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STUDENTS' IMAGE OF THE ELEVEN PLUS: Implications for Identity, Motivation, and Education Policy

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This article seeks to add students' voices to the current discourse on the usefulness of narrowly focusing national assessment results on the establishment of merit as the basis for secondary school selection, and the impact that this practice has on students' image of schooling. This is in view of the fact that this practice remains a policy in many countries, including countries of the Anglophone Caribbean. Using a qualitative case study design and a framework that integrates motivation, identity, metaphor, and world view theories, this study solicited and analysed the views of 40 primary school students from Belize on their Eleven Plus examination experience. The study revealed that the students did not feel that the examination had the type of negative psychological effects on them that some parents and educators claim, partly because they did not perceive the national assessment as a high-stakes test. Instead, students used some entailments of the metaphor of the examination as a race—with the pain of training for, the anxieties of starting, and the joys of finishing the race—to make sense of their experiences in preparing for, writing, and receiving the results of the examination. The study also found that the Eleven Plus experience does, however, play a key role in motivating students to stay in school longer, and in the formation of a type of student identity that facilitates the integration of the students' view of self with such content universals as fear of failure and learned helplessness, as well as the Protestant temporal ethic of future orientation. There was no evidence, however, to suggest that the experience helped students to have a better sense of place or of what it means to be a postcolonial citizen in an independent Belize. It is recommended that more must be done to ensure that policymakers and parents listen to what students are saying and "take more serious notice."

Introduction

The Eleven Plus (11+) is an examination administered to students in the last year of primary school, which governs admission to various types of secondary school. The use of the examination as a policy tool for secondary school selection, and as a source of motivation for meaningful learning, has been controversial On the one hand, policymakers claim that the examination is a fair test since it levels the playing field for all students and so motivates more students to become meaningfully engaged in the learning process On the other hand, parents and some educators have criticized it for being restrictive, invalid, and unreliable, and for having overall negative psychological effects on students' identity or world view formation (Payne & Barker, 1986). De Lisle (2008) defines the Eleven Plus as an examination administered to some students in the last year of primary education, governing admission to various types of secondary schools, which significantly impacts on classroom curricular activities, especially in the last two years of primary schooling. At the heart of the controversy are students, whose views on the nature of the test, and of the experiences they have had in preparing for it, are hardly ever sought. Few stories have been told of the self-defining lived experiences that students have had with respect to coping in an educational environment with these conflicting claims while preparing for the Eleven Plus examination, and the part the experience plays in motivating students in meaningful learning or in identity formation—student identity being the students' sense of self and how that sense is influenced by their understandings and beliefs about schooling (Reeve, 2009).

Furthermore, when the stories of students' lived experiences are told, they are from the perspectives of "the Other," who are usually education researchers. Until recently, the voices of students simply have not been heard, even to describe what school really means to them, or the way in which their views of schooling in general differ from that of educators, policymakers, or their parents (Barone, 2001; Bennett de Marrias & LeCompte, 1999; Dryfoos, 1996; Marsh & Willis 2003; Nolan & Anyon, 2004). Seeking the views of students is important if we are going to better understand the conditions that prevent the attainment of acceptable quality in the education endeavour, or if we are going to be successful in improving the existing conditions in order to upgrade the quality of schooling.

My interest in hearing more from students on these matters was reignited recently following initial work done, in collaboration with a

colleague, on a supplementary tutoring project in Trinidad and Tobago. We found that how students actually feel about national assessments, which are sometimes high-stakes examinations, often differs widely from what educators, policymakers, or even parents would prefer (Lochan & Barrow, 2008). National assessments in the Anglophone Caribbean are administered to serve different purposes, including (a) to measure student achievement on country-specific standardized tests such as obtains with the National Tests in Trinidad and Tobago; (b) to hold schools accountable for the implementation of the national curriculum by year level, where the main priority is on closing the achievement gap of underperforming schools, such as obtains with the Junior Assessment Standardized Test in Belize; and (c) to establish merit as the basis for access to, or selection of, secondary schools, that is, some national tests are administered to determine, on the basis of merit, who gets access to a limited number of five-star secondary schools to which more students and parents would wish to have access than spaces are available (De Lisle, 2008). The Common Entrance Examination (CEE), or the Eleven Plus, was adopted across the region mainly to establish merit as the basis of student access to secondary schooling, and so functions as a high-stakes test for students in most of the countries of the Anglophone Caribbean. This paper is written from the perspective of someone who is an advocate for a greater student voice in education research, suggesting that I bring, as Donna Haraway (1996) says, "an optics [that] is a politics of positioning" (p. 257).

In this study there are three important potential questions that need our understanding in order to improve the quality of the learning experiences students have in primary schools, and to better align national curricular development goals with the teaching-learning activities in the primary school classroom:

1. What are students' perceptions of these national assessments, including the high-stakes examinations, and how meaningful are the examinations to them?
2. What overall purpose do these national examinations serve in motivating students to develop an appreciation for meaningful learning, and to what extent is this purpose being achieved?
3. What personal constraints do primary students face while receiving education in a school context that emphasizes national standardized assessments, including high-stakes testing; and how do these constraints impact on the logico-structural integration of self, or the students' personal identity, with views of national

development as presented to them by teachers in the primary schools?

Using self-determination theory of motivation (Reeve, 2009), Kearney's (1984) world view theory, and metaphor analysis as theoretical lenses, this article reports on a qualitative case study in which 40 Belizean students gave their views on the Eleven Plus examination experience. These views may reflect issues and problems which exist in other countries that use this form of national assessment. The article seeks to add student voices to the current discourse on the usefulness of national assessment examination results as a criterion for secondary school selection, since this remains a policy in many countries, including countries of the Anglophone Caribbean. It also seeks to explore the impact the experience has on students' education identity formation and their motivation to learn in meaningful ways. The article begins with a brief description of the Belizean society and school system, followed by a brief review of the literature on the Eleven Plus examination as an instrument of secondary school selection—a significant external motivator that guides classroom curricular praxis and student identity formation. Specific research methods are then considered, and a brief explanation of the theoretical frameworks of motivation, Kearney's world view, and metaphor analysis is provided. This is followed by the students' image of their experiences with the examination, and, finally, an epilogue of the author's reflections on the students' world view and a presentation of the impact this national examination seems to have had on students' motivation for meaningful learning.

A Glimpse at Belizean Society, Education System, and Decolonization Project

Belize, like Jamaica and Trinidad and Tobago, is one of the 17 member states of the Caribbean Community (CARICOM). Like Guyana and Suriname, Belize is not an island-state, being situated on the Central American isthmus, east of Guatemala, north of Honduras, and south of Mexico. Its land mass is twice the size of Jamaica's, or about the size of the State of Maine, with a population of about 350,000 people. The population is comprised of two major ethnic groups, Creole and Mestizo; and two minor ones, Maya and Garifuna. The Creole and Garifuna peoples are ascendants[1] of the African diaspora; the former brought to Belize as slaves by the British to extract hardwood from the land for export to Europe, beginning in the mid-17th century. The latter immigrated to Belize as free Blacks from the island of St. Vincent,

beginning around 1798. The Maya are the indigenous peoples of Belize, who are part of the indigenous peoples of southern Mexico and Central America. They were the first that the British forcibly engaged in the forest extraction enterprise, and though many died from diseases such as small pox and cholera, many also died from the exhausting nature of the forestry work; many also fled their British captors into neighbouring Guatemala. The Mestizos immigrated into Belize when their uprising against the Spanish conquistadores in southern Mexico in 1850 failed, after being defeated in what is known as the Caste Wars of Yucatan. Bolland (1997) has characterized the modern Belize society as follows:

> The pluralistic society of Belize more closely resembles the unranked ethnic system in which "ethnic coexistence" has characterized the relations between ethnic groups through most of their history. Encapsulated within a colonial territory, these groups were subordinate to the British but remained virtual strangers in relation to each other and with decolonization no single group has attained hegemony over the others. (p. 513)

The decolonization project in Belize began at about the same time that it did in the rest of the Anglophone Caribbean—in the mid-1940s following World War II. According to Bennett (2008), decolonization implies that "there is an existing state of colonization in which a territory is controlled from a distance by a metropolitan country" and "at the middle of the twentieth century, Belize was still such a territory" (p. 128). The decolonization movement was an attempt to break away from a state of dependency on Great Britain, not only politically and economically, but also culturally and educationally. In the process of educational decolonization, the educational policy of an internally self–governing Belize (which was achieved in 1961) became increasingly focused on education for national development, notwithstanding the socio-economic and traditional deterrence "which tended to prevent real reform" (Bennett, 2008, p. 128). Though there was encouragement for innovation within the existing structures, many problems remained to be dealt with "in the final two decades of the twentieth century" (Bennett, 2008, p. 128). These included the issue of quality in Belizean education and educational infrastructure. But arguably the most salient missing link was an education policy framework consistent with the overall decolonization project, which would guide the formulation of an Education Act that would legally bind the education sector to national development.

As part of the decolonization project, the people and government of Belize strove to put in place the infrastructure to enable the nation to

become self-sustaining and to progress in the political, economic, social, and cultural spheres. After 1962, formal education was given an important place in the development process. It was within this context that the Education Ordinance of 1962 was drafted and made the legal instrument to guide educational development in Belize. The ordinance was the legal manifestation of an education policy document that was built on the following three principles:

- Education is an investment and not merely expenditure on a service.
- The development process requires that efforts be made to provide a wide variety of human skills and knowledge.
- There should be equal opportunity for education for all the youth.

Out of these three principles the five pillars of the education policy document were constructed:

1. Determination to uphold the denominational school system and, within this framework, to speed up the primary school building programme.
2. Assistance, through loans, with the building of secondary schools, thus making secondary education available to a larger number of primary school students.
3. Adaptation of secondary education to the abilities and aptitudes of students.
4. Promotion of agricultural, technical, and vocational education.
5. Increasing training for technicians, artisans, and professionals so that the people of the country might play their rightful part in its development.

Armed with this policy framework and the accompanying legislation (Education Act 1962), in 1963 the Government of Belize approached Unesco to develop a model of schooling that would be a best fit to help Belize achieve its policy goals. The model was to take account of what existed in the country at the time. In 1964, this model was presented to the Parliament. It comprised six years of primary education providing basic compulsory education to students 5 to 11 years of age, followed by a three-cycle secondary system of varying lengths, which would be accessed according to the ability, aptitude, and interest of students, determined by their performance in appropriate national selection tests. The first cycle was a three-year junior secondary course of general education with some prevocational offering; the second cycle was a two-year senior secondary course during which instruction would become more specialized; and the third was a two-year post-secondary cycle that

would offer sixth form/junior college studies. The Unesco model was adopted by the Parliament with some modifications. For example, the Government of Belize retained the 6- to 14-year-old primary school system that had been in place for over a century.

At the time the new system of schooling was adopted, however, there were no national tests in place to determine placement in secondary schools. Each secondary school conducted its own entrance examination and set its own criteria for entry. In Belize, the term *Eleven Plus* was never adopted for the secondary entrance examination, because the initial purposes of the examination, and the age at which students wrote it, were different from what obtained in Britain or elsewhere in the Anglophone Caribbean. Students' views of the examination and how they have responded to it over the years have therefore been very different from their counterparts elsewhere. J. Alexander Bennett (2008) claims that the original purpose of the examination in Belize was "to measure the academic achievement of primary school pupils upon their completion of the eight years of primary schooling" (p. 151). Over the period 1944–1978, the examination serving this purpose was called the Primary School Leaving Certificate Examination (PSLCE), and comprised three papers in English, Mathematics, and General Knowledge. The reporting was pass/fail so that the standards achieved by students were not known. This led to changes in the structure and reporting on the examination in 1979. Students were then examined in English, Mathematics, Social Studies, and Science and the reporting was done via a student subject profile using norm referencing (A = top 10%; B = next 20%; C = next 40%; D = next 20%; and E = last 10%).

