here is not Ben to Sisyphus, but rather, the similarity between Albert Camus's *interpretation* of Sisyphus's embrace of his rock and what we see in Ben's embrace of his own rock – his aforementioned battle. In his *The Myth of Sisyphus*, Camus sees Sisyphus as the absurd hero, one who endures "...straining to raise the huge stone, to roll it and push it up a slope a hundred times over..." (86). What Camus finds impressive about this is that in spite of his futile eternal labour, Sisyphus becomes one with his rock even as it rolls down again:

... I see that man going back down with a heavy yet measured step towards the torment of which he will never know the end. That hour like

a breathing-space which returns as surely as his suffering, that is the hour of consciousness. At each of those moments when he leaves the heights and gradually sinks towards the lairs of the gods, he is superior to his fate. He is stronger than his rock (87).

For Camus, ironically, ultimate reward comes in the face of ultimate futility: “His [Sisyphus’s] fate belongs to him. His rock is his thing. Likewise, the absurd man, when he contemplates his torment, silences all the idols” (89) and at this point of futility “he knows himself to be the master of his days” (89). Lowe Shinebourne presents us with a stubborn, brash, often misunderstood Sisyphus in the character of Ben Yansen, whose redeeming quality seems to be his ‘silencing of all the idols’ in his resistance to urbanization, his comic rebellion against formal education and his dismissal of commercialism.

The action begins in the Prelude with the adult protagonist Sandra returning from abroad to her home village Pheasant, only to find that the bush has covered over the village that Ben had so loved. In Part I, the plot then flashes back to the time of Sandra’s adolescence in Pheasant. In this section, Ben registers his loyalty to his village and holds his ground in his little shop even as migration to the city takes place. There in his shop he makes a living but avoids a commercial approach to his business, sensing that more accumulation of goods than needed was not ambition but a violation of friendship and inner peace. In this section also, he persistently opposes Sandra receiving a formal education outside of her village, knowing that higher formal education will take her away from him and ultimately into the abrasive city. In the more extended Part II, Sandra works as a reporter in an environment different from home, where the preoccupations with social class, money, education, gender roles, racism and violence loom over the young people. Yet, even though she remains in the city away from her family, Sandra’s own philosophising there is often constructed around Ben’s disquiet with city life, commercial aspirations and schooling. In Part III, Sandra returns to Pheasant as her parents’ health fails. The narrative ends with her being certain that she will leave the country, but with a contemplation on Ben’s life choices and ideology. Central to the construction of

the young Guyanese protagonist's negotiation of self is Ben's unyielding resistance to the things that disturb her the most, but to which she, unlike her father, ultimately must yield in order to survive in the post-sugar era.

An examination of how four structural elements – the novel's prelude, final paragraph, epigraph and three-part structure – work together shows how the narrative validates Ben's Sisyphean rebellion. This observation of Ben's actions prompts the reader to consider valuing any seemingly insignificant individual attempts that will be forthcoming in balancing major ambivalent or negative effects to emerge in Guyana's imminent oil and gas era.

Firstly, in the Prelude, it appears as if Ben had rolled his rock up the hill with no apparent yields, as after returning from abroad, Sandra finds that Pheasant had become even more 'stranded.' She finds her old house "dying" (7) and the community nearly obliterated: "All the fuss and fury of its life had ceased.... The estate was not interested in Pheasant because it no longer drew labour from it" (13). Desperately, she presses the boy Mark about the village population but he insists that of five, six hundred people in her time, there were only about twenty living there now (10). More distressingly, there was no measure of retrieval of memory – Mark's mother tells Sandra: "If people di'n go away so much I would remember everything." (13). In the end, lone Ben's desire to preserve his village and what he thought it stood for could not be realized.

The land had been used for what the colonists needed but was treated with no dignity or preservation thereafter from them. Once the village labour had been used up and the sugar industry deteriorated, the people were expendable unto the colonial era, unto newly-independent Guyana and scarily so, even unto themselves. The villagers themselves who had earlier formed a relationship with the land only for bare survival had decided that the village was outdated and could offer them nothing of value in the post-sugar era. By choosing to migrate, Sandra and the others contribute to an erasure with impact on their own and others' psychosocial health.

Realisation of the erasure appears to be psychologically strenuous for Sandra as she suddenly begins to vomit half-way through her return visit to

Pheasant. So destabilised is she that her old community had dwindled to only three or four percent of its former state that her stomach becomes ill. It was her own past that had been obliterated. The emptiness of the village and Sandra's intense psychosomatic response forces the reader to revisit Ben's philosophy and consider the degree to which it has merit. Though Ben appears to have lost in the end, his absurdist role prompts the contemporary Guyanese reader to consider what choices in the imminent oil and gas era will contribute to the erasure of important aspects of Guyanese history, lifestyle and landscape and the relationship between these and our identities.

Secondly, a rereading of the final paragraph of the novel brings a full-circle experience as the tone and underlying questions of the prelude are framed by the reader's descent into this paragraph. The reader reflects on the validity of having an imagination running counter to a society focused on social status and economic gain. Sandra, in her pre-migrant state (at the novel's close) or her migrant state (at the novel's opening), cannot evaluate her own life without Ben's imagination. The novel closes:

.... Helen and Daphne had disapproved his [Ben's] laughable poverty. His choices had seemed ridiculous to them because they diverged from the common tracks of men. Everyone in Georgetown and Pheasant laid a claim to the struggle to survive.... He had struggled to survive too, in his own way, unobtrusively, with a naked, neurotic fear and avoidance, like a superstition, of the opportunist in himself. She thought of ... Son's departure for Canada. She knew that she too would leave the village. So what of Ben? Was there no dirge that could mourn his death, no song to celebrate the life he had invested in this stranded and exploited village? (205-206)

Ben's decision to remain in a socially and economically inconsequential spot of earth and to love it, Sandra reflects, was perhaps really a valid means of survival and rebellion after all. In choosing to imagine differently, he takes an apparently 'backward' but memorable stance in the local and global economies

whose histories owe their debt to the poor 'exploited' villages that had sustained the early sugar cane industry.

It seems as if Ben had understood that the inherent challenge in his life was to become a Sisyphus, 'stronger than his rock' and the 'master of his days' by assuming an imagination contrary to the pressures being exerted on him. Later, what Sandra comes to understand of her father's contrariness might best be encapsulated in Arundhati Roy's musings below:

The first step toward re-imagining a world gone terribly wrong would be to stop the annihilation of those who have a different imagination – an imagination that is outside of capitalism as well as communism. An imagination which has an altogether different understanding of what constitutes happiness and fulfillment.

To gain this philosophical space, it is necessary to concede some physical space for the survival of those who may look like the keepers of our past but who may really be the guides to our future.

Ben's imagination, through Sandra's eyes in the end, functions as a keeper of the past and guide to her future. His dismissal of commercialism, for instance, is a losing battle which he refuses to give up; but this dismissal is crucial to the pursuit of a different philosophical space. When his wife, Helen checks his accounts, she is appalled that so many people owed him substantial amounts of money, some of whom had died with no one paying off their debts. Yet, he persisted in giving credit and befriending people in the village: "Ben's friends were his clients, and they had devised, over the years, a system to accommodate their dual relationship. He never kept a written record of their credit" (41). Ensuring that his family is provided for on a daily basis and seeing no point in earning more than they needed, he kept his friendships and "closed the shop on Sunday afternoons and went to sleep in the hammock under the guinep tree" (37). For him, sustaining a communal life was what 'constituted happiness and fulfilment.' Sleeping under a guinep tree was a physical action that represented a higher value; it was not laziness. Using this frame for Ben's actions, rather than simply reading him as a dated, stubborn village man, allows

the 21st century Guyanese reader to contemplate the long-term value of having a different imagination.

The novel's epigraph also seems aligned with this interpretation of Ben's ideology. The epigraph is taken from George Eliot's *Middlemarch* and reads: "...for the growing good of the world is partly dependent on unhistoric acts; and that things are not so ill with you and me as they might have been, is half owing to the number who lived faithfully a hidden life, and rest in unvisited tombs." One of the reasons that the epigraph seems aligned with Ben is that Eliot's novel is subtitled *A Study of Provincial Life*, thereby forging a connection between the epigraph and Ben's obsession with the provincial. By choosing to belong to a provincial landscape, he selects a different type of power than the power to be had by living in the city of his country at the time. For persons like Ben and Reuben, his friend:

Lacking contact with the towns, ... centres of business, education and colonial power, where the influence of the English was strongest, living in such a deeply rural area, so close to their own past, submerged in the life and landscape of the plantation and the forest...wedded entirely to their own ragged community, they were men who preferred to hold back from the future. They did not trust it at all, did not like it, the brashness, ignorance and arrogance of it, although their instinct for freedom was as strong as anybody else's. (45)

Though this passage conveys the absurdity of distancing oneself from the future, it still conveys that what shines through for Ben is the power of the rural landscape. He sees it as healthier, familiar, trustworthy, holistic and humanistic in its outcomes as opposed to the intangible and unpredictable rewards of city life that he deems as unnecessary and dangerous.

Additionally, the expression those "who lived faithfully a hidden life" seems to refer to Ben. Considering his unpopular non-commercial lifestyle and everyone's opposition to his choices, Ben stands out as a deserted figure, unpraised and undervalued, but earnest and consistent. He emerges as the lone figure in his family to embrace and defend what he thinks Pheasant represents

and it becomes difficult for him to succeed with everyone opposing him. With every instance of opposition though, he rolls his stone back up the slope 'a hundred times over.' Where his wife, Helen, feels that Pheasant is uncivilized (43) and quarrels with him about it, Ben grows silent but defiant. Where Helen becomes swayed and absorbed, and transported out of Pheasant by David Petrie's foreign swagger, Ben stays up late peevishly but quietly waiting for Sandra to come home from her outing with Petrie (62). When his own cousin Daphne disowns him – "That man, he left all his family in Georgetown and he stay behind God back in that broken-down place. I never understood Ben. He like a savage" (69) – Ben doesn't bother to react.

In the end, Sandra comes to understand how Ben perceives commercialism, status and power coming together in Georgetown at the time. She could see that he made sure that he could remain free from these forces: "Helen was driven...by the power of Georgetown.... [But] You had to create your own currents in a place and learn to live with a place too. Ben's contentment was a current, his own which he had created in the space of Pheasant.... Georgetown ...was a place where people fought over and were driven by a power that they thought resided there" (177). The issue for the 21st century Guyanese reader here is not to consider the great debate of city versus country, but to contemplate the significance of Ben's resistance to a larger movement that could have easily claimed him as well. By studying Ben's strategy, we see the invaluable power of choice. Ben moves us not to take any of our decisions lightly and not to shun the option for which we might have to struggle more, for ultimately, our choices can ensure "that things are not so ill with you and me as they might have been." The protagonist's reflective state in her adult life emphasises that her connection with her father and his values are not as distanced as they might have seemed. Though in real time Sandra seemed to be propelled by her mother's values, it was her father's that had shaped the core of her identity and in the end, his Sisyphean approach did matter a great deal to the formation of her own ideology.

Finally, the three-part structure of the novel emphasises Ben's anguished and futile endeavours in the same moment that it elevates the suggestion that he is indeed 'superior than his fate.' Ben's devotion to the village is structurally established in the tension between the three sections of the text (excluding the Prelude). Sections I and III are set in Pheasant and form the brackets around the more robust middle Section II, set in Georgetown. The narrative by section, therefore, reads like a story of: village resistance [city attraction] village loss. In other conceptualisations, it can read as: Ben's defiance [a technological/post-sugar ideology; an educated or white collar ideology; a business-minded or commercial ideology] Ben's loss. Conceptualising the narrative in this manner allows us to see Ben's defiance against city life as set up in Section I to always be at odds with the things that the protagonist then experiences in the city in Section II. If the first and third briefer sections are to be seen as representing the voice and life of Ben, then the textual structure increases Ben's tension with the rest of the society by pulling him towards the strong robust centre – visibly seen as the longer middle portion of the text. This middle portion embraces elements such as highlights of urban life, applause for formal education and high commercial drive. The textual construction facilitating the narrative's inherent argument crafts Ben as the character with the 'different imagination' bellowing back at the elements of the middle. Lowe Shinebourne allocates Ben's 'philosophical space' by taking care that his voice has strategic 'physical space' within the narrative, thereby ensuring a survival of a 'keeper of the past' and 'guide to the future.' Even with Ben physically absent from the middle section, his resistant ideology is in dialogue with the events there, especially through the protagonist's consciousness. In fact, it seems as if it is through Sandra that he has his 'hour of consciousness.' Ben's life thesis is the underlying thread of the narrative speaking to the reader. In this way, the pull of the variables in Section II can therefore be read parallel to the strong pull of the imminent economic gains or debates predicted from the new oil and gas sector in Guyana, while Ben's resistance in the sections forming the brackets can be seen as the

population's own carefully-crafted responses to the burgeoning central economic dynamics.

An example of how the bracket technique operates can be seen in Ben's resistance to formal education. In Section I, that Ben should oppose Helen wanting to send Sandra to high school in New Amsterdam (a town in Berbice, where the action is set) is painfully comic: "For Helen, their redemption lay in education, but Ben called them away from 'the damn homework' to help him with a chore he thought more important. He cut himself off from them unless they did what he wanted them to do. As the children grew older, moulded by school, they found themselves cut off from him, and therefore from the village itself..." (42-43). He knows that there is nothing he can do to win against Helen and the children's natural momentum – since "the idea of lacking education was unthinkable, the alternative barbaric" (29) – and so his rebellion manifests in tantrums and empty shouting antics until his psychological connection with them becomes severed. It seems that what Ben is unable to articulate is that what he really opposes is not education itself but the unclear end result of having formal schooling. For instance, it becomes clear that Ben fears that Sandra will be in some kind of danger when isolated from the community when she travels daily out of the village to school. He takes out his inability to articulate his struggles by shouting at the headmaster Shepherd: "Pride! Education! What about Care? I mus' send my child 'way from her home whole damn day? Look man, if something happen to her in town, who would care? Not a damn soul!" (48). Interestingly, what is revealed in Ben's shouting match here, is not so much that he opposes education but it is that he is reluctant to send his child away from the protection of the village. In the end though, Sandra must go and Ben's defiance seems all for nothing. He had rolled his rock up the hill, but it had rolled down again. Education had come to mean progression and liberation and civilization, and unfortunately sometimes, to also mean anguished separation from family both physically and for Ben psychologically.

Ben's rebellion against formal education in Section I, though he loses his battle, creates a loss for him personally but a long-term gain for Sandra. He loses

his daughter to the city, as she migrates to Georgetown after she passes her exams and gets a job there. Yet in the moment that Ben walks back down the hill with a ‘heavy’ step, his stubborn, impractical defiance becomes meaningful to Sandra as she uses his lens to understand her experiences in the city.

It is in Section II that she begins to understand, through examples from her workmates’ lives, some of the things that Ben through his comic rebellion had been unable to articulate. She learns that education can become stratifying and divisive when, for instance, Bradley speaks disparagingly about the stratifying experience of their education in the top city schools and announces that education can lead to a “nouveau riche, bourgeois lifestyle.... [and that] University teach them to distance their own people from them, patronise their own people...” (141). She also sees how education censors and rejects. For Lewis, his paintings remain in his house unappreciated, while at work he “... worked hard. He blunted himself to the editor, and blinded himself to the censorship, the injustices and the indignities around him. He was like a man sitting on a bomb. Ben might have become like him if he had lived in Georgetown, she [Sandra] thought” (153-154). By the end of the text, many young people leave their jobs or migrate, draining the country of all it had educated them. Son Young talks about young Guyanese who go abroad to study, “They always come back fresh and full of ideas... but give them a couple of months, or a year or two, and they come to a grinding halt. They start to talk about being fed up, and disillusioned, and they either go away again, or they stay here and become cynical, or go static in some way...” (159). Son himself goes abroad to study and Sandra herself after staying in Pheasant to take care of her parents, leaves for abroad permanently. In a way, Ben’s absurd resistance to a formal education had some merit: education, or a lack of it, saw them all and the country remaining in the same place or worse in the end. Further, formal schooling away from the warmth of a communal lifestyle seemed to fragment the individual’s self, depriving him of happiness and fulfilment. Neither Sandra nor her colleagues ever seem to have an equivalent of Ben’s fulfilment of napping in a hammock on a Sunday under a guinep tree.

By weighing her own experiences against her father's lifestyle, Sandra is able to conclude in Section III and in the Prelude that "Neither the education she received at school nor their [her parents'] advice would provide answers. Only a faith and belief that common truths lay behind their actions would guide her. People acted from the secrets of their nature; like the light and darkness, like the trees, the water and the land" (17). For Sandra, the pull of the land reveals the secrets of a sustaining ideology. This ideology of a different imagination was not the one that had been operating on her for her whole life; it was the one to which Ben had subscribed.

The three-part structure of the novel, in addition to its full-circle effect after a rereading, allows the reader to descend into reflection on which oil and gas currents might in the future have a robust pull on him into a life void of the imagination and fulfilment to which Ben had aspired and sampled.

More than thirty years after his debut, one of the lesser-discussed characters in Guyanese fiction, Ben Yansen, provides us with a reflective perspective on our individual choices in Guyana's imminent oil and gas era. His Sisyphean resistance coupled with his intense love for the village, care for his family and disciplined work ethic, with no abundant yields of affection from his friends and family or of remuneration in his coffers, allow him to cut an absurd figure, one exposed to ridicule for the 'backwardness' of his lifestyle. Yet, it seems that he 'silences the idols' and 'owns his fate' through his power of unconventional choice. Most importantly, that he is able to understand his own purpose in sustaining such a futile resistance is what is intriguing. Ben's approach to change has much to highlight. Situated as a rural man in a politically turbulent and socio-economically changing Guyanese landscape in the 1960s, Ben stands out as the variable that fiercely operates against the tides by using a different imagination. Change comes when it comes, especially if it is on a large transitional scale. Yet, Ben wins because in his solitary moments walking back down the hill, his different philosophy succeeds in bringing some measure of balance to the protagonist's life, for even in the city she learns to long for the

“greater simplicity” (129) of life in Pheasant, whatever was inherent in that consciousness.

Lowe Shinebourne’s careful composition of the prelude, final paragraph, epigraph and three-part structure all work together to create a voice for her Ben Yansen. His voice provides a balance to the commercial, technological and formal educational frameworks of experiencing life. However, because his philosophy is drowned out by many of the other characters’ ideals of life, Ben ends up living ‘a hidden life’ which, in a Camus-inspired interpretation, really is the ultimate form of rebellion. In his own extremity, what Ben shows is that we possess the power to choose and that very simply put, in the end it really does matter what we choose.

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Portals Amidst the Deep

Elodie Cage-Smith¹

Artist's Statement

I believe that there is an intimate collaboration between the artistic piece and the thought; the creative mind that is stimulated and inspired stretches the boundaries of human imagination. My rich background in Fine Arts and Fashion Designing always lends to the production of eclectic artwork that is uncommon and breathtaking.

My brush has been guided and influenced by the rich history of the Caribbean. Through research and observation, I peer into the lives and experience of our Caribbean forefathers and manage to tell their stories on my canvas. While I acknowledge the gruesome past of the Caribbean's history, I choose to accentuate the wealth, diversity and beauty of the Caribbean people.

The beauty and dynamism of my intricately stunning work most often emerges from a dark canvas. My paintings present and elaborate pictorial descriptions and interpretations of the memories and stories of our ancestors who have crossed the ocean. Through the display of gold relics, gemstones, jewelry, beads, bones, wrecked ships, bottles, fishing nets, ropes, chains and locks, I invite the viewer to a time and space once inhabited by our ancestors.

My paintings serve as a gateway to a period in our history when the greed for gain stirred the Caribbean waters. I do not fail to transport my viewers to the reality of the grotesque torment of that claustrophobic journey on the floating prisons where many lost their lives. My work poignantly reminds the viewer of the men and women who attempted to escape the bonds and boats of doom and lost their lives at sea: their bones and the ruins of mutiny now lay as a memorial in the darkness beneath the deep.

I convey a strong message amidst the shipwreck through the beads that map my work, the gold and the silver; I point viewers to something that is much more valuable. There in the sand among coral reef and algae are the memories,

culture, identity, pride and strength of a nation upon which the foundations of the beautiful Caribbean rests. My work serves as a gateway to the portals of the human imagination where viewers will be taken on a path that is influenced by their knowledge, experience and perceptive ability.

I find great excitement in traveling through time using my painting as the gateway to portals that allow all viewers to interact with historical destinations of great significance.



Under the sea illumination, 2015. Clay, 20" x 13".