Except for a name change in 1983 from Primary Education Certificate Examination (PECE) to the Belize National Selection Examination (BNSE), and a mandate from the Ministry of Education (MOE) for this examination to be the sole one for the certification of primary school leavers, the determination of scholarship winners, and the partial determination of secondary school entrance eligibility, this PECE structure and reporting format remained intact until 2000 when the examination was changed to a criterion-referenced examination. With this new configuration, the raw scores by subject constituted the student profiles, and the name was changed to the Primary School Examination (PSE). Students sit the PSE after eight years of primary schooling in order to transition from primary to the secondary level. The examination is administered over two days and tests students' achievement in four content areas, namely, language arts, mathematics, social studies, and science. Two papers are administered for the mathematics and language arts examinations and one for science and social studies. The language

arts Paper I tests grammar and comprehension in English at the Grade 6 level, while the Paper II assesses students' creative writing competencies against some Grade 6 level standards. The mathematics Paper I is a multiple-choice paper, which surveys students' algorithmic competences, and Paper II is a problem-solving (word problems) paper.

The admission policy for most secondary schools comprises three criteria: a cut-off PSE score, a positive evaluation of the applicant's primary school transcript, and a written recommendation from the primary school principal on the applicant's ability to cope at the secondary level. Because of this admission policy, the PSE, as a national assessment tool, is not a high-stakes test, since the student's score on the examination is not the sole determining factor for secondary school selection.

Literature Review

The Eleven Plus Exam Experience: History and Impact

The Eleven Plus examination, which was first administered in the Anglophone Caribbean almost two decades after it was introduced in Britain following the 1944 Butler Education Act (Taggart, 2008), has undergone several radical transformations, including changes in nomenclature, structure, function, the manner in which students' results are reported, how students perceive their grades, and the impact the experience has had on students' identity formation, that is, how students view themselves as educated citizens living in a postcolonial society, their sense of place in it, and how they view development. Criticisms during its 32 years (1944–1976) of dominance as a key feature of the British education system have taken several forms. Known from its early years as the Eleven Plus examination in England, it was an examination administered to some students in their last year of primary education, governing admission to various types of secondary schools. The name was derived from the age group for secondary entry: 11–12 years. The Eleven Plus examination was once used throughout the UK, but is now only used in a number of counties and boroughs in England and Northern Ireland, and was associated with a now abandoned tripartite system of secondary education (Taylor, 2005). The prevailing educational ideology at the time was that high-stakes testing was an effective way to identify the strand to which a child was most suited. The results of the examination were used to match a child's secondary school to his or her abilities and future career needs.

Critics of the Eleven Plus claimed that the proportions of students gaining places at a grammar school in England varied by location and gender, and that there was a strong class bias in the examination favouring male students coming from middle-class households (Szreter, 2004). These and other criticisms eventually contributed to the demise of the Eleven Plus examination as an integral part of the education system in England in 1976, and in Northern Ireland in 2008 (The Sutton Trust, 2008). It has, however, remained as a critical component of the education system in the Anglophone Caribbean, including Belize, and continues to impact significantly on the educational world view of the region's student population in ways that undermine the region's decolonization agenda; an agenda that, in part, requires teachers to (a) provide students with the type of education that would be relevant to both societal and personal needs, by guiding them to an understanding of the significance of their new postcolonial citizenship; (b) relate the world of work to the world of study; and (c) help to democratize education by embracing a policy of nurturing open and inquiring minds in students. The highly pressurized nature of the Eleven Plus examination, however, has made it difficult for teachers to embrace this aspect of the decolonization agenda in the ways intended by the political leadership of the region. As the Minister of Education of Belize made explicit to teachers at a 1990 teachers' convention:

> For too long the approach to education in our schools has been authoritarian. The teachers have traditionally been the fountain of all wisdom, knowledge and understanding. The students did not dare to disagree. The call to democratize education and the policy to nurture open and enquiring minds in our children mean [sic] that freedom and the culture of inquisitiveness, discovery, dialogue and debate must grow in our schools. This is how we will build confidence and promote new and creative leadership in the future. This is how our children and our people will be motivated to become an active, enlightened citizenry imbued with national consciousness and positive attitude. (Bennett, 2008, p. 133)

Evidently, the processes and the product of Belize's educational system were not meeting the criteria against which to judge whether the country's youth were benefiting from the delivery of quality education in the schools. Parallel patterns have been observed in many countries in the region (Jules, 2011) and, as Bennett (2008) has pointed out, 20 years after the Belize Education Minister's 1990 speech, "the question of quality remains persistent" (p. 130).

Despite these concerns "primary schooling in most English-speaking Caribbean territories culminates at eleven in the Common Entrance examination (CEE)" (Payne & Barker 1986, p. 314). Though, in the region, the results of this examination are used primarily in the secondary school selection process, De Lisle (2008) points out that "by 2000, [national] assessments designed to monitor achievement standards were still relatively rare in the region, [and that] in the absence of such measures some policy makers have resorted to using data from high-stakes public examinations to evaluate achievement standards" (p. 72). The use of the Eleven Plus examination results by policymakers has therefore been expanded over the years to establish merit as the basis of access to secondary schooling; yet, students' views of the examination, and how they have responded to it, have not been queried.

In Belize, the purposes of and the age at which students write the Eleven Plus are different from other parts of the Commonwealth. Bennett (2008) claims that the original purpose of the examination in Belize was to measure the academic achievement of students upon completion of primary school. Belizean students' views of the examination were never sought in any systematic scholarly manner. This has contributed to a naïve perception of the impacts of this colonial legacy on the national consciousness, and on the country's education reform agenda over the past four decades (Hitchen, 2005).

In Barbados, the CEE was adopted in 1959 as an improvement on the existing uncoordinated system of secondary school admission. In Barbados, where 100% of Year 6 students write the CEE each year, securing a place at one of the nine older prestige secondary schools "remains a goal to which many children and most of their parents, fervently aspire" (Payne & Barker, 1986, p. 314). A wide gap in status and prestige exists between the nine older, formerly grammar, schools and the 12 newer comprehensive schools. However, the older schools offer only one-third of secondary places each year. The CEE was adopted mainly to establish merit as the basis of access to secondary schooling, and remains a highly pressurized assessment mechanism whose negative effects on schooling as a whole, "and on the individual children and their families" (Payne & Barker, 1986, p. 315), remain a source of serious concern to many educators (Jules, 2011).

In Trinidad and Tobago, the CEE was replaced by another high-stakes examination, the Secondary Entrance Assessment (SEA), in 2000, which has remained as highly selective and pressurized an assessment mechanism as the CEE it replaced. Its negative effects on individual children and their families are similar to those experienced in Barbados (De Lisle, Keller, Jules, & Smith, 2008). In this twin-island state where

100% of Year 5 students write the SEA each year, securing a place in one of the 42 prestige, mostly single-sex, denominational secondary schools is the goal to which many secondary school-aged children and their parents aspire (Campbell, 1992). A wide gap in status and prestige is perceived to exist between the 42 mostly denominational schools and the 101 newer government schools, which further adds to the attractiveness of these 42 schools. As in Barbados, these schools have the capacity to accommodate only 28% of the SEA pool. The SEA was also adopted mainly to establish merit as the basis of access to the prestige denominational secondary schools. Parallel patterns have been observed in Jamaica (Barnes, 2000), Guyana (Teelucksingh, 2008), and St. Lucia (Jules, 2011).

The Anglophone Caribbean's experience is common in Commonwealth countries that were former colonies of Britain, where there is a status hierarchy among post-primary institutions (Foodun, 1992). For example, in Malta, in Year 6, an Eleven Plus examination is given to students at age 11 to determine placement in secondary schools. In 2010, 73% of the 11-year-olds in Malta sat the Eleven Plus exam, but only 54% of them passed (Malta, 2010). Students achieving success in the Eleven Plus examination go on to attend prestigious junior lyceums during their secondary years, while those who do not pass attend area secondary schools.

But even in Britain, the victory of replacing the tripartite system by a comprehensive system of secondary schooling in the 1970s might have been pyrrhic, in the sense that grammar schools in England still persist today, as has the Eleven Plus examination selection test (The Sutton Trust, 2008), even though "grammars [today] have a widespread, low-level, impact on pupil enrollments across the sector" (p. 3). However, a recent promotion for the "Summit Saturday School Eleven Plus online Summer Courses" described the current demand for the examination in England differently:

> For decades various governments have attempted to abolish or discredit the eleven plus examination system but it remains as popular as ever. Parents are desperate for their child to have access to the level of traditional teaching, exemplary facilities, controlled environment and opportunities that this level of education at a top grammar school or private school can bring. (Summit Saturday School, 2011)

It might be fair to say that the Eleven Plus examination has ballooned, not only in England, but also into a global online assessment industry on a scale comparable to the Scholastic Aptitude Test (The Sutton Trust,

2008). The results of the test continue to be used as part of the selection process by grammar and private schools in Britain, as well as in many other countries in the world, including Nigeria, South Africa, Hong Kong, and Australia. Because of the high-stakes nature of the Eleven Plus examination, obtaining a high score on the test is more important than a critical deep understanding of the curricular materials presented. Therefore, there is a high incidence of tutors "teaching to the test," thereby contributing to washback effects in the scores (De Lisle, 2008). Furthermore, as Tobin and McRobbie (1996) point out in the case of Australia, in these high-stakes classroom learning environments, the cultural myths about the nature of education that the teachers share, not only constrain the enacted classroom curriculum, but also impact significantly on the students' education identity formation.

Student Identity

The notion of identity as conceptualized by George, Mohammed, and Quamina-Aiyejina (2003) was used as a framework to conceptualize student identity in this study. George et al. (2003), based on propositions from Bullough and Gitlin (1994), Crow (1987), and Weinstein (1989), contend that "teachers' perceptions of their roles are likely to be shaped by their core beliefs and images of teaching. These beliefs and images have been referred to as the *identity of the teacher*…, and they are said to be 'biographically embedded private theories which are generally taken for granted'" (p. 191). They go on to say that the beginning teacher identity is portrayed as images and metaphors. In this article, student identity is defined as the students' perceptions of their roles as these have been shaped by their core beliefs and images of primary schooling. The article explores the extent to which the experience of preparing for the Eleven Plus examination helped to shape students' core beliefs and images of schooling and meaningful learning. The principal analytic tool used to guide this exploration was Michael Kearney's (1984) world view theory. This theory was selected as the theoretical lens in this study for several reasons, including the fact that it has been used extensively to guide researchers, in recent related studies, with their analysis of logico-structural integration of self, time, and students' indigenous knowledge in classrooms where modern western science is taught. Some of these studies include those carried out by Cobern (1991), Cobern and Aikenhead (1998), George (1995), and Herbert (2008).

Motivation: The Self-Determination Theory

The component of the theoretical framework used in this study contends that the motivating styles used by teachers have strong implications for the subsequent motivation, engagement, development, and psychological well-being of the students they try to motivate (Reeve, 2009). One's motivating style is a typology that situates one on a continuum between the extremes of autonomy motivating and control motivating styles. It essentially describes one's approach to motivating others in terms of the type of support one lends in the motivation activity. Motivation support is categorized in four ways, namely, 1) the extent to which you nurture the inner motivational resources of the other; 2) the extent to which you rely on informal language; 3) the extent to which you provide explanatory rationales for the need of the other to embrace the task; and 4) the extent to which you acknowledge and accept negative criticism, since this will affect others working on the task. The theory holds that there are three types of motivation, namely, 1) a-motivation, that is, no motivation at the non-self-determination end of the spectrum; 2) extrinsic motivation in the middle region; and 3) intrinsic motivation at the self-determination end of the spectrum. Interest, being a topic-specific motivational state, is a salient construct in this theory.