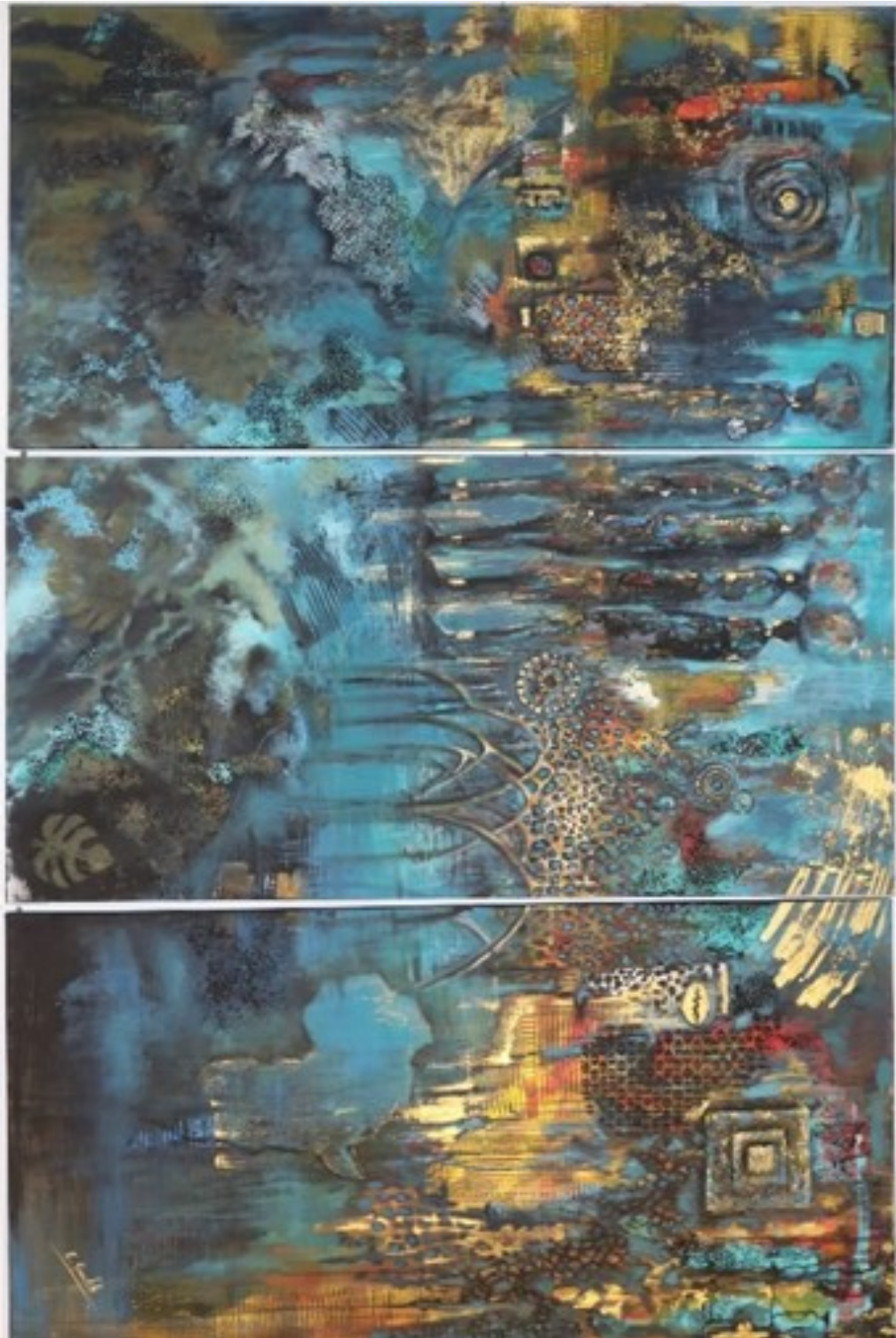
Afro Port, 2019. Mixed Media, 48" x 30".



From Ashes We Rise (Tryptic), 2018. Mixed Media, 56" x 128" .



Traded, 2019. Mixed Media, 46.5" x 60.5".



Displacement, 2019. Acrylic on canvas, 68" x 58" .



El Dorado, 2019. Mixed Media on canvas, 35" x 48".



Broken Kingdom, 2015. Clay, 27" x 16".

¹Elodie Cage-Smith, a native French-Martinican and naturalized Guyanese, is a gifted artist who has a passion for Caribbean history. Educated in Martinique and at the Burrowes School of Art and the University of Guyana, she has exhibited across the Caribbean. She is currently an Instructor in the Division of Creative Art.

Attitudes of Hinterland and Coastland Teachers towards Guyanese Creole

Tamirand Nnena De Lisser¹ & Charlene Wilkinson²

Abstract

The paper examines the language attitudes of teachers in Guyana towards Guyanese Creole (GC). It compares teachers on the Guyana coastland and teachers in the Guyana hinterland in the context of an education system where English is the ostensible language of education and GC the national lingua franca and the mother tongue of the great majority of school-aged learners. It reveals, firstly, a paradox in that hinterland teachers respond more positively to GC than coastland teachers, though coastlanders are more likely to be native GC speakers; and, secondly, a problematic situation *vis-à-vis* literacy education, the directives of the Ministry of Education, and teachers' stated attitudes to the two languages. This paper adds to the call for a national consultation on language policy.

1 Introduction

Studies of creole languages date back at least to the second half of the eighteenth century (see Bickerton, 1976 for an overview) and concurrent discourses in child-centred education and critical pedagogy have long established that “linguistic barriers to learning (with Creole the first language of many students in the Caribbean), [also] adversely affect learning outcomes” (World Bank, 1994: xxi). However, there have been continuous struggles in moving all the Caribbean states towards full acceptance and incorporation of their first languages into their school systems. In Creole-speaking communities of Guyana, the exclusion of Guyanese Creole (GC) as a language of education may have at least two important educational and social implications – the denial of literacy development in the mother language, and the delegitimising of the children’s voices as important in child development. The

tenacity of the culture of English as the only official language of instruction is remarkable.

Observations and personal conversations with teachers in Guyana leave no doubt about the challenges they encounter in delivering their curriculum, as Guyana's Ministry of Education (MoE) demands that they teach using English, a language that great numbers of their students do not speak. English is not the mother tongue of the vast majority of Guyanese (Eberhard, Simons & Fennig, 2019; Edwards, 2012; Devonish & Thompson, 2010; among others). According to Devonish and Thompson (2010), GC, referred to as Creolese by its speakers, is spoken as a native language by the vast majority of the approximately 758,000 people living in Guyana. Eberhard, Simons and Fennig (2019) corroborated this finding with direct figures, claiming that a total of approximately 650,000 out of a population of 750,000 Guyanese are native speakers of GC, although this language has no official status in Guyana. Some may argue that English is a mother tongue for native Guyanese whose socialisation separated them from the Creole-speaking majority (Alleyne 1965) and who learned English either from an expatriate, English-speaking parent, or through education, and have grown to mastery in the use of spoken and written English. However, such speakers are in a relatively small minority. Additionally, there are the indigenous peoples of Guyana, about 50,000 individuals or 6.5% of the population (Campbell & Grondona, 2012), whose mother tongue may be one of nine indigenous languages. The number of native speakers of the indigenous languages, however, is not proportionate to the number of people belonging to each language group (Carlin & Mans, 2015). For example, Arawaks make up 33% of the indigenous population of Guyana; however, no more than 10% of the group reported to be speakers of Arawak (Lokono) language (Devonish, 2010). The speakers of indigenous languages are shifting to either the official language, English, or the lingua franca, GC.

GC is significantly different from its lexifier language, English (Devonish & Thompson, 2010); but when many Guyanese English Language Learners (ELLs) speak English, they seem to overlook the differences. Craig

(2007) has attributed this to the heavy lexical overlap between the languages. As a result, many ELLs speak GC, believing that they are speaking Guyanese English (as indicated by Watson-Williams, Riddell & Curtis, 2011 for Jamaican Creole in Jamaica).

Linguistic analyses of student scripts abound across the Caribbean, where the conclusions drawn show what is dubbed in true colonial perception, ‘interference’ from the ‘home language’ (Tyndall, 1973; Jennings-Craig, 2006). Today, the researchers have observed that teachers in Guyana, many of whom have not attained full control of English themselves, continue to report that pupils’ scripts demonstrate unconscious code-mixing, or ‘interference’ of mother language – GC on the coastland and some hinterland areas, and indigenous languages in the hinterland – with English, the official school language. In other words, in Guyana, pupils’ mother languages are perceived to be irrelevant and annoying interruptions in the flow of English production – spoken and written – and pupils are measured academically by their ability to keep their English writing untainted by grammatical errors. For Creole-speaking pupils in Guyana, spoken GC is merely tolerated in the classroom, and there are currently no efforts to adapt what UNESCO refers to as mother-tongue-based multilingual education. This is no doubt related to the fact that creole languages are deemed low in status, inferior and bastardised varieties of their lexifier languages. Creole languages are generally not seen as full-fledged languages in their own right, though their validity was established by linguists about half century ago (Flórez, 2006). The researchers have observed that languages of this status, although being the first languages of the majority of the students, and in some cases the only language in which they have fluent communicative competence, are treated not as languages in the classroom, but as problems.

Since the 1970s, the nature of the language education process in Guyana, like elsewhere in the ex-British Caribbean, had already been interrogated by local researchers (such as Tyndale 1973, Craig 1999, among others, for Guyana). Pollard (2000) notes that Craig (1999) reflects his concern with both policy and pedagogy in Language Education in the Caribbean and other areas with similar

linguistic histories. Significantly, Craig had pointed out that creole languages needed to be maintained in schools for continuity in the cognitive growth of their speakers.

Devonish (2015), referring to the education *status quo* in Guyana, remarks that language awareness has gone backwards since the 1970s. He highlighted that the country, with a large number of linguists active during the 1970s, has deliberately chosen to perpetuate the ‘English Mother Tongue’ tradition in education, where the mother tongue of the pupils entering the school system is either treated as an unwanted impediment to learning or ignored and stifled in the classroom. And he asks, “Why this arrested development of the alternative? Why simultaneously the well-developed scholarly recognition of the issue inside the country and yet the absence of awareness and policy?” (Personal conversation with Hubert Devonish, 2018). Honest answers to these two significant questions may well lie in an understanding of language attitudes inside the country.

Juvrianto (2016) defined language attitudes to be positive, negative or neutral feelings that people have about their own language variety or the language variety of others. To measure language attitudes, one may employ a direct method (for example asking questions in an interview or questionnaire) or an indirect method (such as a matched-guise experiment) where participants are unaware that their attitudes are being measured (Juvrianto, 2016; Flórez, 2006). According to Savage (2014), language attitudes, whether relating to people’s attitudes towards their own speech or the speech of others, is an important factor in language use.

As far as the researchers know, there have been three extensive language attitudes surveys done in Guyana to date: Rickford’s (1980) matched-guise experiment on a sugar estate, Edwards’ (2012) survey among indigenous communities and Wilkinson’s (2015) direct method survey among primary school teachers on the coastland. But no comprehensive language attitudes survey has ever been conducted across the 83,000 square miles of the multilingual Guyanese landscape. With respect to language education in Guyana,

where English is a significantly important external language, and where GC is relegated to such a low status as to be considered a non-language, the attitude of teachers towards these languages is of importance. A retrospective analysis therefore yields an interesting point of departure. Rickford's matched-guise experiment among the working class on a sugar estate and the supervisory class revealed "ambivalent attractions to Creole and English norms present in the various social classes in varying proportions" (Rickford, 1980: 2). What was significant about Rickford's study is that the working class on the sugar estate recognised the economic power of English yet did not identify with it as their own.