World View: Structure, Content, and Integration

Like motivation, the world view construct forms a significant component of the theoretical framework utilized in this study. Cultural anthropologists contend that how people think about themselves, about their environment, space, time, and so forth, is their world view (Cobern, 1991). There are several world view models in the literature that address the major issues related to the nature and role of culturally organized macro-thought, that is, "those dynamically interrelated basic cognitive assumptions about a people that determine much of their behavior and decision making" (Kearney, 1984, p. 1). Kearney's model, as used in this paper, comprises of what he calls world view universals (Self**,** Other, Relationship, Classification, Causality, Space, and Time), which, he argues, are necessary aspects of any human world view. According to this model, there are two aspects of a world view—content and structure. The structure of the world view is the basic categories of thought or the universal presuppositions, which are integrated both logically and structurally, and which are common to all human world views. What then distinguishes different groups is the empirical content of these world view universals, as well as how well the presuppositions are integrated. Based on this model, the world view structures of a British physician and

a Tobago medicine woman are the same, but the content of their world views are different, as well as how the universals are integrated. They would attribute causes [Causality] of the common cold to different external agents; the British physician would attribute it to a virus, while the Tobago medicine woman would attribute it to the exposure of the body to a rapid change in temperature, such as getting out of bed in the morning and going straight to the shower.

The content of the world view universals can be sourced from another culture according to some principles of intercultural borrowing (Cobern & Aikenhead, 1998). Autonomous acculturation is the process of intercultural borrowing of attractive content of another world view and incorporating it into one's own. An example of this is George's (1995) case study of a Trinidadian woman who combined aspects of Western medicine with her indigenous folk medicine. Encapsulation (Zais, 1976), assimilation, and enculturation are multiple avenues of acquiring empirical ideas that comprise the content of one's world view (Cobern, 1991). Enculturation occurs when the newly acquired content integrates smoothly into existing content. Whereas assimilation occurs when the new content conflicts with existing ones, encapsulation occurs when the newly acquired content ideas are only partial or distorted constructs, and are not fully integrated to the point where the student's "outlook on life" is distorted (Cobern, 1991; Kearney, 1984; Zais, 1976).

Furthermore, the philosophical basis of Kearney's world view model is "rationalism modified with a strong dose of what might be called dialectical constructionism or interactionism, which proceeds … by the interaction between subject (Self) and the object (Other)" (Kearney 1984, p. 2). Hence in this model, while the structure of the world view universals are to a great extent systematically and logically integrated, the content of these universals are also in various ways interdependent, making it what Kearney calls a logico-structural model. Though rational and structural in its orientation, Kearney's world view model does not make idealist or nominalist assumptions about the relationships between thought and the environment; however, it does have "a mentalist bias in its pragmatic insistence that the best immediate understanding of behavior is offered by understanding the thoughts that underlie the behavior … In the short run people's behaviors are best explained by the ideas they have in their heads" (p. 4).

The model therefore assumes that the primary forces shaping ideas are non-mental external social and environmental realities that the perceiving mind responds to. According to Kearney (1984), a world view is linked to reality in two ways: "first by regarding it, by forming more or less accurate images of it, images that mirror the world, and second by

testing these images through using them to guide action" (p. 5). He concludes the description of the model by saying that "this dialectical relation [of forming mental images and testing it by way of action] operates not only at the level of macro-thought and macro-behavior but at the most primary level of perception" (p. 5). Hence the model can be used to compare the world view content/structure integration of different societies as well as different groups within a society, such as primary school students and education policymakers.

Metaphor Analysis

Prior to the 1990s, research on thought and action in many developed countries centred mainly on how students were behaving in the classroom and play field, and how well students were learning (Cameron, 2002). Since then, the emphasis has shifted to an exploration of the internal world of students, including their thoughts, perspectives, knowledge, and values (Ornstein, 2003). By the mid-1990s, narrative techniques and storytelling were being used to analyse learning and student thinking (Behar-Horenstein, 1999). The use of narrative analysis techniques to better understand how teachers teach, and how learners learn, revealed that metaphors have been used in guiding the search for best teaching and learning strategies (Cameron, 2002).

A metaphor is a way of thinking, an image that once captured by the mind can guide an action to its completion, that is, it is a way of coming "to know" something (Elliott, 2009). Metaphors can be understood as a way of expressing or conceptualizing something esoteric, abstruse, and/or abstract in terms of things that are well known or familiar (Tobin & Tippins, 1996). Metaphors can therefore make an idea more transparent and easy to understand. A metaphor about learning expresses, in the form of images or analogies, the work that students do, as Gurney (1995) illustrates in this example of a metaphor statement on teaching and learning: "Learning is like a journey that never ends, and teaching is like road signs, maps and other navigational aids, like the guy at the gas station who could make the directions very easy or very difficult" (Gurney, 1995, p. 28). Since metaphors about schooling are used by students to conceptualize what is going on in daily activities, understanding the metaphors the student uses offers a glimpse of the ideas of the person (Ornstein, 2003).

There are many critical entailments or attributes of the learning metaphor that students use in their classroom (Lakoff & Johnson, 2003). Gurney (1995) suggests at least three such attributes, namely, image, mood, and theme. *Image* refers to how the mental representation of the

metaphor is classified, for example, as "some version of 'journeys' … 'horticulture' … 'finding treasure'" (p. 8); *Mood* is the subjective characteristic of a metaphor that requires some interpretation on the part of the reader and has three dimensions, identified as Effort (active/passive), Affect (positive/negative), and Control (teacher-centred/learner-centred); and Theme, which refers to "the fundamental and primitive images or root concepts in Wittgenstein's 'first language' or Dewey's 'original meaning.' A theme is derived, and distilled, from images. In so doing, themes forge the basic common links between diverse metaphoric statements" (p. 12). Gurney uses this pair of metaphoric statements to illustrate:

ABSORPTION (Theme)

- Students and knowledge are like sponges and water respectively. Under the right conditions they will soak up everything, but lean on them too hard and it is all lost.
- Sun rays radiating to the planets where the sun is the teacher and the rays are ideas and concepts being projected to the planets and them being absorbed by each planet. Some planets will absorb more than others. (p. 25)

The image of the learner is that of a received knower, that is, learning seems to occur without any effort on the part of the learner, and the student seems to have no control over it. The absorption theme links the two metaphoric statements in that in both statements knowledge is delivered to the learner. These three attributes of metaphors therefore aid the construction of analytic relationships, and in so doing may help in facilitating a deeper understanding of a reported experience.

Furthermore, Tobin and Tippins (1996) have pointed out that metaphors also serve as a link between what is known and what is unknown, and provide a connection between images and language. These two qualities, they argue, may allow the student to build new knowledge and construct better insights of their lived experiences. Hence the strongest justification for the use of metaphors in an analysis like this one lies in their ability to stimulate critical self-reflection on the lived experiences of others.

Theoretical Framework

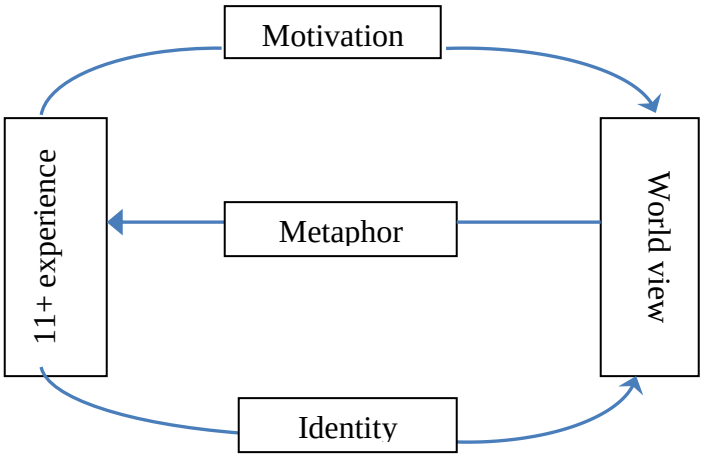

Figure 1. Functional linkages between knowledge domains.

> The world view of a people is their way of looking at reality. It consists of basic assumptions and images that provide a more or less coherent, though not necessarily accurate, way of thinking about the world. A world view comprises images of Self and all that is recognized as not-self, plus ideas about relationships between them, as well as other ideas. (Kearney, 1984, p. 40)
>
> An integral part of Schutz's concept of "the paramount reality" in human experience is that of personhood or personal identity, which is comparable to the world-view universal of Self. (Kearney, 1984, p. 135)

Figure 1 diagrammatically summarizes the interconnection between the five domains of the literature reviewed above by using the lines to indicate the main functional linkages between the domains. In one sense, the lines represent just an intuitively logical connection between the various constructs presented in the literature reviewed. But they also represent the main influences at any given point in the life of the metaphor the student is constructing to represent the Eleven Plus experience. The figure depicts how the Eleven Plus experience students have while in primary school helps to sculpture their world view, and how their world view in turn helps, through their image or metaphor, to shape the Eleven Plus classroom environment. As Reeve (2009) suggests, "the motivating styles teachers use can have strong implications for the subsequent motivation … [and] learning … of the

students they try to motivate" (p. 152). Hence, how teachers teach the primary school curriculum will impact on the students' motivation. Furthermore, as Deci and Ryan (1985) point out, when we engage in a task with a level of difficulty and complexity that is precisely right for our current skills and talents, we feel competent, that is, our competence needs are being met. This suggests that what teachers teach in primary schools will impact on how students view their competence, that is, their personal identities or efficacies. In Kearney's model, "personal identity … is comparable to the world-view universal of Self." Therefore, this framework has as its backbone the opposition and integration of the Self (world view) and the Other (the Eleven Plus experience) and can be used as a viable lens to gain some insights into how students' school experiences help to shape their view of the world.

In summary, the literature surveyed above suggests that the Eleven Plus examination, which had it origins in Britain in 1944, continues to persist as a national assessment tool and remains a highly pressurized assessment mechanism in many Commonwealth countries, including some countries in the Anglophone Caribbean, where it has been adopted mainly to establish merit as the basis of access to secondary schooling. It was abandoned in most Local Education Authorities in Britain in 1976 under the weight of criticisms about its restricting influence, its validity and reliability, and the overall negative psychological effects it had on teachers, parents, and, ultimately, on students. It has, however, typically persisted most in those countries where there are still insufficient secondary places for those completing primary school. Because of its highly selective nature, success in the examination is viewed as a guarantee of a place in one of the top-quality secondary schools in the country. This has been important to parents as it helps to determine their children's access to higher education and to future careers. A large proportion of the students who prepare for and write the examination, however, do not succeed in scoring above the cut-off mark required for entry into these "five-star" secondary schools. Unsuccessful students are relegated to second and third tier secondary schools of lesser quality than their first choice school. In most cases, the first choice is usually grammar-type secondary schools. There is a dearth of literature on students' perceptions of being a part of these highly selective educational environments or on how these high-stakes learning environments shape their core beliefs and images about schooling. A framework is proposed that infuses elements of world view theory which suggest that the primary forces shaping ideas, including those of students, are "non-mental external social and environmental realities that the perceiving mind responds to" (Kearney, 1984, p. 5). It also includes motivation and

identity theories to suggest how metaphors are constructed to concretely represent the ideas formed by the students based on their Eleven Plus experience. The framework is designed to give voice to some students' ideas and images of schooling.

Research Methods and Methodology

Data Collection

Fieldwork was conducted from June through July 2010. Data were collected from 40 students, who had been screened by the school principals for participation in the focus group interviews. Each of the four principals, identified by an Education Officer in the Research Division of the Ministry of Education, selected 10 students using the following screening criteria

- All students in the sample must have recently sat the PSE examination.
- Students should be chosen only from the Standard 6 class.
- Only students willing to articulate their views on the PSE programme should be included.
- No more than one student should be selected per household.
- A proportional mix of male and female students should be included in the group.
- Students who had performed at various levels in the examination should be selected.
- As far as practicable, the 10 students selected should be a representation of the racial/ethnic mix of the Standard 6 cohort.

The month of June was chosen to collect data from students because it was the last month of the school year, and students would have already received their Eleven Plus examination results and been placed in a secondary school. It was felt that at that time in the school year students would be in a better position to reflect on their entire Eleven Plus primary school experience, including the preparation phase; their experience with writing the examination; how they felt on receiving their results; and how they went about selecting the secondary school they would attend in the next school year.

The main approach to fieldwork was focus groups interviews (Krueger, 1988), in which conversations were held about the PSE experience. The 40 students selected were from primary schools in four of the six education districts in the country—one school each from the

northern, southern, eastern, and western education districts. The students were organized into four focus groups with 10 students per group/school, and the students in each focus group had some level of familiarity with each other. The focus group sessions, which were moderated by the researcher, were carried out at each of the four school sites, with each session conducted on a separate day. Sessions ran for about two hours each, with approximately equal time allotted to each member to speak. All interviews were audiotaped and the tapes were reviewed immediately following the interviews. The audio tape recordings were later transcribed.

In terms of research methodology, this study employs the case study inquiry, more specifically the collective case study design (Creswell, 2007; Merriam, 1998; Stake, 1995; Yin, 2003), since one issue was addressed—the Eleven Plus examination experience—and multiple groups were selected—four focus groups with 10 students per group—to show different perspectives on the issue. Using the collective case study inquiry, the researcher interrogated the nature of the dominant lived experiences of students, through which they have shaped their understandings of the purpose and importance of the Eleven Plus examination, and created their world views on schooling. In this study, a holistic analysis (Yin, 2003) of the entire case was undertaken. Beginning with thorough reading and re-reading of each set of transcripts, categories were created from the raw text and quotations that best illustrated the categories were extracted. The data were further reduced by combining categories that had similar meanings and eliminating those categories that were not common to all the cases. From this holistic analysis of the data, a detailed description of the case emerged. After this description, the author focused on some of the key issues, or analysis of themes, to better understand the complexity of the case (Stake, 1995).

Data Analysis

In this article, the students share their views of the PSE examination—how they went about preparing for it, its importance and purpose for them, and the role that the examination played in selecting the secondary school they would be attending. Though the structure of the students' image of their Eleven Plus experience is the same as that of policymakers, the empirical content and how the structural presuppositions are integrated can be assumed to be different. In order to describe the content and levels of integration of these presuppositions, the moderator posed five questions to each of the four focus groups. The

questions relate to how the Self (the students) perceive various aspects of the Other (the Eleven Plus experience), specifically the preparations for the examination, writing the examination, and the results of their performance. The responses of each group were analysed. In the open coding phase of analysis, significant coded responses were extracted from the transcripts. In phase two of the analysis (axial coding), the coded responses were categorized, and a summary description of the categories established for each question was then generated (Krueger, 1988). The final level of analysis was the interpretation of the category responses in terms of the theoretical framework to distil the students' "outlook" on their Eleven Plus experience, and the labeling of categories using both theoretical and in vivo labels. The three levels of analyses of the responses to the first question are outlined in detail in the results section of the paper.

Results:
The Content of Students' Image of the Eleven Plus Experience

What Are Your Perceptions of the PSE (11+) Examinations?

Level-one analysis: Significant statements

Typical significant responses to this question by students from all four focus groups include:

- *The PSE wasn't so hard. All that it required was for you to study and do your best on test-day. Those of us who followed this simple formula, I think, found the PSE exams easy.* (Easra, June 23)
- *Well, for me, the PSE was easy, even though the math, the problem solving paper II, was challenging.* (Naim, June 23)
- *The math paper was kind-a hard, but I thought the science was easy, the English paper was ok, and the social studies paper was like the science, easy!* (Julien, June 23)
- *Math was a little shaky and science a little complicated, but other than that it was good. I found the PSE quite easy.* (Larsha, June 21)
- *To me the PSE was easy. The math II was extremely challenging. But overall, I found it was easy.* (Darrell, June 21)
- *I found the PSE was really easy. It was not complicated at all for me and the easiest one was the math.* (Marsha, June, 21)

Level-two analysis: Summary description of responses

In each of the group sessions, students gave their perceptions of the PSE examination. Even though only about half the students who sit the examinations each year perform at a satisfactory level (average scores of 63% or better), most participants perceived the examination as being "easy." Furthermore, most participants agreed that the mathematics Paper II (the problem-solving paper) was challenging, and of the remaining three papers they agreed that the science paper was the easiest. There is an apparent mismatch between the students' perception of the level of difficulty of the examination and their performance, with the PSE examinations being much more difficult than students perceive it to be.

> ***Level-three analysis:*** Formulated meanings of significant statements and generation of categories

From these significant statements we get our first insight into how students (the Self) perceive this aspect of the PSE experience—writing the examination (the Other)—where we see the assumption, *math is difficult*, laid over the Eleven Plus examination. This aspect of the image is that of an obstacle in a path [Darrell: *the math II was extremely challenging*] that was otherwise obstacle free [Larsha: *but other than that it was good*]. The obstacle is a form of math anxiety, that is, a defused fear of mathematics that students acquire as a result of a deficit in the organizational stage of test preparation and past failures in the subject. Because they have learned to entertain these habitual, irrelevant, negative attitudes about mathematics, the anxiety is referred to as being a learned helplessness (Sarason, 1983). These significant statements are therefore categorized under the theoretical label: **Learned Helplessness.**

How Did You Go About Preparing for the PSE (11+) Examination?

In each of the focus groups, participants were eager to describe how they went about preparing for the PSE. For the overwhelming majority of the participants, the preparation strategy most frequently cited comprised three planks: the first being an attempt to extend the school day to create the prevailing tone of them living in a timeless present; the second was in engaging in endless drill and practice exercises to arrest or restrict their fear of failure; and the third being the retention of their childhood through deferring some of the adolescent gratifications they would have normally enjoyed, if passing the PSE examination was not an obstacle that they had to overcome.

Their efforts to extend the school day took many forms, with an hour and a half of extra-lessons given by the class teacher each school day and three hours on Saturdays being the most frequently cited. This alone

extended the students' school week by 10 hours. In addition, some students were further engaged in another two hours per day of private supplementary tutoring provided by another tutor, whose services they would usually pay for. While, at home, they would study for another two to three hours at night before they eventually went to bed. To restrict their fear of failure they would fill the content of their extended school day with mostly drill and practice exercises. There were teachers who directed drill and practice exercises that students were expected to complete on a daily basis. Less frequently, students, by themselves, in study groups, or with family members, would direct their own drill and practice exercises, usually going over past examination papers. The final plank in the strategy most students adopted when preparing for the Eleven Plus examination was to defer some of the adolescent gratifications that they would have normally experienced as part of a natural childhood. This retention of childhood experience takes many forms; the most cited ones being: giving up television and sporting activities; stopping the "hanging out" with friends; and spending less quality time with family members, which could lead ultimately to alienation from home communities.

Typical comments by these students include:

Category 2: Childhood Retentive

- *In preparing for the PSE I had to make a lot of sacrifices. Morning classes, afternoon classes, evening classes. Go home and do homework. I had some late nights going to bed after 12:00 midnight. On different nights you had to study different subjects and on weekends you had to make sacrifices as well. For example, instead of playing ball with your friends, or hanging out with your friends, you had to stay inside and read a book, write a story, or study something. You also had to prepare yourself by eating the correct foods; you could not eat a lot of junk foods any more. I really had to sacrifice a lot in preparing for the PSE.* (Richard, June 22)
- *Well, in preparing for the PSE I took morning classes, afternoon classes, evening classes and when I got home I still had to study. At home I would use the books "Lets Pass Math" and "Lets Pass Science" and I would work it. The next day I would give my teacher the work to check, who would tell me what was wrong and what was correct. Then it was doing that all over again the next day*. (Trevor, June 22)

- *Well, preparing for the PSE was extremely hard. I really had to push myself to the limit. Taking all the extra-classes, evening classes. Going home and study, study, study non-stop and really pushing myself to the limit. And all the things I loved doing I couldn't have done over this entire period.* (Darrel, June 22)
- *I prepared for the PSE with my sister. We would stay back in the evening for evening classes. Our teachers really pushed and put their all into helping us and they provided all the help we needed. I took evening classes and sometimes at home I would pick-up a book. But most of all I had to sacrifice most of the things I loved.* (Larsha, June 22)
- *In preparing for the PSE I would stay back for evening classes here at school, would come to Saturday classes and I studied at home for a few hours each night. I also received a lot of help from my friends, especially with the math paper II, the problem solving paper. We would together work past papers by doing the examples. But I found that doing that did not help much in solving problems that you were seeing for the first time*. (Julien, June 23)

Here we see the temporal presupposition, *future orientation world view*, guiding the preparation process. To have a future orientation means that one thinks of future events and conditions that have not yet come to pass more than one considers the immediacy of events that are actually occurring. Kearney (1984) points out that this temporal orientation "appears to have been strongly developed among the Calvinist … hard work, success in business, and austere living were ways in which future salvation was to be demonstrated" (p. 95). Freud, as cited in Kearney, described a personality type characteristic of this temporal orientation that Freud referred to as:

> anal retentive, arguing that even the pleasure of defecation is deferred to a later time by such a personality. Similarly, it is compatible with scholastic achievement in that such a student is more able to resist immediate distractions and focus energies towards distant goals – good grades, degrees, etc. (Kearney, 1984, p. 95)

A generated category which captures this aspect of the Other that has been integrated into the Self presupposition is childhood retention. The aspect of the image that is gleaned from these responses is that the period of preparation to sit the Eleven Plus examination is long and tough, even with help and guidance from the teacher. The teacher, whose learning activities included a large dose of drill and practice exercises, seems to

function more as coach of a cycling team training for a future event than as an educator who is trying to teach children how to think critically.

How Important Was the PSE to You and Why?

In each of the group sessions, an overwhelming majority of the students felt that the PSE was important because of its "banking" value, that is, because of the variety of ways in which the results (viewed as capital) could be deployed, with the three most cited being as a paycheck for their labours, as a reserve fund that they could draw on should the need arise, and as bragging rights for quantity of capital (scores on the test) accumulated. As bragging rights, the PSE results were important because it was an occasion available to many of the students to show appreciation to parents who had supported them over the many years of preparation for the examination. Many of the students who did well on the examination saw their achievement as payment for the many hours of hard work they had expended in preparation for the examination, and also as an indication of the amount of capital they had accumulated (knowledge, skills, and attitudes that they would use in secondary school and even later in adult life). On the other hand, those students who had struggled through the examination preparation process, and were yet to secure a confirmed place in a secondary school, saw the PSE results as important in helping them to secure a place in their first choice school. To these students, the examination results served as a "reserve fund" that they could draw down on to "pay" their way into their first choice school if the fund (the score on the test) was adequate to meet any such "payment."

Typical comments by these students include:

Category 3: Fear of Failure

- *It is somewhat true that if you don't get a good grade on the PSE you won't get into a good high school. It wasn't true for me however, as I had gotten into my preferred high school long before I had even written the PSE exam. So the real reason for taking the PSE was because I wanted to get a good grade so that I can look good as an individual.* (Richard, June 21)
- *The PSE examination was very important to me. It was a way to show my teacher, my Mom and my family what I could do with their help and I did it!* (Easra, June 23)
- *Well, the PSE was very important. It was important mainly because you can show all the people that sometimes without their help you won't be able to do it. And you know it really shows*

sometimes, the high school too that you can do it over there. (Niam, June 23)

- *The PSE was very important because the information you picked up over the years is going to pay off later on by helping you in getting a job and even in succeeding at high school.* (Julian, June 23)
- *Though the PSE was challenging, I knew how important it was for me to get a good grade like a B. I knew it was very important because I would need it to get into a high school of my choice. So on test-day, I was banking on doing well enough to at least secure an overall grade of a B.* (Arnold, June 23)
- *The PSE was important to me because as the others said you really need it to secure a place in a good high school, especially if you are on the waiting list. If your primary school grades are not really good, the PSE can bring you up and help you to get into that high school.* (Keyana, June 22)

Here we see the deeply embedded Causal presupposition, *the harder you work the more successful you will become,* influencing the students' predictive capacity. The Eleven Plus experience provided many opportunities for the Self to test this "learning is effort" hypothesis, but did so in a very controlled human environment, which constrained its predictive capacities. Keyanna, for example, predicted that "*if your primary school grades are not really good, the PSE can bring you up*." Though this prediction might be valid in a school context on a two-week unit test, that is, you can cram the night before the test and do better on the test than you did on the coursework; this type of cramming would be impossible to do for an examination like the Eleven Plus, which covers eight years of curricular content. As Kearney (1984) has pointed out, images of causalities are, on the one hand, the results of past experience and, on the other, "they shape strategies for interacting with social and physical aspects of the other" (p. 86). Students worked hard in preparing for this examination because they did not want to face the embarrassment of failure since the results are published. This fear of failure was one way that the Self was linked to this aspect of the Other, and it shaped the "work harder" strategy for interacting with the Other.