Edwards (2012) examined the language learning needs of indigenous children and their teachers in Regions 1, 7, 8 and 9 of Guyana. While his primary objective was to accumulate facts about Amerindian language use – how many and what types of indigenous languages were being used, language needs of teachers, facilitating/constraining factors for first language education, recommendations for implementing first language education, and policy options – he also conducted surveys to determine the opinions of teachers about first language education for Amerindian children. His results regarding the language attitudes of teachers were inconclusive; however, most teachers preferred that the medium of instruction remain English. Edwards presumed this is the case because, among other reasons, they felt that English is the superior language.

The findings of Wilkinson (2015) show teachers on the coastland involuntarily shifting from the official linguistic expectations of the school system. Her study reveals a favourable disposition to the use of spoken Creolese to facilitate comprehension during lessons:

The results of this simple survey indicate a particular kind of language awareness among teachers, whereby they embrace an 'unofficial' language policy: Awareness of their responsibility to use and to teach English within the school system, and second, awareness of their responsibility to meet

the students' cognitive needs. In respect of the latter, a majority of teachers have acknowledged that GC should be used for ensuring students' comprehension if required (2015:197).

The Ministry of Education (MoE) has now recognized the value of mother-tongue- based education and the linguistic rights of indigenous populations in Guyana with regard to education and has launched the 'Wapishana Bilingual Education Programme' (see Thorne, 2018). However, in both Edwards' (2012) study and the MOE initiative, no mention is made of GC. The present study investigates language attitudes and awareness of both coastland and hinterland teachers across Guyana with regard to the use of GC in education.

2 Methodology and Demographics of Participants

In order to investigate language attitudes and awareness of teachers across Guyana, the direct method was employed. A quantitative study was done with the use of a questionnaire as the primary data-collection instrument. The questionnaire was divided into five sections which captured (1) demographics, (2) language awareness, (3) language use in the classroom, (4) language stereotypes and (5) general language use in education. However, for the current paper, we focus on section 5, with coastland/hinterland being the dependent variable. We define coastland teachers as teachers assigned to schools located in Guyana's coastal areas, i.e. Regions 2, 3, 4, 5, 6, 10 and Georgetown, with the exception of schools in the riverain villages of Regions 2, 6 and 10. Hinterland teachers are those assigned to schools in the inland regions of Guyana, i.e., Regions 1, 7, 8 and 9, inclusive of schools located in the riverain villages of Region 2, 6 and 10. Data from a total of 309 coastland teachers were collected by teacher-students from the University of Guyana (UG) during 2017-2018, and data from 34 hinterland teachers were collected in 2019 by the researchers. The dataset reveals that 90% of the sample were coastland teachers and 10% were

hinterland teachers. This is approximately in proportion to the national distribution of teachers in Guyana where 85% of teachers are assigned to coastland schools and 15% are assigned to hinterland schools (MOE Summary of Schools, 2020). This is also in line with the national demographics, where 89.1% of the population lives in the coastland regions and 10.9% in the hinterland regions (Bureau of Statistics, 2014). Informants were selected via convenience sampling as detailed in Table 1.

Table 1: Age and Gender of Participants

Age group		18-30	31-40	41-50	Over 51	unknown	total
Coastland	female	87	110	54	8	1	260
	male	21	12	14	0	0	47
	unknown	0	2	0	0	0	2
Hinterland	female	16	4	5	2	0	27
	male	4	2	1	0	0	7

Table 1 reveals that 84% of the teachers surveyed on the coastland and 79% in the hinterland were female. This is approximately proportionate to the gender distribution of teachers in Guyana where 87% and 79% of teachers on the coastland and in the hinterland respectively, are females (MOE Summary of Schools, 2020). Additional demographic data revealed the informants’ educational level, years of teaching, and the level of their students as detailed in Table 2.

Table 2: Demographics of Informants

Educational Level	Secondary	Teachers' College	University	Unknown	
Coastland	27	169	106	7	
Hinterland	13	17	4	0	
Years in	Under 5	5 - 9	10 - 14	Over 15	Unknown
Coastland	49	63	76	110	11
Hinterland	13	8	2	11	0
Level of students	Tertiary	Secondary	Primary	Nursery	Unknown
Coastland	13	62	208	20	6
Hinterland	1	7	18	8	0

As demonstrated in Table 2, 54% and 50% of coastland and hinterland teachers, respectively, had teachers' college education. While 38% of hinterland teachers had only attained the secondary level education, the number of untrained teachers on the coast was negligible (9%). Teachers on the coast had more years of experience than those in the hinterland: 16% coastland teachers had less than five years of experience, compared to 38% hinterland teachers with less than five years of experience. The teachers surveyed were mainly those who

teach at the primary school level, for both the coastland (67%) and hinterland (53%) groups.

The instrument for collecting data in section 5 of the questionnaire was a Likert scale with 9 questions, with possible responses: Strongly Disagree, Disagree, Neutral, Agree and Strongly Agree. For the analysis, negative responses (Strongly Disagree and Disagree) are grouped as Disagree, and positive responses (Agree and Strongly Agree) are grouped as Agree. All data were entered into an Excel database and analysed accordingly.

3 Presentation of Results

The results of the data analysis are detailed below. Scores are presented in figures with percentages on the y-axis; however, when summarizing the figures, the raw scores are presented in parentheses.

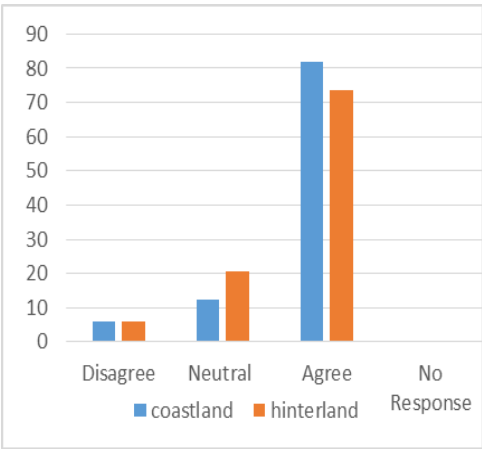


Figure 1: GC is a language

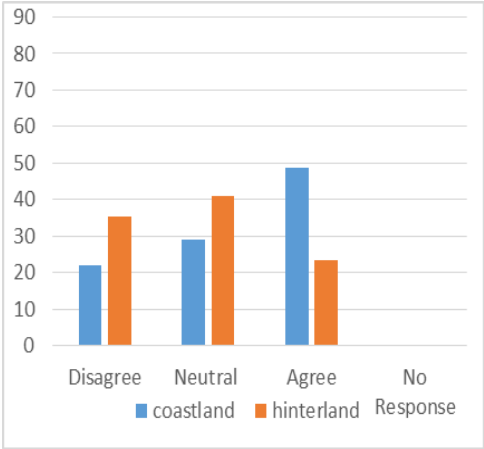


Figure 2: Make GC official

Figure 1 shows that both the coastland teachers (82% or 253) and hinterland teachers (74% or 25) mostly agree that GC is a language.

With regard to making GC an official language, there were mixed results. Figure 2 demonstrates that 22% (68), 29% (90) and 49% (151) of coastland teachers disagreed, remained neutral and agreed, respectively, that Parliament should make GC an official language. The hinterland teachers, however, display

35% (12) disagreement, 41% (14) neutrality and 24% (8) agreement that Parliament should make GC an official language.

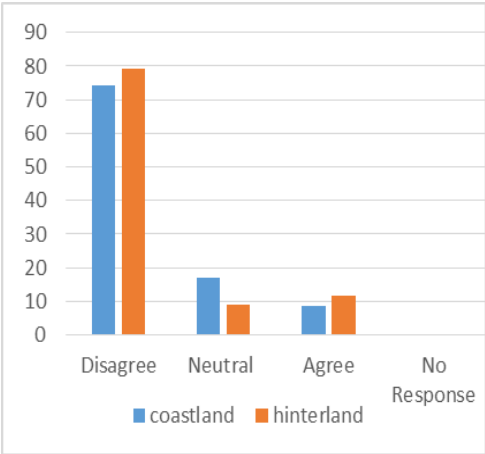


Figure 3: Forbid students to speak GC school

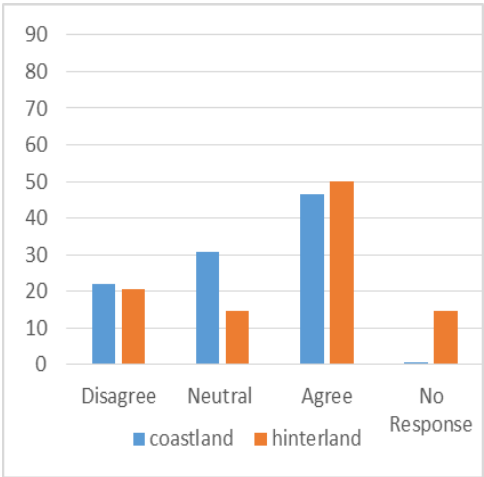


Figure 4: Teach GC literacy in

With regard to whether students should be forbidden to speak GC, the results reveal that 74% of coastland (230) and 79% of hinterland teachers (27) disagreed, as detailed in Figure 3.

Figure 4 shows that 22% (68), 31% (95) and 47% (144) of coastland teachers disagreed, remained neutral and agreed, respectively, that literacy in GC should be taught in schools; while among the hinterland teachers, we see a 21% (7) disagreement, 15% (5) neutrality, and 50% (17) agreement. No response came from 0.6% (2) and 15% (5) of the coastland and hinterland teachers, respectively.

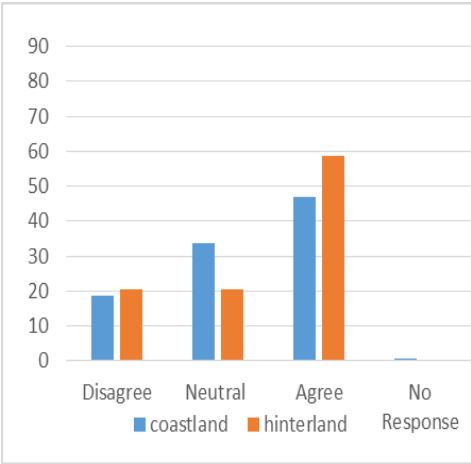


Figure 5: Use GC as a medium of instruction

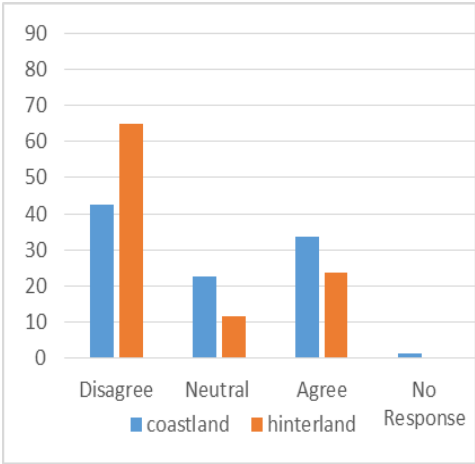


Figure 6: Write textbooks in GC

As demonstrated by Figure 5, teachers from the hinterland regions were more likely to agree (59% or 20) when compared to coastland teachers (47% or 145) that GC should be used as a medium of classroom instruction. 34% (104) of the coastland teachers chose to remain neutral.