Furthermore, an aspect of the image gleaned from these responses is that the Eleven Plus experience is one phase that prepares you for another phase of the educational experience. Access to that second phase requires some level of success at the first phase. Additionally, the students' fear of failure makes the first phase more competitive than

collaborative, as only those students who compete well in this phase of the experience will be rewarded. Finally, the responses suggested that the first phase of the experience is a period of a Self becoming, that is, of the Self developing a social identity and learning how to think abstractly, for example, how to generalize from particulars (Piaget, 1970).

What Role Did the PSE Actually Play in the Process of Deciding the High School You Will Be Attending?

The decision on the choice of secondary school is made exclusively by the parents of most of the participants. In a few cases, the parents' decision is made in consultation with the student. Very rarely do students choose the secondary school on their own. In virtually all the cases, the decision on the choice of secondary school is made before the PSE results are published and, in this sense, the results do not feature to any great extent in the decision-making process. Though, as suggested earlier, many students still value their results as a form of reserve capital that they can draw down on should the need arise, this well-established practice of securing a place in the secondary school of their choice, using other cultural resources available to them, suggests that for most students, the PSE is not the high-stakes test that policymakers intended it to be. It further illustrates how students, with the help of parents and secondary school principals, resist the imposition by the state of a high-stakes examination policy that many of them find constraining.

What then are the prevailing factors that determine secondary school choice in Belize? Participants in the four focus groups cited several, with the most salient being the reputation of the school and the family's history with the school. Two other factors, cited to a lesser extent than the first two, were convenience and if the school offered training in specific careers. Students judged the reputation of a school by the quality of the programme it offers, the perceived level of discipline of its students and teachers, its performance in the high-stakes Caribbean Examinations Council (CXC) examinations[2], and the quality of the leadership at the school. The choice of the school is enhanced if the student's family had a history with the school, that is, if a family member was attending or had attended the school, and if the students had friends who were also attending the school. To a lesser extent, secondary schools are chosen if they are conveniently located relative to the community where the students reside, which would minimize the need and expense of travelling, or if the school curriculum is vocationally oriented and the school offers training in specific careers that are of interest to the student.

Typical comments by students in response to this question include:

Category 4: Locus of the Self

- *Whatever my Mom decided I think is good because she wants the best for me. She chose Western Nazarine High School because at that school you will learn a lot and there are more good people there who will guide you and help you, than bad people who will influence you in negative ways.* (Sadee, June 24)
- *My high school was already decided for me. It was either SCA or Pallotti. I am Indian from India living in Belize, and the Indian mentality here is that 'if you are not accepted at SCA or Pallotti that means that you are a dog!" So I had to get into either SCA or Pallotti to prove that I wasn't. The problem was that I wanted to go to SCA, but my parents wanted me to go to Pallotti because Pallotti is strict. I wanted to go to SCA because it has a really good academic programme. So I spoke to my friends who were at SCA and they taught me how to strategize. After a long battle with my parents, they eventually compromised and decided to take the change with me going to SCA.* (Marcia, June 22)
- *My parents and I had looked at Mount Carmel High School. But the fact that my family had no history with the school and I had no friends there helped us to eliminate that one as a possible high school choice.* (Student Y, June 24)
- *The high school I am going to is the Center for Employment Training (CET), because I want to study cooking and sewing and you can learn a lot more about that at CET than you can at the other high schools in this area.* (Tacarma, June 24)
- *Though I was accepted at two high schools, Sacred Heart College and Mount Carmel High School, my parents decided on Mount Carmel, which is right here in the community. Sacred Heart, although a better school, my father said was too far away from home.* (Krystal, June 24)

Kearney (1984) speaks of how some Native American cultures have world views in which the Self exists conterminously with animals, which he says accounts for the belief that members of these cultures share that they know when certain animals are wounded, endangered, or ill because the animal with whom they share the coterminous Self is thus affected. Some Christians who talk about the Soul (Self) leaving the body at the time of death also have this world view of a mobile Self. Here we are possibly seeing parallel assumptions about the Self, where aspects of the Self not coextensive with the student's body influence the secondary school selection process. It is the parents who ultimately decide on the

school that will be selected. In households headed by a single parent, that parent is usually a woman. Women therefore have a significant voice in the decisions about school choice for their children. Hence, factors such as family ties to the school, safety, and convenience are given considerable weight in the decision-making process; qualities associated with women ways of knowing (Belenky, Clinchy, Goldberger, & Tarule, 1986). At this stage in their development, students are not trusted with making important decisions. In this regard, the image of the relationship between the Self and the Other is that aspects of the Self are coterminous with the Self of the parent, usually the mother, and that it is this latter locus of the Self that is the decision maker. Though safety and convenience are important considerations in school choice, this coterminous locus of the Self has a dark underside that prevents some students from accessing the better secondary schools, which Krystal clearly recognizes: *"Sacred Heart College, although a better school, my father suggested that it was too far away from home, and my Mom concurred"* (Krystal, June 24).

In these responses we see that the two-stage aspect of the image is intensified and brought more clearly into focus. We also begin to get insights into the boundaries of the Eleven Plus examination, including its relatively minor role in the secondary school selection process.

What Overall Purpose Does the PSE (11+) Serve?

In each of the focus group sessions, an overwhelming majority of students felt strongly that the PSE served very useful purposes; the three most frequently cited being: peer socialization, legitimization, and future orientation. In preparing for the PSE, students had to spend a lot more time together at school in the evenings and on Saturdays for extra-lessons. Some students even visited other students' homes where they would form study groups. The additional time produced more opportunities for students to interact with each other as part of the peer socialization process, during which peer group norms and values became firmly established. Furthermore, the PSE as a high-stakes examination tested the curriculum content standards and so directly measured the extent to which students had met those standards. But, at the same time, it indirectly indicated the extent to which satisfactory levels of teaching and learning were occurring in the primary schools. In so doing, the PSE functions as an instrument of legitimization of the country's system of primary schooling. Comments such as Maileen's provided insights into the images of the legitimization relationships that the Self (students) has with the Other (the Eleven Plus experience):

- *The PSE is good because the results tell you if the teachers were putting in effort to teach the children and you can also see if the children were putting in the necessary effort to perform well on the test.* (Maileen, June 24)

Furthermore, by evaluating how well students were prepared academically to transition from the primary to the secondary level, the PSE was orienting these prospective secondary school students to the future. For contributing directly or indirectly to these three functions, the majority of the students in all four focus groups felt that the PSE is serving a very useful purpose.

Typical comments by students include:

Category 5: Dominant and Painful

- *Well it mostly just socializes. In my case it created a social space for me and my friends to meet. Overall, it brings people together in the evenings and on Saturdays at school and sometimes even in our homes in study groups. Yes most of the time we spend studying, but some of time is also spent on getting to know each other better.* (Naim, June 23)
- *I think the PSE is good because you get more time to spend with your friends at school, sometimes just simply hanging out together.* (Javier, June 23)
- *It helps you get away from your domestic chores at home and to spend more time with your friends at school.* (Maileen, June 24)
- *The PSE helps to show if students are serious about their school work and if they have been putting in the effort towards learning while at schools.* (Kernesha, June 24)
- *I sometimes agree that the PSE is serving a useful purpose and is a good thing, and sometimes I disagree. So I have two minds on the usefulness of the exam. I agree because in many ways the time we spend in school preparing for it helps us to be better and you get to know things that you did not know. It also helps to prepare you to get into the high school of your choice and it is an experience that we will remember for the rest of our lives. But I think they should not grade the exam. I think that all students who make the effort to write the exam should have passed it, all of them! Because they would have tried their best. Even though some of them may not have been good at academic school work, I think they all deserve to have a chance to go to high school.* (Student X, male, June 24)

- *Well, personally, I don't think the PSE is a good thing or a bad, so I am a little ambivalent about its overall usefulness. On the day of the exam when I was in the room, I felt positive and said to myself, this exam is very easy. I know all of this, as most of what was being examined we had recently learned in class. The PSE results come out and everybody say "Marcia your grade is good, your grade is good." So I am happy until they tell me what my actual grade is. Though I got an A, I was still mad, and this is also why I think the PSE is not such a good thing. I got a high, high grade but still did not make it to the top ten in the country. So I cried my eyes out. I cried all day that day. Everybody tried to convince me that this was only one exam, and that you will have lots of more opportunities to prove yourself in high school, to step up your game. I cried because throughout primary school you push yourself, push yourself, pushed yourself, believing that with hard work you will make the top ten in the country. Then this, other people just made one or two points more than you are in the top ten, and that makes you feel small.* (Marcia, June 22)

Here we see the relationship presupposition, *life is full of disappointments*, being validated by the Eleven Plus experience. Though at times the mood of the experience was active, where the students felt consciously involved in their own learning, and were persistent and optimistic even in the face of setbacks; at many other points it was frustrating and painful, and there was no way to control either mood, as Marcia's response demonstrates Another aspect of the image, apart from dominance and pain, gleaned from these responses is that schools are social institutions which should prepare you to handle life's expectations. The experience with the system of schooling, however, did not prepare them well to deal with life's disappointments.

Students' Metaphoric Statement: Like a Staged Race on an Obstacle Course …

In summarizing the students' responses, what evolves is a picture of a Self (students) integrated with the Other (the Eleven Plus experience) in a highly complex manner, engendering an image of schooling that is both active and passive, positive and negative, and at the same time controlling and liberating. The experience oriented the students to the future, taught them the value of hard work, and helped to embed in their psyche some critical social competencies. But the experience also provided the context in which the Self acquired some unwarranted anxieties, such as the fear of mathematics and the fear of failure.

Additionally, it led them to develop a very mechanical view of learning as effort, to value competition over collaboration, and did not teach them how to handle some of life's disappointments well. It is difficult to think of a single analogy that would capture all the active, passive, positive, and negative entailments of the mood, as well as the sub-themes enlightenment, disappointment, and personal sacrifice of this complex image, or world view, of schooling that the Eleven Plus experience engendered in students. Gurney (1990) suggests that the use of a metaphoric statement would be a more realistic option.

Kearney (1984) has suggested that one way to represent people's world view is through the use of analogies such as metaphors. Metaphors can be understood as a way of expressing or conceptualizing something esoteric, abstruse, or abstract by that which is well known or familiar (Tobin & Tippins, 1996). Gurney (1990), for example, cites how one student in his study used a metaphoric statement to describe her view of teaching and learning: "teaching is like road signs, maps and other navigational aids; learning is like a journey that never ends" (p. 28). But a metaphor is also a way of thinking, "an image that once captured in the mind can guide action to its completion" (Elliot, 2009, p. 285). It is the image that a metaphor statement conjures which gives it its power and makes it more or less synonymous with world view assumptions.

> Image is used herein with two meanings. One is the more literal sense of a visual representation in the mind, such as, for example, an image of the earth as an island floating in an immense sea above which are suspended the stars and the planets. Mental images may also be experienced in words, or in sensory modalities other than vision, such as auditory or tactile images. The visual imagery is thus only one form of mental representation, but it is no doubt a major one. Thus, we say "I see" to refer to an intellectual "insight" in any mode of representation, and use a metaphor such as "world view" to sum up a general "outlook" on life. (Kearney, 1984, p. 47)

An interpretation of the narrative generated in the focus groups suggests that, as a result of the interactions the students had over the eight years of immersion in a primary school system that prepared them to sit the Eleven Plus examination, the complex image of the experience they may have constructed could be summed up by this metaphoric statement:

> *The Eleven Plus experience is like stage one of a two-stage cycle race on an obstacle course with one huge obstacle (math).*

> *Riding competitively in this stage of the race is important, because if you finish in the top ten you will become a rich celebrity or if you get a consolation prize you will be allowed to ride the next stage, but if you don't place in prize range you are out of the race. To be able to ride competitively in stage one, preparation is long and tough, even with a good trainer; on the way, however, one experiences many good times and many difficult times, some painful others enjoyable, but all valuable even if you don't finish the race in prize range.*

The image of the Eleven Plus experience that occurred frequently in this sample was a version of a ceremonial two-stage race on a difficult course, for which one has to prepare intensely if one is going to be competitive enough to finish the first stage of the race in prize range. The mood of the experience is active, sometimes positive, other times negative, but learner-centred. Most significantly, the metaphoric statement suggests that the sub-theme which most permeated the experience is enlightenment, in that some valuable knowledge, as well as some hidden potential of the students themselves, becomes revealed through the experience.

Epilogue: Reflections on the Students' Image

Bennett (2008) claims that the original purpose of the Eleven Plus (PSE) examination in Belize was "to measure the academic achievement of primary school pupils upon completion of the eight years of primary school" (p. 15). This historic legitimization or certification function of the examination has been expanded to include two other functions, namely, (1) a reward function, whereby students who do well on the examination are awarded a secondary school scholarship that covers the cost of books and institutional fees; and (2) a secondary school selection function, which requires all government-funded secondary schools to use the examination scores as part of their admission policy. The majority of the students in this study indicated that they had been admitted to their first choice secondary school long before the results of the Eleven Plus examination had been published. In this regard, the examination was not very significant to students in the secondary school selection process and so is not serving that intended purpose. The question therefore arises as to what purposes it serves and what are the real variables that influence secondary school choice.

From the students' responses, there are four salient factors that impact on secondary school selection. The most significant is the reputation of

the school. Schools that are perceived as having strong academic programmes, high levels of discipline, doing well on the Caribbean Secondary Education Certificate (CSEC) and Caribbean Advanced Proficiency (CAPE) examinations, and which have strong leadership, tend to be first choice schools for most students. Secondly, secondary schools with which the student's family has had a history are preferred, that is, if family members have attended or are attending the school, it will be given serious attention in the decision-making process. To a lesser extent, secondary schools that are conveniently located in or near to the community, or those that offer training in a special vocational-technical area in which the parents of the student have a special interest, would be selected as first choice schools. That the Eleven Plus examination results do not feature significantly in this secondary school selection process suggests that it is the other two relatively soft subjective criteria, namely, the student's primary school transcript and the principal's recommendation, that are driving the selection process. Yet, it is the Eleven Plus primary school curricula that are driving the teaching and learning processes in the primary schools. This conflict has some implications for policy.

One of the challenges this situation poses for policymakers is how best to complement the other two criteria with an alternative form of assessment to the PSE, which would be a credible way to not only certify successful completion of education at the primary level and reward academic excellence, but also to ensure a more seamless and transparent transition of students from the primary to the secondary level. In this regard, there are two options in the region that might be worth exploring. The first is the Continuous Assessment Programme (CAP) that is being developed in Trinidad and Tobago (T&T). This programme makes the assumption that assessment should be a primary tool to facilitate teaching and learning, and should therefore be done skilfully, on a continuous basis, and in a very systematic manner. To achieve this, some principals and teachers were trained in assessment for learning techniques, in student monitoring, and in how to generate comprehensive reports on student growth on a regular and timely basis. All of this is done in an effort to make the student's education experience in transitioning from one level to the next more seamless. De Lisle, Seecharan, and Ayodike (2010) did an evaluation of this programme and found that "despite various concerns and contextual difficulties as the lack of resources and support, teachers were able to complete most CAP tasks in schools with strong, informed leadership" (p. 163). Even though many challenges still exist in the institutionalization of all aspects of the programme, several medium-achievement schools also reported relatively high programme

strength when leadership was effective. It must therefore be noted that this option is viable only for those schools with strong informed leadership, for once an innovation like CAP is installed, "the pathways to change are variable and sometimes even regressive, strongly dependent upon the quality of leadership and key organizational characteristics" (De Lisle et al., 2010, p. 161).

The second is the alternative assessment programme currently in place in Jamaica. Though this programme has elements that overlap with the CAP, it has enough unique features to make it both qualitatively and substantively different from the CAP in operation in T&T. Prior to 1999, Jamaica used the Common Entrance Examination (CEE) to assess students' ability to qualify for entrance to selected secondary schools in Jamaica (Barnes, 2000). The CEE or Eleven Plus examination was a summative examination written over two days. The Grade Six Achievement Test (GSAT) that replaced it in 1999 is an examination "that marks the end of months of on-going assessment of students in year-six of primary school" (Barnes, 2000, p. 1). In this assessment programme, students' primary school achievement is measured over the entire Grade 6 academic year. These monthly scores are then combined with their GSAT score to determine their final achievement scores. The Government considers this assessment programme to be an instrument that has brought "equity to the distribution of students to the secondary school" (Barnes, 2000, p. 2). For example, under the previous CEE system, the Ministry of Education would find places in secondary and comprehensive schools for only the top 30% of the more than 50,000 students who took the examination annually. The rest had to make their way into the technical and all-age schools or to private institutions. Under the GSAT, the Ministry is now placing 100% of the children in secondary schools as promotion from primary to the secondary level is now automatic. The additional places were created for students by upgrading some all-age and junior secondary schools to high school level (Barnes, 2000).

Though both CAP and GSAT have received positive reviews, they both have their critics. For example, Professor Errol Miller, of the Institute of Education at the Mona Campus of The University of the West Indies (UWI), contends that replacing the CEE with the GSAT is sending the wrong signal to the Jamaican student: "Automatic promotion from the primary to the secondary level without the requirement of meeting some performance standards [as the CEE endeavoured to set] is not the best use of scarce resources and sends the wrong signal to our young people" (as cited in Barnes, 2000, p. 2). Professor Miller further asserts that "where students in primary schools do not merit places in secondary

schools [that is, fail the CEE], they should be placed in all-age or junior high schools" (as cited in Barnes, 2000, p. 3). Though Miller's assertions have some merit and should therefore be considered by policymakers, I couldn't help but recall the comments made by the 11-year-old student, Student X, in one of the focus groups.

The views of Miller and Student X highlight the conflicting images on the use of national assessment data to establish merit as the basis for access to secondary schooling, as represented by those who have power to influence policy, like Miller, and those for whom the policy is made. The two perspectives are world views apart. The two views also suggest that the Eleven Plus experience helped to shape some of the core beliefs and images Student X held about schooling: *"I think they should not grade the exam. I think all those students who make the effort to write the exam should have passed it … I think all [students] deserve to have a chance to go to high school,"* including beliefs about the role of assessment in schooling, a view of learning as effort, and a strong position on the issue of equity in education. Clearly, his Eleven Plus experience helped to shape this student's education identity.

Even though the Eleven Plus examination does not play a significant role in the secondary school selection process in Belize, this study suggests that the experience the students had, especially with preparing for the examination, did play a major role in shaping their core beliefs and images of schooling, that is, in the formation of the students' education identities. Teachers also seem to have done a fair job of motivating students to go on to secondary school—the second stage of the race—as all the students interviewed indicated that they were going on to secondary school in September. What is significant is that most of the students realized that a good transcript and a strong recommendation from the principal carried more weight than their PSE results. This may have assisted in motivating them to stay in school and work hard at their school tasks, even when the tasks themselves may not have been as relevant to them as they would have liked. Being together with their friends for extended periods of time may have also been an added source of motivation for the students to stay in school.

Finally, it can be argued that some of these beliefs and images, such as future orientation and a mobile locus of self, are constructive, in the sense that they have the potential to contribute in a positive way to students' further engagement in education. Having a future orientation, for example, can motivate students to stay longer in the formal education system, and so may lead to greater lifetime earnings and greater social mobility. However, some of the views that the experience engendered in students, such as learned helplessness and fear of failure, are images that

undermine such important education ideals as lifelong learning. Furthermore, our schools are expected to produce students who are able to make skilful decisions about actions involving acceptable levels of risk, if we are going to survive and enjoy "the good life" in the future. A fear of failure could lead to us to be unwilling to take any risk at all, even with ventures where the risk of failure might be small (Nolan & Anyon, 2004). It is therefore important to provide more opportunities for students to share their views on the education that we are providing them, so that we can become more aware of the adjustments we, as educators, may have to make to better ensure that the education we say we are providing them is a better match to the education they receive, that is, we need to ensure that the implemented and the received curriculum are in better alignment (Ornstein & Hunkins, 2004).

In this article, I have presented some students' image of their Eleven Plus experience, employing motivation and identity theories, Kearney's world view model, and Gurney's metaphoric framework as my analytic lens. I have also offered my reflections on the students' image and have suggested how that image is different from that of an educator who continues to have influence on education assessment policy in the Anglophone Caribbean. The experience provided a context in which students acquired, as part of their education identities, some unwarranted anxieties, such as the fear of mathematics and the fear of failure. It also led them to develop a very mechanical view of learning as effort, to value competition over collaboration, and did not teach them how to handle some of life's disappointments well.

Although this is a synopsis of the experiences students in Belize have while coping with an educational environment managed by policymakers who favour the use of national assessment mainly to establish merit as the basis of the selection process at the secondary level, it could be considered as a metaphoric statement on possible lived experiences of students in other countries where high-stakes examinations are also used for this purpose. Though the students in this study found the experience enlightening, there were those many difficult times, some painful! Barnes (2000) points out that in Jamaica it was "not until the suicide of a 12 year old Jamaican boy for not doing well on the [11+] Examination … that more serious notice was taken on the tremendous strain [the 11+ experience had] on children" (p. 1). My hope is that more of our policymakers listen to the voices of our children and take "more serious notice" of what they are saying. By deliberately ensuring greater student voice in their research, education researchers, especially those who advise policymakers, can help to bridge the gap between these two divergent world views by advising policymakers on what the students are

saying. Furthermore, since it is in the primary schools that these two cultures—student and policymaker—clash, teacher education programmes that orient student teachers on how to recognize social aspects of teaching and learning, and train them to be cultural brokers (Cobern & Aikenhead, 1998) could also form part of the strategy to bridge the gap between the two world views. Finally, the political ramifications of these differences in world view, especially with regards to the importance and purpose of the Eleven Plus examination, warrants urgent attention from education researchers.

Notes

1. In the spirit of the epistemic nature and power of language discussed by Asante (1988), Kohain Hahlevi, a Hebrew Israelite rabbi, uses the term *African ascendants* to describe people of African heritage. In contrast to the commonly used term *descendent*, he argues that African ascendant more accurately describes the upward and forward moving nature of African people throughout the diaspora as well as on the African continent herself. Like Cynthia B. Dillard (Dillard, 2008), I subscribe to this notion.
2. At the secondary level, the Anglophone Caribbean standardized the student achievement examinations in 1979. At the Form 5 level, students sit the Caribbean Secondary Education Certificate Examinations (CSEC) and at the Form 6 level they do the Caribbean Advance Proficiency Examinations (CAPE). The agency charged with developing and administering these examinations is the Caribbean Examination Council (CXC).

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LANGUAGE ISSUES IN MATHEMATICS AND SCIENCE: An Analysis of Examiners' Reports on Students' Performance in Caribbean Secondary Education Certificate Examinations (2010-2011)

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This study adopted a systemic-functional approach to analyse the language issues that examiners referred to in their reports on candidates' performance in mathematics and science examinations administered by the Caribbean Examinations Council (CXC) in 2010-2011. Content analysis of reports in mathematics, chemistry, biology, physics, human and social biology, and integrated science identified four salient areas of language challenges for students—subject discipline terminology, data representation, content area reading, and content area writing—as these related to students' understanding and expression. Examiners' recommendations to address these issues were also analysed. It is suggested that Caribbean students may be facing challenges in accessing academic language through a language that is not their first language, and that this influences their ability to use conventional tools of the disciplines to show their understanding of mathematics and science in examinations. The article also makes recommendations for curricular review to provide greater opportunities for students to develop critical language skills in content areas

Introduction

Over the last two decades, a growing body of literature has emerged with a focus on the nature of the language proficiencies that learners need to develop in order to experience success in academic contexts (Janzen, 2008; Schleppegrell, 2007). Researchers and educators generally agree that schools require students to use an academic variety of language which differs from the kind of language that students use in their everyday life (Lager, 2006; Schleppegrell, 2001). This variety is most frequently called "academic language" (Fang & Schleppegrell, 2010; Zwiers, 2005, 2007). Although the definition of the term is contested (Valdés, 2004), growing evidence suggests that the linguistic demands of schooling create challenges for students across the curriculum. In fact, students who are not instructed in their first language face two challenges

when they are schooled: they must develop competence in the academic language that schooling typically demands, while they must simultaneously acquire content knowledge using a second language or dialect.