Figure 6 shows that 42% (131), 23% (70) and 34% (104) of the coastland teachers disagreed, remained neutral, and agreed, respectively, that textbooks should be written in GC; while 65% (22), 12% (4) and 24% (8) of the teachers from the hinterland regions disagreed, remained neutral and agreed on whether textbooks should be written in GC.

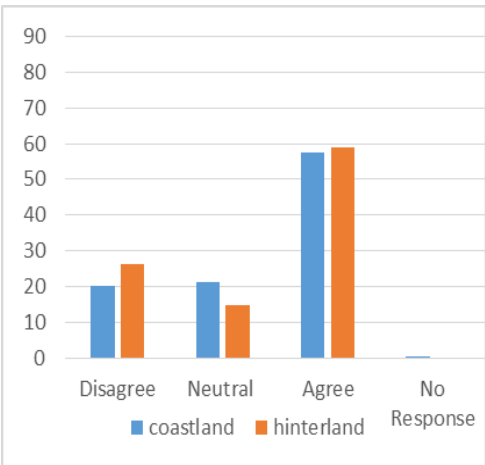


Figure 7: Teach in GC and English

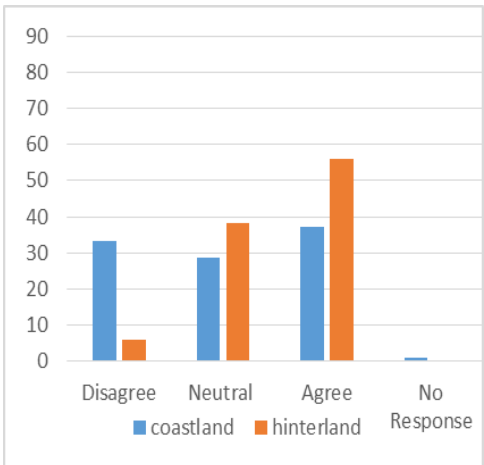


Figure 8: Administration supports GC

As revealed in Figure 7, 58% (178) and 59% (20) of coastland and hinterland teachers, respectively, agreed that teaching in GC and English is better than teaching in English only.

Figure 8 shows that teachers from the hinterland are more likely to agree that the administration supports the free use of GC at their school as 56% (19) agreed, 38% (13) remained neutral and only six percent (two) disagreed, when compared to 37% (115) agreement, 28% (88) neutrality and 33% (103) disagreement demonstrated by the coastland teachers.

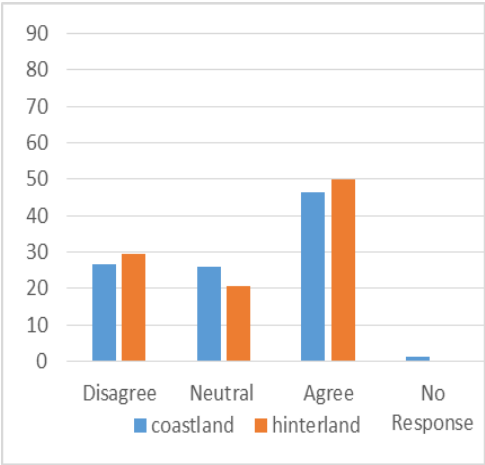


Figure 9: I would like to be trained to teach literacy in GC

When questioned whether they would like to be trained to teach literacy in GC, as detailed in Figure 9, the coastland teachers, at 46% (143), and the hinterland teachers, at 50% (17), responded positively; however 26% (80) and 21% (7) of the coastland and hinterland teachers, respectively, remained neutral, while 27% (82) coastland and 29% (10) hinterland teachers disagreed.

To determine positive language attitudes, cumulative positive responses which are 50% or greater were deemed to indicate positive language attitudes. Table 3 details the responses.

Table 3: Language Attitudes of Coastland and Hinterland Teachers

Question/Topic	Coastland (% agreement)	Hinterland (% agreement)
GC is a language.	Positive (82%)	Positive (74%)
Parliament should make GC an official language	Negative (49%)	Negative (24%)
Students should be forbidden to speak GC	Positive (8%)	Positive (12%)
Literacy in GC should be taught in schools	Negative (47%)	Positive (50%)
GC should be used as a medium of instruction	Negative (47%)	Positive (59%)
Textbooks should be written in GC	Negative (34%)	Negative (24%)
Teaching in GC and English is better than English only	Positive (58%)	Positive (59%)
At my school, the Admin supports the free use of GC	Negative (37%)	Positive (56%)
I would like to be trained to teach literacy in GC	Negative (46%)	Positive (50%)
Total	Negative (33%)	Positive (78%)

Table 3 reveals that of the nine questions, the general response of coastland teachers was negative, as only three questions – GC is a language; students should not be forbidden to speak GC; and teaching in GC and English is better than English only - yielded positive responses. The responses of the teachers from the hinterland appear to be mainly positive as only two questions were answered negatively – Parliament should not make GC an official language; and textbooks should not be written in GC.

4 Analysis and Discussion of Findings

The results reveal that teachers in the hinterland areas seem to have a more positive attitude towards the GC language when compared to teachers on the coast. Only three of nine (33%) questions yielded positive responses for the coastland teachers, while seven of nine (78%) yielded positive responses for the hinterland teachers. This finding is not surprising if it is interpreted within the holistic approach to multilingual education proposed by Cenoz and Gorter (2011). This approach takes into account all the languages in the learner's repertoire with an aim of developing learners' language awareness. Teachers from hinterland areas of Guyana are more likely to see themselves either as belonging to, or residing in, a multilingual environment and could plausibly be more aware and appreciative of linguistic diversity, thus they reflect more positive attitudes. On the other hand, this finding contradicts normal expectations since coastland speakers are more likely to be native GC speakers, with GC as their home language. However, the status of GC renders it undesirable and of little value on the coastland and this status may explain these responses.

A closer analysis of the data shows that teachers surveyed are aware that GC is a language and hold the view that students should not be forbidden to speak it. There is no significant difference between the hinterland and coastland teachers' agreement to both stances. Chi-Square tests generated *p* values of 0.393 and 0.407 respectively, which are both greater than the 0.05 *alpha* value adopted. This finding is in line with educational research that placed a great deal

of importance on children's freedom to express themselves in the classroom. Semple-McBean (2008), cites Article 12 of the 1989 UN Convention on the Rights of the Child in her study on early childhood, and challenged the myth that children are 'empty vessels'. She strongly advised that children should be listened to and their views should be considered.

Both groups also agreed that a bilingual education setting where teaching is done in GC and English is better than an English-only classroom. Chi-Square results demonstrated a p value of 0.55 which is greater than the *alpha* value of 0.05, meaning that there is no significant difference between the views of hinterland and coastland teachers. Both groups are aware of the values of bi/multilingual education and mother-tongue education.

Despite these positive attitudes towards GC and bilingualism, both coastland and hinterland teachers disagreed with the proposition that Parliament should make GC an official language – however, the teachers from the hinterland areas are more likely to oppose this idea. Chi-Square analysis reveals a p value of 0.018, which is lower than the *alpha* value of 0.05, thus confirming that there is a significant difference between the hinterland and coastland teachers' views about making GC an official language. Almost half (49%) of the coastland teachers surveyed agreed that GC should be official while only 24% of the hinterland teachers agreed. In addition, the majority of respondents in both groups (66% and 76%) disagreed that textbooks should be written in GC, but again the hinterland teachers were more likely to oppose the idea. Chi-Square results revealed a significant difference between the two groups of teachers with a 0.05 p value, which is equal to the assumed *alpha* value. Again, these findings are not surprising and are in keeping with the general misconceptions about Creole languages – lack of grammar, association with low morals, symbol of social and political degradation, non-use in academic literature (Flórez, 2006). Additionally, the hinterland teachers may be more likely to oppose the idea of writing textbooks in GC as this could have implications for the values, cultures and indigenous languages in hinterland schools, if a holistic multilingual pedagogy is not employed.

A striking symmetry was observed with the reports provided for the questions of whether literacy in GC should be taught in schools and whether teachers would like to be trained to teach literacy in GC: 47% and 46% was reflected for the respective questions from the coastal teachers, and 50% for each question for the hinterland teachers. Chi-Square analyses produced no significant difference between the groups with p values of 0.29 and 0.773 respectively. Additionally, mixed responses were uncovered where the hinterland teachers displayed positive attitudes (59% agreement) to the use of GC as a medium of instruction, while only 47% of the coastland teachers agreed. Despite these seemingly opposing positions, Chi-Square analyses showed no significant difference (p value of 0.278) between both groups as it relates to using GC as a medium of instruction. On the other hand, a significant difference (Chi-Square p value of 0.04) was noted for the support of the schools' administration towards the free use of GC at school, as reported by the hinterland teachers (56% agreement) and by the teachers on the coast (37% agreement). Coastland schools may probably be less supportive due to the creole continuum situation that is evident on the coast, and the difficulties distinguishing between GC and English due to lexical similarities (Devonish & Thompson, 2010).

5 Conclusion, Implications and Recommendations

The research reveals that teachers from the hinterland demonstrate more positive language attitudes towards GC than teachers from the coastland. Both coastland and hinterland teachers support the ideology that GC is a language and that students should not be forbidden to speak it. Both groups also agree that a bilingual setting where teaching is done in both GC and English is better than an English-only classroom. On the other hand, both coastland and hinterland teachers oppose the idea of Parliament making GC an official language and writing textbooks in GC. Mixed responses were found, however, with regard to using GC as a medium of classroom instruction, teaching literacy in GC, willingness to be trained to teach literacy in GC, and support for the free use of GC by the school's administration.

It is fair to state that four decades after Rickford's matched-guise experiment, the 'ambivalence' towards GC he recognised in 1980 among sugar workers also manifests in teachers' attitudes at the dawn of the 21st century. Teachers seem to be fully aware of the legitimacy of GC as a language, the benefits of bi/multilingual education and the need for mother tongue education, but this awareness is not respected in the classroom. The attitudes of teachers point to teachers giving full legitimacy to the need for conformity to the educational guidelines provided by the state, and so they continue to teach children in a language that they themselves have not necessarily mastered, and which their students may not come to master.