In the Caribbean region, the question of language and language education has also been well researched (Simmons-McDonald, 2004). However, there is not a significant body of literature exploring the kind of language challenges that confront Caribbean students when they are taught subject disciplines in schools, and when they are asked to show their understanding in examinations. Byron's (1988) study, which focused on the effects of language variables on problem-solving in mathematics, is one example of such studies. The issue of language in the Caribbean school curriculum assumes even greater significance when one considers the complex linguistic situation in the region. In the Anglophone Caribbean, the official language of teaching and learning, Standard English, is not the first language of many students, which is usually an English-related Creole. The consequences of teaching students in a language that is not their first language or vernacular have been extensively debated (Carrington, 1990; Craig, 2006; Simmons-McDonald, 2004). Robertson (1999) argued that the absence of informed and consistent language policies has had a negative effect on regional educational systems and, by extension, student learning.

This paper is an initial exploration that attempts to join these two strands of language research in education: academic language learning, and learning in a second language. To achieve this, it analyses the language issues highlighted in the reports of examiners on students' performance on mathematics and science examinations offered by the Caribbean Examinations Council (CXC). The findings are discussed in the context of pertinent research literature and the implications for classroom practice. The paper concludes with recommendations for curricular review in the Caribbean region, in order to provide greater opportunities for students to develop language competence in content areas.

Academic Language: The Language of Schooling

Different terms are used in the literature to refer to the type of language that students are required to use in order to learn in schools. This variety is most often called "academic language." Zwiers (2005) defined academic language as "the set of words and phrases that describe content-area knowledge and procedures, express complex thinking processes and abstract concepts, and create cohesion and clarity in

written and oral discourse" (p. 60). This suggests that competence in academic language is not limited to the acquisition of content vocabulary, but encompasses subject-specific ways of thinking and acting using all language modes. Zwiers (2005) argued that for English language learners, academic language is almost a third language, the acquisition of which is limited to the classroom. In a study of teacher practices and students' development of academic language, Zwiers (2007) concluded that classroom discourse patterns and activities have the potential to both develop and impede students' language growth. He suggested that teacher knowledge of the cognitive skills of content areas and the language that supports such skills is crucial, if educators are to devise appropriate pedagogy to help students acquire and use academic language. In the absence of this, students' language competence in the school discipline may actually be hindered rather than promoted.

Students' mastery of academic language is also thought to affect their level of success in school. For example, Bielenberg and Wong Fillmore (2004/2005) found that academic language is a critical factor in the disparity in achievement levels between high-performing and low-performing students in schools. With specific reference to examinations, these researchers suggested that teachers need to use instructional activities that facilitate the development of students' mastery of academic English, in order to enable them to learn cognitively challenging content and successfully transact the language of examinations. This is because of the nature of academic language, which is characterized by subject-specific vocabulary, grammatical forms and structures, figurative expressions, and prescribed ways of communicating (Fang, 2005; Schleppegrell, 2007).

Some of these features were identified in one of the earliest documents to highlight the importance of language across the school curriculum—the Report of the Committee of Inquiry into Reading and the Use of English (Great Britain [Bullock Report], 1975). Although the report specifically addressed instruction in the secondary school system, the recommendation that teachers need to be aware of the linguistic processes by which their students acquire information and develop understandings is also relevant to the primary level. It is especially crucial for teachers in the Caribbean region to be aware of the role of language across the curriculum, since many adopt an approach that assumes that students are learning through their first language or dialect, when this is not necessarily the case (Craig, 2006).

As the Bullock Report (Great Britain, 1975) demonstrated, and other researchers have asserted since then (Fang, 2005; Fang & Schleppegrell, 2010; Lager, 2004; Schleppegrell, 2007), educational institutions make

heavy demands on the language of those who learn and those who teach. To deal with the situation effectively, teachers need to have an understanding of how language operates generally, and the nature of the spoken language specifically, since so much of classroom instruction relies on teacher talk (Martin & Miller, 1999). Teachers therefore need to consider how children can be helped to use language to transform knowledge and experience into understanding across the curriculum and become active learners. This, however, cannot be done without reference to the language that students use in their communities, and the ways in which their language differs from those they are required to use to learn in school.

Language in Mathematics and Science

Language in mathematics, like in other school disciplines, constructs knowledge in specific ways, and schools attempt to teach students ways of using this language or "register" to participate effectively in mathematical ways of knowing (Halliday, 1978). Halliday defined "register" as "a set of meanings that is appropriate to a particular function of language, together with the words and structures which express these meanings" (p. 95). The variety serves a specific function and is characterized by vocabulary that is associated with a particular domain of activity, appropriate styles of meaning, and modes of argument. For example, lawyers in a courtroom would use a register associated with the practice of law. For mathematics, the "register" can be said to be characterized by the use of language in ways that are different from other disciplines, and from everyday language. For example, in baking at home, children may use or hear their parents use a measurement of "a pinch of salt," but this is not a conventional unit of measurement in school mathematics. Students may therefore come to class with the knowledge of terms used in one way, and must learn the mathematical concept called by the same name (Schleppegrell, 2007). Such vocabulary is needed to classify mathematical objects, understand mathematical ideas, and to reason mathematically. Though some teachers may explicitly teach new technical vocabulary, some crucial ones may be overlooked, and teachers may assume that students either know them already, or will pick up the meanings elsewhere in the curriculum (Lager, 2006). In a Caribbean linguistic situation, there is also a need for consideration of the overlap of words in the lexicon that may mean different things in the language systems, and thus create difficulties for learners.

Apart from vocabulary items, complex language structures in word problems in mathematics can affect students' reading comprehension and affect their ability to solve problems (Byron, 1988). Byron's study suggested that where the semantic and syntactic information in mathematical texts were close to understandings that students held, the better the chances were that they would solve the problem.

Additionally, mathematics uses multiple semiotic or meaning systems. A semiotic system, such as language, uses signs, symbols, and images to create meaning and influence behaviour by making meaningful choices in a particular context (Eggins, 2004). Just as spoken and written language do, visual modes of communication have their own "grammar," and different components work together to create meaning (Towel & Smilan, 2009). Applied to school disciplines, the use of semiotic systems requires students to make important connections among physical, pictorial, graphic, symbolic, verbal, and mental representations of mathematical and scientific ideas. Such connections are especially crucial where concepts are hierarchically ordered and the precise meanings of words need to be established (Fang & Schleppegrell, 2010). Schleppegrell (2007) demonstrated how complex grammatical patterning can be in common mathematical expressions. Some of the patterns that she identified were the following (all examples are from Schleppegrell, 2007):

- Long, dense noun phrases that express complex meaning relationships in problems that students have to solve
- The use of pre-numerative phrases that refer to abstract but quantifiable mathematical attributes of the head noun, such as "The volume of…"
- The use of classifying adjectives that precede nouns, as in phrases such as "rectangular prism"
- The presence of quantifiers that come after the noun: "prism with sides 8, 10, 12 cm…"

Teachers can easily underestimate the level of difficulty such grammatical patterns and structures pose for student comprehension.

Lager's (2006) study of middle school students' challenges in learning algebra also demonstrated the kinds of implicit mathematics language reading interactions that can make it difficult for students to understand written curricula. This was not only limited to interactions during instruction, but included challenges to their performance on assessment tasks. Based on his research, Lager concluded that it is difficult for English language learners to engage fully with mathematics

content if they do not possess a strong command of both common everyday language and the specialized mathematical language.

As it does in mathematics, language plays an important role in the acquisition of science knowledge and concepts. Students use language to interpret and create ways of representing science activity and knowledge in subject-specific ways (Carolan, Prain, & Waldrip, 2008). This includes science vocabulary, since many words such as "force," "work," "energy," and "stress" that are used in everyday speech have a different, precise meaning in school science. Apart from learning science concepts, Waldrip and Prain (2006) showed that students must also understand and conceptually link different modes of representation. Such representations include verbal, graphic, and numerical forms, which are often linked to produce multi-modal representations in science texts. The process would be even more difficult if learners have to comprehend in a language that is not their first language, since research evidence suggests that limited proficiency in English constrains students' science achievement when instruction and assessment are conducted exclusively or predominantly in English (Lee, 2005).

A related consideration is the extent to which culture and traditions in students' communities influence the ways in which they interpret signs and symbols, leading to misconceptions in school disciplines. For example, Lee (2001) examined the relationship between culture and language in science education, and concluded that cultural and linguistic diversity challenge conventional notions of science content, learning, teaching, and assessment. This is demonstrated in the work of Caribbean researchers such as George (1995) and Herbert (2003, 2008). George's initial study explored the differences between the traditional practices and beliefs of rural villagers and the principles of conventional science. She showed how some concepts may have meanings that are unique to the two different settings: community and school. Building on this research, Herbert (2008) devised a curriculum to help students to "cross borders" between traditional and conventional ways of knowing, and to enable them to have greater access to school science. Both researchers agreed that science teachers should be sensitized to the benefits of adopting a cross-cultural approach to teaching science that takes the prior knowledge and out-of-school experiences of their learners into account. There is international literature to support this position (Aikenhead, 1996; Costa, 1995; Jegede, 1997). The relevance of this issue to the current study lies in the recognition that the language challenges in school disciplines cannot be considered in isolation, but must be viewed in the context of the connection between language and culture, and

possible differences in experiences and world views of community and school.

Limitations of the Study

This investigation utilized only the examiners' reports on students' performance. It did not examine actual samples of students' written responses nor did it record the exact frequency of each difficulty. In addition, the reports focused on the written products of examinations and were not derived from observation of any other communicative language process in the course of student learning of mathematics and science. The use of actual students' scripts and classroom observation across disciplines would certainly provide primary data and allow different perspectives on this critical issue. Also, the question papers for the mathematics and science examinations were not included in the data.

Theoretical Framework

The theoretical framework used in the study is Halliday's systemic-functional linguistic theory, which explains language use and variation in terms of the diversity in structures and processes in the social system, and as a reflection of communicative choices made by users to serve different functions (Halliday, 1978). The theory further seeks to explain how the structure of a text works to provide unity through the use of patterns and cohesive devices. Systemic-functional linguistics is therefore useful for analysing language interactions in social contexts, in school, home, and community. Most activities that human beings engage in involve language use, and in this process a variety of texts are produced. For example, the occasion of a wedding generates diverse texts through the use of different modes, beginning with the written invitation, speeches by different officials, the signing of the register, and perhaps a slide show or presentation. Texts are thus produced in contexts using different modes.

Eggins (2004, p. 3) summarized the four main theoretical claims that systemic-functional linguistics makes about language. The first is that language use is functional; that is, it serves a specific purpose. The second claim highlights the semantic property of language in that it is used to create meaning. Thirdly, the social and cultural context in which language is used influences the meaning that is created. The final claim is that the entire process of language use in a specific context is a semiotic one; that is, language users choose the means by which meaning

is created, and the modes they select to communicate can vary from oral speech, to written text, to icons and pictures.

As indicated previously, Halliday (1978) used the term *register* to refer to a variety of language that is appropriate to particular social situations. Registers link texts (oral, written, or visual) to their context. *Text* is produced in the course of an event that occurs in a specific social *context*. This context is framed by the social activity taking place, which Halliday calls the *field*, while the *mode* is the rhetorical channel through which communication takes place. Consistent exposure to conventions of language use leads users to associate texts to particular contexts.