Wilkinson (2015) cited Craig's (2007) lament about the professional uncertainty in educational leadership that results in an approach to language education that eclipses the national lingua franca, which equates to 'subtractive bilingualism'. What is more insidious, is that this subtractive process is reflected in pupils' test and examination 'grades': The 'purer' the script, the higher the grade. In order to reduce this dilemma, a national stakeholder's consultation is necessary to bring the issues to the table, to bring the awareness and education. Consideration should be given to making GC an official language and to making textbooks and other learning resources available to students in their mother language. Teachers should be able to confidently use GC as a medium of classroom instruction, teach literacy in GC, and be trained to do so - all of which should be supported by the school's administration in line with the guidelines provided in Section 3 of the Charter on Language Policy and Language Rights in the Creole Speaking Caribbean.

Attitudinal change may be a difficult task which will require language awareness on three levels: sociolinguistic awareness, contrastive awareness, and accommodative language awareness (Higgins, 2010). The attitudes of teachers are of utmost importance, as the success of educational programmes - monolingual or bilingual - is dependent on the underlying goals, attitudes and pedagogical approaches of the educators (Ferreira, 2010). It is recommended that the language professionals at the University of Guyana take on a leadership

role, not only for training, but in advocating and raising public awareness through engagement in discourse on relevant issues relating to language use for educational purposes. Hopefully, this study may initiate critical discussions with respect to well-needed sustainable language planning and policy decisions, raise public awareness, and prove to be informative to the decision makers, the educational sector, and the general public.

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Integrating of Environmental Education into the Mathematics Curriculum: Effects on Pupils' Performance and Environmental Awareness

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Abstract

Guyana is an advocate for issues on climate change through its internationally-recognized Low Carbon Development Strategy, and there is an appetite for the integration of environmental education (EE) into the Mathematics curriculum. This quasi-experimental study examines the impact of integrating EE into the Mathematics curriculum on pupils' environmental awareness and achievement in Mathematics, and the challenges teachers face when incorporating EE into their Mathematics lessons. Using data from 307 pupils in 11 Grade Five classes, the integration of EE in Mathematics lessons confirmed EE advocates' belief that integration results in significant improvement in pupil achievement and enhanced environmental awareness. More pupils recycling (23%) and talking about things that can be done for the environment (20%) were the two most substantial percentage-point changes in terms of environmental awareness. The integration of EE motivated pupils, but teachers had difficulties balancing EE with the Mathematics content to avoid an overload of EE.

1 Introduction

The seventh United Nations Millennium Development Goal supports the view that environmental development is the key to achieving overall sustainable development. Education for sustainable development "... requires teaching and learning in a more participatory fashion that motivates and empowers learners to change their behaviour and take action for sustainable development ..." (UNESCO, 2015, p. 1). One way to contribute to Guyana's achievement of the 2030 Sustainable Development Goal 4 Target 4.7 is to "... ensure that all

learners acquire the knowledge and skills needed to promote sustainable development...” (UN, 2015, p. 19).

A growing number of people and organizations believe that Environmental Education (EE) is central to protecting our environment (e.g. UNECE, 2003). Guyana has scope for the integration of EE into Mathematics lessons and is a strong advocate for issues on climate change. The Low Carbon Development Strategy (LCDS) launched in June 2009 (Office of the President, Republic of Guyana, 2014) outlines Guyana’s vision for promoting economic development while at the same time combating climate change. It is our responsibility to preserve the environment, both for our sake and for future generations.

In 2010, the Canadian International Development Agency found that the majority of people in Guyana were not fully aware of climate change and how it affects them (CIDA, 2010). Pupils, especially those at the primary level, need to become more exposed and aware of the LCDS and various environmental problems so as to enable them to make a positive impact on the environment while learning and doing Mathematics. Integrating EE into the Mathematics curriculum provides the opportunity for pupils to become engaged in the teaching and learning process. They will be better able to connect the Mathematics to real-life context, therefore making the subject more relevant to them.

Connecting Mathematics to pupils’ real-life experiences may enhance their interest in doing Mathematics, which is pivotal in enhancing their Mathematics performance. In Guyana, Mathematics at the primary school level needs a catalyst to trigger better performance. Many parents, educators and others, including President David Granger (Ministry of Presidency, 2017) have expressed concern about the poor performance at the National Grade Six Assessment. From 2014 to 2018, an average of only one-third of the pupils scored at least 50% (Ministry of Education, 2018). Primary school teachers in Guyana must explore different teaching strategies.

1.1 Purpose

This study examines the impact of integrating EE into the Mathematics curriculum on fifth-grade pupils' achievement in Mathematics and their environmental awareness, and the challenges teachers face when incorporating EE into their Mathematics lessons. The research questions investigated are: (1) Does the integration of environmental education into the Mathematics curriculum affect pupils' performance in Mathematics? (2) Does the integration of environmental education into the Mathematics curriculum affect pupils' environmental *knowledge and understanding, attitude and behaviour*, and *participation and action*? (3) What challenges do teachers face when incorporating environmental education into their Mathematics classroom?

1.2 Environmental Awareness in Mathematics Classrooms

Environmental education can act as a vehicle for pupils to link their real-life experiences as they learn Mathematics. Teaching Mathematics in a real-world context can result in a change in pupils' perspective about Mathematics (Gutstein, 2003). In this vein, Habibi (2014) outlined two benefits pupils get when they study environment Mathematics education. First, it will be easier for pupils to understand the environment and second, they can develop their competence in Mathematics through the context of the environment. Moreover, critical thinking occurs when we infuse everyday life situations into Mathematics lessons (Schott, 2013).

Creating links between the topics in the Mathematics curriculum and the relevant environmental issues could enable pupils to become aware of environmental issues. Hence, Mathematics lessons can give pupils the opportunity to magnify their awareness of a variety of environmental issues (Kimaryo, 2011). Also, when people participate in nature-based outdoor activities, they are highly likely to develop attitudes favourable towards the environment and strive to take action to protect the environment (Wells & Lekies, 2006) and they are likely to pioneer change in their world (Habibi, 2014).

Over 100 empirical studies on EE show a direct impact on pupils. For example, Bartosh, Tudor, Ferguson and Taylor (2005) examined the impact of EE programmes on student achievement in Mathematics, reading, and writing in schools in Washington State middle schools. They found those schools with integrated EE programmes outperformed "non-EE" schools on state standardized tests. In addition, Baker-Gibson, Joong and Lewis-Smikle (2015), used three schools in Jamaica to investigate the effects of EE integration on pupils' mathematical knowledge and environmental awareness. Results showed a significant increase in both content knowledge and environmental awareness.

On the other hand, teachers are cautioned to tailor their classroom instructions to avoid impeding learning in EE and Mathematics (Rickinson, 2001). Athman and Monroe (2001) posited that EE should focus on context by linking mathematical concepts to children's real lives to enable the effectiveness of EE. Also, studies from countries such as China and Canada reported on projects with primary and secondary students on the integration of EE in Mathematics classes (Joong, 2013a; Joong, 2013b; Joong, Pan, Smikle, & Darkhor, 2012; Darkhor, et al., 2011) which resulted in the improvement in pupils' performance.

Further, problem-solving should thread through the Mathematics curriculum (NCTM, 1989). Pupils are likely to develop their problem-solving skills and appreciate components of Mathematics in their environment when teachers use EE as a vehicle in Mathematics lessons. Environmental education also leads to out-of-doors experience which promotes creativity, physical competence, environmental understanding and problem-solving skills (Chawla, 2006). Consequently, in Mathematics classrooms, integrating information outside the Mathematics curriculum acts as a tonic for the promotion of critical thinking (Wintz, 2009) which aids the development of problem-solving skills.

Teaching environmental awareness in Mathematics classrooms is challenging (Jianguo 2004). Spiropoulou, Roussos, and Voutirakis (2005) made it clear that the conduct of EE includes acquiring appropriate knowledge and developing skills and strategies for implementing change. Selecting and

effectively implementing appropriate strategies aimed at integrating EE in the Mathematics lessons require a skilled teacher. One key obstacle is teachers' lack of expertise in EE, which creates discomfort with the teaching through integration (Drake, 2004). Some teachers believe that it is hard to find appropriate materials to infuse EE into the Mathematics curriculum, although environmentally-related materials are abundant in some textbooks (Jianguo, 2004). Other obstacles include a lack of preparation and lesson time, large class-size and the related issue of the safety of learners during field experience and activity-based lessons.

2 Conceptual Framework

The effects of the integration of EE into Mathematics are like the flip sides of a coin. One side is Mathematics performance, and the other is environmental awareness. Environmental awareness can be divided into three categories: *knowledge and understanding*, *attitudes and behaviour*, and *participation and action*. These categories were influenced by the aims of EE in New Zealand schools which are: to enable students to develop awareness (New Zealand Ministry of Education, 1999) coupled with students' "environmental attitude and behaviour" as suggested by Munroe (2003).

Integrating EE into the Mathematics curriculum hinges on problem-solving and inquiry-based learning which features Socrates questioning. Dewey (1933) was one of the pioneers of inquiry-based classrooms in which teachers ask relatively more questions, and pupils are forced to discover for themselves. Other techniques such as cooperative and collaborative learning blend with inquiry-based learning. All of these tap into teaching and learning via the constructivist perspective in which learners are "actively involved in a process of meaning and knowledge construction" (Gray, 2002, p. 22). Teachers should organize and provide appropriate experiences to stimulate pupils to construct their own understanding of Mathematics (NCC, 1989) which could impact positively on pupils' mathematical ability.

3 Methodology

This quasi-experimental method study involved pre-tests, intervention, and post-tests. The purpose of this research was to explore the effects of integrating EE into the Mathematics curriculum. The non-probability convenient sampling was used to select four primary schools because of accessibility and proximity to the researchers. The initial plan was to have six schools with one control and two experimental groups at the Grade 5 level. However, because of unscheduled activities, teachers' and pupils' absenteeism and other unforeseen circumstances, four schools participated in the study. Three schools (A, B, C) had one control and two experimental groups, while school D had one control and one experimental group.

The exposure of participants to environmental education outside of the Mathematics classroom was beyond the researcher's control. Possible sources of environmental education included discourse at home, school activities, posters in the community, social media, news outlets, and peers.

3.1 Participants

Three hundred and seven Grade Five pupils participated in the study. One hundred and sixty were females, and 147 were males. The pupils' ages ranged from 8 to 10 years.

Eleven teachers, seven for the experimental groups and four for the control groups, were drawn from four primary schools in one administrative Region, Region 4. Teaching experience ranged from 3 to 22 years. All the teachers taught all the subjects on the primary school curriculum and had at least a Trained Teachers' Certificate from the Cyril Potter College of Education. There were four University graduates and two undergraduates.

3.2 Training Workshops

All seven fifth grade teachers for the experimental groups were from four schools and benefitted from a one-day training workshop in August 2016. The focus of the workshop was to help teachers develop skills in integrating EE into

their Mathematics lessons. At the workshop, the researchers briefed participants on the nature and conduct of the project. All materials were designed using the Guyanese context with particular emphasis on the 3 R's (Reduce, Reuse and Recycle).

A sample lesson on 'brushing the teeth' formed the catalyst for the initial discussion. The lesson involved calculating how much water was wasted daily when pupils leave the water on while brushing their teeth. Bar graphs showing water consumption per person per day in different countries were used to generate discussion on the conservation of water.

During the conduct of the workshops, each participant worked individually or in pairs to produce at least two lesson plans. The topics the teachers selected captured the mathematical content on their Grade Five scheme of work. All teachers were exposed to at least six Mathematics lessons that used data or materials on environmental issues in Guyana.

Although the teachers who worked with the treatment group (EE teachers) were provided with six sample lessons, they were encouraged to use the resource material provided (such as worksheets) to prepare their lesson plans. Our focus was on teachers maximizing their skills in developing and delivering integrated Mathematics lessons.

3.3 Intervention

Visits were made to the schools during the first week of school in September (2016) to deliver resource materials to ensure that implementation plans were in place. Teachers and school administrators were open to this short-term research project because it did not threaten or disrupt regular classroom arrangements. Also, training materials (including lesson plans, worksheets, teaching strategies and relevant websites) were emailed to sample teachers immediately after the workshop, and each EE teacher had a supply of materials to conduct the Mathematics lessons. These actions controlled bias issues.

The intervention involved six EE Mathematics lessons taught over 8 weeks. All six 30-minute Mathematics EE sample lessons used materials from

the environment and data from Guyana with a focus on LCDS. The environment was the context for integrating EE into the Mathematics curriculum to promote mathematical modelling of environmental issues.

The EE areas targeted for integration into Mathematics lessons included the use of electricity in homes, conservation of potable water, pollution sources, life-span of materials, and reusing materials. The Grade Five mathematical content areas included sets, number theory, measurement and statistics. For example, one lesson involved the conservation of electricity, during which pupils converted watts to kilowatts and calculated the cost of using some common electrical appliances in the home. Although the lesson focused on the computation of rational numbers, the teachers tailored mathematical problems and prompted discussion to help pupils develop awareness and promote the habit of conserving electricity at home.

In the lesson on electricity, the power consumption of light bulbs and common household appliances such as fans and microwaves was identified. The number of hours or minutes used per day, week, or month was used to compute the associated electricity cost. The money saved if the appliances were used for three-quarter, half, or a quarter of the time was also computed to guide the discussion (5 to 8 minutes) on appropriate actions to conserve electricity.

3.4 Data Collection

One of the researchers had conducted a similar study in Jamaica. The EE questionnaire was adopted from the Jamaica research (Barker-Gibson et al., 2015). Guyana and Jamaica share many similarities in their environmental, social and economic circumstances. The 20-item questionnaire (Appendix A) was divided into three categories as displayed in Table 1. Five items measured *knowledge and understanding*, ten items measured *attitude and behaviour*, and five items measured *participation and action*. The questionnaire was evaluated using Cronbach Alpha as a measure of reliability. The values of the pre-test for the experimental and control groups were .79 and .85 respectively. For this measure, values of at least 0.70 are commonly considered acceptable.

Table 1: Categories of Items on Questionnaire

Categories
Knowledge and Understanding (5 items): 5a,2b, 8b,10b,11b
Attitude and Behaviour (10 items): 1a,2a,3a,4a,6a,7a,8a,1b,3b, 4b
Participation and Action (5 items): 5b, 6b, 7b, 9b,12b
To show the effects of EE integration into Mathematics lessons.
^a Participants rated on a 5-point Likert scale (5 = always; 1= never)
^b Participants rated on a 5-point Likert scale (5 = strongly agree; 1= strongly disagree)

The EE questionnaire was administered to all pupils in 11 Grade 5 intact classes, as a pre-test and a post-test to capture the effects of integrating EE into the Mathematics curriculum on pupils’ environmental awareness. The EE tests were administered to the seven experimental and four control groups under the same conditions. The pre-test was administered within one week before the treatment, and the post-test was administered within one week after the treatment.

The impact of EE on pupils’ achievement in Mathematics was addressed using scores from a pre-test and post-test. The National Grade Four Assessment (NGFA) was used as the pre-test. All the Grade Five pupils took the NGFA at the end of grade 4. The pre-test (NGFA) covered all the concepts in the post-test. Although all the concepts in the post-test were in the NGFA, the pre-test examined more concepts. Hence, there was a concern about a threat to internal validity. However, the NGFA as a pre-test provided a baseline and a reasonable assessment of pupils’ mathematical abilities in the areas tested in the post-test. The post-test, which reflected only the Mathematics content covered during the treatment, was administered within one week after the treatment. Teachers from the treatment and control groups collaborated to prepare the Mathematics post-

test. Each test from the four schools was examined by a committee of experts in Mathematics education to verify the content validity before administration.

Due to our interest in finding challenges teachers faced when incorporating EE into their Mathematics lessons, two focused group interviews were conducted by the researchers. Four of the seven EE teachers from two schools were interviewed at their respective schools. Also, data were collected during our occasional classroom observations and informal interviews with EE teachers.

4 Results

We investigated the effects of integrating EE in the Mathematics curriculum. The three research questions addressed were: (1) Does the integration of environmental education into the Mathematics curriculum affect pupils' performance in Mathematics? (2) Does the integration of environmental education into the Mathematics curriculum affect pupils' environmental knowledge and understanding, attitude and behaviour, and participation and action? (3) What challenges do teachers face when incorporating environmental education into their Mathematics classroom?

4.1 Does the integration of environmental education into the Mathematics curriculum affect pupils' performance in Mathematics?

The post-test mean for the control and treatment groups ranged from 40.6% to 72.8% and 40.2% to 92.4%, respectively. All seven grade 5 treatment groups from schools A, B, C and D showed an increase in mean score from pre-test to post-test as displayed in Table 2. Six, or 86%, of the treatment groups recorded post-test means above 60%. The maximum difference in mean for the treatment groups was 14.6 percentage points as compared with 3.5 percentage points for control groups.

Table 2: Treatment and Control Groups: Change in Mathematics Performance

School	Treatment (n = 193)				Control (n = 114)			
	M%	SD	Change	p-value	M%	SD	Change	p-value
A- Pre-test¹	61.7	27.6	12.4	.000*	48.4	21.32	1.1	.662
Post-test¹	74.1	23.5			49.5	23.58		
Pre-test²	35.5	26.5	4.7	.050				
Post-test²	40.2	22.8						
B- Pre-test¹	47.2	18.7	14.6	.000*	37.1	23.4	3.5	.323
Post-test¹	61.8	17.3			40.6	19.8		
Pre-test²	91.4	7.0	0.93	.532				
Post-test²	92.4	6.8						
C- Pre-test¹	59.2	22.9	6.1	.045*	74.0	18.6	-1.2	0.695
Post-test¹	65.6	23.2			72.8	15.9		
Pre-test²	57.0	21.1	11.8	.000*				
Post-test²	68.9	16.4						
D- Pre-test¹	56.4	20.7	7.0	.000*	63.6	21.8	-0.7	0.80
Post-test¹	63.4	22.4			62.9	16.0		

**significant at $p < 0.05$*

The treatment group from school B Group 2 had a mean difference of 0.9, but the mean post-test score for this group was 92.3. Also, this group had more than 18 percentage points higher than any other group and recorded the lowest standard deviation (6.8).

The data from this study revealed that integrating EE into the Mathematics curriculum in all the schools resulted in a greater change in mathematical knowledge compared to pupils not being exposed to the treatment. Paired sample t-test analyses determined the mean difference in pupils' mathematical content knowledge from pre-test to post-test. Five of the seven treatment groups showed statistically significant differences. School A Group 2 had a p-value of 0.5. This suggests that the integration of EE affected Mathematics performance positively.

4.2 Does the integration of environmental education into the Mathematics curriculum affect pupils’ environmental knowledge and understanding, attitude and behaviour, and participation and action?

The frequency of favourable responses to items on the questionnaire provided a good illustration of the effects of the integration of EE on pupils’ environmental awareness. In Table 3, a summary of the percentage of positive responses (*agree* and *strongly agree* or *often* and *always*) for the 20 items on the questionnaire is presented in three categories: *knowledge and understanding*, *attitude and behaviour*, and *participation and action*.

Table 3: Summary of the Percentage of Positive Responses by Categories

Categories: Environmental Awareness	Treatment		Control	
	Pre-T	Post-T	Pre-T	Post-T
Knowledge and Understanding (5 items)	67.7	69.2	67.5	65.9
Attitude and Behaviour (10 items)	63.8	70.4	63.8	64.1
Participation and Action (5 items)	72.8	70.8	72.7	68.0
Combined	62.8	70.2	67.0	66.0

Overall, the percentage of positive responses for all 20 items for the treatment group increased from 62.8% to 70.2% which shows that the integration had an impact on pupils’ environmental awareness when compared with the results in the control group. The ten items on *attitude and behaviour* had a similar change (63.8 to 70.4), but the five items on *knowledge and understanding* category had a minimal change (67.7 to 69.2).

Items with a percentage of favourable responses of at least a 5% point change are recorded in Table 4. The 13 items were *knowledge and understanding* (3 of 5), *attitude and behaviour* (8 of 10), and *participation and action* (2 of 5).

Table 4: Items with Change (C) in the Percentage of Positive Responses

Item on pupils' environmental awareness		Treatment (%)			Control (%)		
		Pre	Post	C	Pre	Post	C
1b	It is important to me that the environment is clean	89	95	6	87	91	4
2a	I save water (for example, when brushing teeth)	53	68	15	56	72	-
3a	This year, I have talked to friends/family/ teachers about things that can be done for the environment	36	56	20	32	35	2
3b	It is important to have rules and regulations to protect the environment	48	61	13	52	50	-
4a	I use environmentally friendly products	43	58	15	57	51	-
6a	I recycle when I can	46	69	23	50	47	-
6b	I can influence an environmental solution when working with others	67	73	6	78	67	-
7a	I reuse materials in school/home as much as possible	50	56	6	52	50	-
8a	I am doing more to save our environment this year	58	75	17	63	65	2
8b	Environmental quality in Guyana is improving	64	72	8	64	58	-
9b	I would like the teachers to include more topics that are connected to the environment	72	79	7	75	70	-
10b	Environmental issues should be taught in schools	74	80	6	78	70	-
11b	Plastic bags are not good for our environment	57	70	13	71	71	-

About three-quarters of the pupils were *doing more to save our environment* (17% points, 58 to 75). This is probably linked to the fact that almost all the pupils (95%) strongly agreed that it was important for them that the environment is clean although the change in percentage points (6%) was the lowest. Likewise, at the end of the treatment, a six-percentage point change (74 to 80) was recorded for pupils who believed that environmental issues should be taught in schools.

The largest percentage-point change (23% points, 46 to 69) was for pupils *recycling when they can*. Although the lowest percentage (36%) for favourable response was recorded before the treatment, there was a 20% point change for pupils *talking about things that can be done for the environment*. Also, there was a 13% point change for those who believed that *plastic bags are not good for our environment* which was probably due to their new knowledge of the lifespan of materials.

At least 73% of the pupils believed they could influence an environmental solution when working with others. This should force schools to consider structures such as environment clubs to help facilitate pupils' *participation and action*.

4.3 What challenges do teachers face when incorporating environmental education in their Mathematics classroom?

The data on the challenges presented in this section were gathered from occasional classroom observations and formal and informal teacher interviews. All seven EE teachers made a deliberate effort to integrate EE into their Mathematics lessons. However, many teachers, regardless of their years of teaching experience, were unable to integrate EE in Mathematics lessons without some degree of anxiety: "It was difficult to find the balance between the EE and (Mathematics) content" (Transcript B #1). Some teachers lost their focus, regarding mathematical content, when pupils began leading the discussions on

EE: “Pupils focused mostly on environmental issues than the Mathematics concepts... I was afraid that they would have been carried away with the environmental concepts” (Transcript B #2).

One teacher suggested that teachers should teach with the understanding that each topic or concept is related to the environment but cautioned not to overdose pupils with EE: “Initially, while implementing EE into the curriculum, children were very excited but later became a bit bored” (Teacher with 8 years’ experience).

Another teacher (12 years’ experience) found it necessary to pave the way for pupils to realize that many of the materials they discard had value in the classroom to motivate them to study Mathematics. She claimed that “pupils failed to bring waste materials into the classroom initially because they did not see the need, importance, or recognize how waste materials can be part of their learning.”

Environmental education provided an abundance of opportunities for integration into the Mathematics curriculum: “Children had the same level of interest (in EE) regardless of their academic ability” (Teacher, 15 years’ experience). They found it easy to make links to their real-life experiences which acted as a catalyst for classroom discourse on saving the environment.

All seven teachers reported engaging classroom discourse and a high level of enthusiasm among pupils during the treatment. Pupils were more interested in the lesson because of the integrated approach. Also, three of the seven trained EE teachers said pupils’ motivation influenced them to work harder to complete their integrated Mathematics lessons successfully. In one case, a teacher (12 years’ experience) said she was energized even after the EE project when pupils expressed their desire for more integrated lessons.

There was evidence of some level of resistance to integrated Mathematics lessons. One teacher claimed that he did not see the relevance of the EE project initially, but as he continued with the project, he began to realize how broad and exciting the EE aspect is. In this vein, another teacher (10 years’ experience) claimed that “pupils were tentative at the beginning because the

concept was new, but as I continued to teach the integrated Mathematics lessons the pupils became more receptive”.

Also, the lack of social cohesion among teachers was evident in some schools. During the implementation phase, the EE teachers found it difficult to work as a team because it was a common practice to work individually rather than sharing experiences and teaching strategies with colleagues.

5 Discussion

The findings of this study support environmental education advocates’ belief that EE has myriad benefits, including significant improvement in pupil achievement in Mathematics, and enhanced environmental awareness (Joong, et al., 2012; Darkhor, et al., 2011).

Integrating EE into the Mathematics curriculum provides the opportunity for pupils to become engaged in the teaching and learning process. Environmental education does not only provide an integrated context for learning but is appealing, meaningful, and generates competing arguments in the classroom (Kimaryo, 2011). Connecting Mathematics to real-life contexts made the subject more relevant to the pupils, which resulted in statistically-significant increases on Mathematics scores.

The frequency of favourable responses to all three categories of items on the questionnaire provides a clear illustration of the positive effects of the integration of EE on pupils’ environmental awareness. *Attitude and behaviour* recorded the highest level of favourable responses. Most notably, the second-highest change after the treatment was pupils talking to others about things that can be done for the environment. This complemented the fact that more pupils were recycling, which was the greatest change in pupils’ behaviour. One significant change (12% points) for *knowledge and understanding* was about materials that harm the environment, which was probably due to the students’ new knowledge of the life span of materials.

The integration of EE into the Mathematics curriculum forced pupils to link Mathematics to their real-life experiences, and generate classroom

discussions about *saving the environment*. The discussion provided opportunities for the teacher to deviate from their usual role of evaluating pupils' views to fostering pupils' self-evaluation of their ideas. Such actions involve processes that rely on logical and reflective thinking which Ennis (1993) calls critical thinking. When pupils' learning activities engage them in critical thinking, they become better thinkers (Halpern, 1993). Mathematics education courses should be redesigned to improve critical thinking skills (Incikabi, Tuna & Biber, 2013).

Classroom observations revealed that EE in the Mathematics classroom forced teachers to pursue a pupil-centred learning path rather than the usual teacher-centred learning. Moreover, as Richardson (2001) confirms "students are active experiencers, rather than passive recipients, of environmental curricula, and respond to learning situations in individual ways" (p. 302). In this vein, the definition of EE offered by the North American Association for Environmental Education reflects our experiences during this project. Environmental education is not only learner-centered and supports the concept of learning communities which trigger higher-order thinking skills, but also provides contexts that maps children's real-life experiences (NAAEE, 1996).

Environmental education improves awareness of issues impacting the environment and influences pupils to act as change agents (Toth, 2013). Pupils need an education in which they free themselves from undesirable habits (UNESCO, 2011). The findings of this study reveal that there is need for improved pupils' *participation and action*, which had the least change in the percentage of positive responses. Well-educated pupils will demonstrate good behaviour in their daily lives and are likely to fix things around them (Habibi, 2014). In support of this view, there was a call for a policy that would result in more coverage of EE in the US curriculum (NAAEE, 2007).

Ultimately, improved knowledge and skills in preparing and delivering integrated lessons involving mathematical modelling of environmental issues could trigger an improvement in Mathematics results at both local and regional examinations. However, developing skills and content knowledge are only a

snapshot of effective teaching. Passion for the beauty of knowledge is the desired goal (Hughes, 2012).

The integration of EE into the Mathematics curriculum should be as seamless as possible. The lack of knowledge in EE hinders the quality of integration in the classroom (Drake, 2004). Teachers must equip themselves with new knowledge in environmental issues and find ways of balancing the Mathematics content with environmental issues to ensure that students are not overwhelmed with EE during Mathematics lessons. Also, teachers must continuously reflect on their practice, develop a team spirit and improve social cohesion with their peers especially during the lesson-planning and preparation stages.

6 Conclusion

Environmental education can be an engaging, meaningful and powerful tool to reach all of our pupils. Integration of EE paves the way for re-education and change in behaviour and improved performance in Mathematics. Teachers should approach EE in a thoughtful and informed manner to maximize output from the teaching and learning process. There should be some level of inquiry or problem-solving in each Mathematics lesson to catalyze pupils' motivation and engagement. However, more support is needed to promote pupils' *participation and action*.

This study was limited to the integration of EE into the Mathematics curriculum. However, the skills teachers developed from mathematical modelling of environmental issues should be transferred to other areas of integration such as social justice and sport. The teaching and learning process, especially in the Mathematics classroom, must be executed in a context that allows the learner to create an appetite for learning the content and to feel as though the lesson was specifically designed for them because it fits well in their own experience and interest.

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Appendix A

PUPIL SURVEY ON THE ENVIRONMENT

Age ____ Grade ____ Gender ____

Please do not write your name on this survey.

Record your response to each statement by filling in **one** of the five bubbles to the right of the statement. Your response options are:

A = Always O = Often S = Sometimes R = Rarely N = Never

Part I

	A	O	S	R	N
1a. I save electricity (for example, turn off lights)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2a. I save water (for example, when brushing teeth, taking a shower).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3a. This year, I have talked to friends/family/teachers about things that can be done for the envi-	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4a. I use environmentally friendly products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5a. This year, my teacher(s) have discussed envi-ronmental problems in class and/or things that can be done for the environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6a. I recycle when I can.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7a. I reuse materials in school/home as much as possible.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8a. I am doing more to save our environment this year.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Record your response to each statement by filling in **one** of the five bubbles to the right of the statement. Your response options are:

SA = Strongly Agree A = Agree N= Depends on situation D = Disagree
SD = Strongly Disagree

Part II

	SA	A	N	D	SD
1b. It is important to me that the environment is clean.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2b. We have environmental problems in Guyana.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3b. It is important to have rules and regulations to protect the environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4b. I am worried about the effect of air and water pollutions on the health of people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5b. I can influence an environmental solution on my own.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6b. I can influence an environmental solution when working with others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7b. I would like the school courses to include more topics that are connected to environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8b. Environmental quality in Guyana is improving.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9b. I would like the teachers to include more topics that are connected to the environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10b. Environmental issues should be taught in schools at all grade levels.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11b. Plastic bags are not good for our environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12b. I would like to start a recycling program at my school with teachers' help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you for your time for completing this survey.

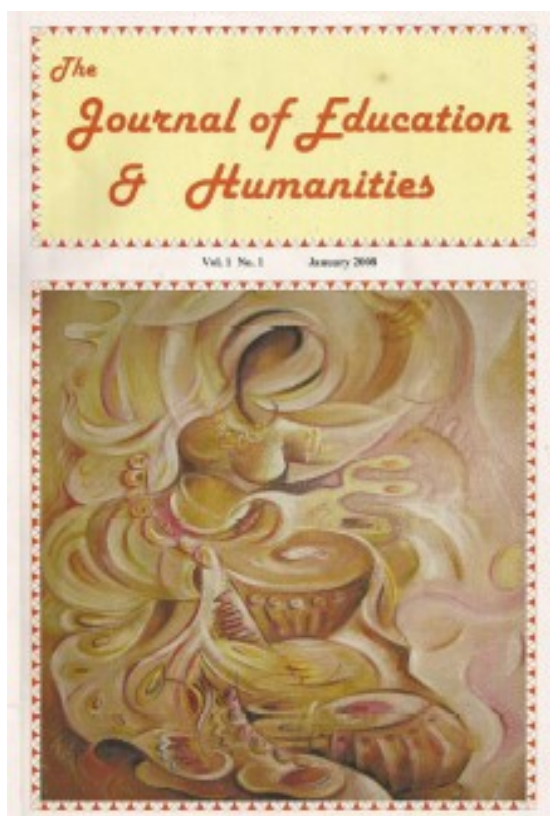
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