In classrooms, students who attempt to communicate using the register of a school discipline must consider the form and the appropriateness of their linguistic choices, given the requirements of content areas for the creation and interpretation of texts. Thus, when mathematicians or scientists use terms and structures in discipline-specific ways, they are using registers and creating meaning with other mathematicians and scientists in their community through the use of meaningful linguistic choices.

In order to focus the investigation, two main questions were addressed:

1. *What language issues were highlighted in the 2010-2011 reports of examiners of mathematics and science subjects offered for the Caribbean Secondary Education Certificate (CSEC)?*
2. *What recommendations did examiners make to address the language issues highlighted?*

The next section of the paper provides the research context and explains the method adopted.

Caribbean Examinations Council Assessment of Student Performance in Mathematics and Science

The Caribbean Secondary Education Certificate (CSEC) examination is a regional one for students who have completed five years of secondary schooling. It is administered by the regional examining body, the Caribbean Examinations Council (CXC), with all subjects offered during the months of May/June and a limited number of subjects offered in January. The Chief Examiner for each subject usually reviews the performance of students and compiles a report, which is circulated to schools. The reports are available to the public from CXC's website and they provide quantitative and qualitative analyses, and detailed assessment of responses to questions on the examination papers. These

reports vary in focus and details across subject disciplines. However, they usually link to the relevant CXC syllabus, which is part of the curriculum of secondary schools in the region. Reports highlight the perceived strengths and weaknesses of students' responses, compare their performance with that of students examined in previous sittings, and offer recommendations for teachers. While the examiners' comments primarily address students' knowledge, skills, and understanding of subject area content, some observations connect to other areas that can be described as cross-curricular. Language is one such area, given the fact that students must read and interpret questions in the final examinations, and must respond to such questions in writing, or in a language mode that is conventional for that subject.

Data Analysis

To answer the research questions, a qualitative content analysis was conducted of 2010 and 2011 CXC examiners' reports for mathematics (CXC, 2010e, 2011e) and five science subjects–biology (CXC, 2010a, 2011a), chemistry (CXC, 2010b, 2011b), physics (CXC, 2010f, 2011f), integrated science (CXC, 2010d, 2011d), and human and social biology (CXC, 2010c, 2011c). These 12 reports constituted the data set for this study.

Content analysis seeks to identify, describe, and analyse the content of documents. Graneheim and Lundman (2004) surveyed literature on content analysis and proposed definitions of key concepts related to qualitative content analysis. These include *manifest and latent content*; *unit of analysis*; *meaning unit*; *condensing*; *abstracting*; *content area*; *code*; *category*; and *theme*. These terms are used as defined in Graneheim and Lundman, who distinguished between the *manifest* and *latent* content of texts; the first referring to the visible and obvious, while the second labels interpretation of the content at a higher level of abstraction. The initial examination of the *manifest content* of the reports revealed that recurring language issues were mentioned and that recommendations were made to address them. The next stage involved a process of data *condensation*. Each report was read several times to obtain an overall sense of the content, then any reference to language was extracted and brought together to form one text, which was considered a *unit of analysis*. *Meaning units* were derived from this text. A *meaning unit* was taken to be the "constellation of words or statements that relate to the same central meaning" (Graneheim & Lundman, 2004, p. 106). For example, the 2010 Biology report noted that "spelling of common biological terms continues to be atrocious. Even when the

biological term is used in the question, candidates will introduce their own spelling of the term" (CXC, 2010a, p. 3). This section of the report was identified as a *meaning unit* because of the direct reference to spelling, a convention of writing in a language. This was condensed to "atrocious spelling of common biological terms and own spelling introduced." This was later coded as "incorrect spelling." All such units were condensed, abstracted, and coded. The codes served to label the meaning units. Using an iterative process, the codes were sorted into categories based on similarities and differences, and then themes were derived based on the underlying meaning of the categories. The next section presents the findings of the analysis in the main categories.

Understanding and Using Subject-Related Terminology in Examinations

Subject terminology is perhaps the most visible language component that marks school disciplines as *registers* or varieties of languages. It was therefore not surprising that this was the largest category of language challenges highlighted by examiners. All reports indicated that candidates in the examinations had difficulties with subject-related vocabulary. This was evident both in students' lack of understanding of examiners' use of terms in questions, and in students' inappropriate vocabulary. Examiners referred to challenges exhibited in defining concepts: "Candidates often indicate that they 'know' the material, but cannot recall correctly the names of structures, definitions and processes" (CXC, 2010a, p. 6). Examiners also found that "while many candidates discussed each [term], most of them were not clear about the meaning of the terms [such as] social, ethical…. As such, they spoke of ethnicity rather than ethical; and they discussed socialization of plants" (CXC, 2011a, p. 8). Similar difficulties with definition of concepts were highlighted in other disciplines. In 2010, the HSB examiner noted that, "Part (c) (i) presented the most difficulty as candidates were unable to give the meaning of the term 'antagonistic muscles'" (CXC, 2010c, p. 4). Here, the context of the use of the adjective *antagonistic* is significant. Students had to distinguish between the meaning of the word *antagonistic* as it is used in science, in contrast to the meaning of the word in other non-scientific contexts. This might have been the source of students' difficulties.

Additionally, examiners thought that students had challenges distinguishing between terms with similar spelling or semantic associations and multiple meaning words across the subject areas:

> The lack of use of scientific terms continued to be prevalent. (CXC, 2010c, p. 2)
>
> Far too many candidates continue to confuse related concepts, terms that may sound alike or those that may have a different meaning from everyday common usage. These include concepts such as corrode and corrosive; …. In a number of instances, terms were used rather loosely, completely distorting the overall meaning of the idea being communicated. (CXC, 2011b, p. 2)

The chemistry examiner further noted that the subject being examined required a specific language to express concepts and relationships in the discipline and some students had not mastered this:

> The language of chemistry also posed problems for some candidates. Far too many candidates confused calcium hydroxide with calcium carbonate. Many showed limited appreciation for the balancing of ionic equations …. Candidates wrote terms such as 'kill' or 'destroy' when referring to the denaturing of protein molecules. (CXC, 2011b, p. 2)

This apparent confusion of scientific terms with everyday terms can be understood in the context of the use of registers in different domains or social activities. The examiner in biology referred to students' use of "non-traditional language," and in mathematics, their use of "informal language." In addition, it was found that "the answers provided were often vague, lacking in the scientific terminology required at this level. Words like 'soaked up', 'absorbed' were loosely used…" (CXC, 2011a, p. 10).

The examiners' complaints suggest that after years of instruction in mathematics and science, some students had not acquired the appropriate terminology to communicate in these disciplines. The registers of school disciplines are different from the registers that students understand and use in their everyday lives. However, they appeared unable to distinguish between the use of academic language and everyday language. Though there is overlap in vocabulary terms, some are specific to domains of use or events in which they serve specific communicative events in schools or community.

As the literature suggests, the complex nature of texts in mathematics and science also has the potential to challenge student comprehension, and although the actual questions on the examination papers were not included in the data for this study, the examiners usually summarized the questions in order to identify the content knowledge that was targeted. Sometimes, versions of expected responses were given. In some

instances, this provided evidence of the kind of complexity of grammatical patterns and structures indicated in Schleppegrell (2007). For example, students had to negotiate long, dense noun phrases such as the one that appeared in the 2011 mathematics examination, when they were asked to "determine the intercept of the graph of a linear function…" (CXC, 2011e, p. 6). Students also had to read and interpret text with both quantifiers and qualifiers placed after the noun:

> Clockwise rotation of 90 degrees about 0,0. (CXC, 2011e, p. 10)
>
> Solve a pair of equations in two variables when one is linear and the other non-linear. (CXC, 2011e, p. 8)

Complex grammatical patterns and structures were not only evident in mathematics. The chemistry report reflected the use of classifying adjectives that precede nouns in phrases: "differences between oxidizing and reducing agents" (CXC, 2011b, p. 3). Other challenges would have arisen when students had to interpret language used in a metaphorical way: "repay the oxygen debt" (CXC, 2010a, p. 6).

However, difficulty in defining or using the correct labels for concepts and processes in mathematics and science is only partly attributable to a lack of comprehension or use of vocabulary. It also relates to the psychological process of concept formation and learning processes in school science and mathematics.

Data Representation in the Disciplines

The second most common area of language challenges that examiners identified related to students' attempts at data representation. Candidates in all examinations experienced difficulty in interpretation and construction of subject-appropriate modes of representing data to communicate meaning in the disciplines. These included difficulty constructing tables, diagrams, and drawings to represent concepts and ideas:

> A few candidates still confuse the direction of flow of the arrows in a food chain. (CXC, 2010a, p. 7)
>
> In general, diagrams were poorly drawn, which could be due to insufficient practice at drawing pieces of chemical apparatus. (CXC, 2010b, p. 6)

The examiner in physics expressed particular concern about the difficulties students experienced with the use of formulas, and so did the chemistry examiner in his evaluation of students' writing of formulas, symbols, and balanced equations:

> Part (b) presented problems with transposing the formulas. (CXC, 2011f, p. 2)
>
> This skill [writing and balancing equations] seems to be on the decline once more. Far too many incorrectly written formulae were presented in the scripts. (CXC, 2011b, p. 3)
>
> Many candidates were unable to correctly interpret the data presented in the table and the graph. (CXC, 2011c, p. 2)

Most examiners also identified the construction of visual representations as a problematic area. In mathematics, the examiner observed that "the construction of angles posed a problem for many candidates. They had more success in constructing 60° than 90°. A small number of candidates also had problems labelling their diagram" (CXC, 2010e, p. 7).

Occasionally, students used a format in one discipline that was considered more appropriate for another discipline, and examiners commented on this:

> It should be emphasized to candidates that the title format *name of independent variable* vs. *name of dependent variable*, for instance, *time* vs. *distance* is not acceptable in Biology, although it may be used in the other areas of science. (CXC, 2011a, p. 3)

The reports varied in the level of emphasis placed on the challenges students faced when they attempted to communicate with semiotic tools such as graphic representations. For example, the reports in physics and mathematics stressed difficulties with the use of symbolic notation and transposing data more than the reports in the other subject areas:

> In Part (b), a large number of candidates were unable to successfully use symbols to express a phrase as an algebraic expression. Further, they did not know when to use brackets and incorrectly wrote 7x + y instead of 7(x+y) in Part (b) (i). (CXC, 2010e, p. 4)

In these instances, the examiners evaluated students' competence in using signs and symbols to convey thoughts and ideas. This reinforces the view of school disciplines as different registers, and the fact that students need to be taught the differences in conventions among them. Each discipline represents information in ways that are similar in some respects, but quite specific in others. Mathematics and science use representations in oral and written forms of language, visual or graphic representations, and symbolic notations in the form of formulas and

equations. These are all language tools used to convey meaning, which students are expected to master.

Writing in the Content Areas

Several aspects of writing in the content areas emerged as issues of concern. Except for physics and mathematics, reports noted challenges in the spelling of basic subject-related terms, with comments such as, "too many candidates incorrectly spelt common biological terms" (CXC, 2010a, p. 6). In addition, adhering to conventional features of written texts associated with the disciplines was sometimes problematic. For example, reports for biology and physics noted that some students had difficulty describing methods of experiments, aim, statements, and conclusion in the expected form:

> Although candidates seemed knowledgeable of the content of the Aim statement, a large number of them were unable to offer a well-written one. An acceptable Aim includes a verb, the manipulated variable, observations to be made and the subject of the experiment. (CXC, 2011a, p. 8)
>
> Part (b), the description of the experiment, proved challenging for many students. In Parts (c) and (d), the observation and conclusion were satisfactorily produced by some candidates only. (CXC, 2011f, p. 6)

These comments evaluate students' ability to use the conventional features of the texts that are expected in written communication in science and mathematics. Such features are textual aspects of reports on experiments, including format and internal structure. In chemistry, some students experienced difficulty using the appropriate format for stating chemical tests. Similarly, the mathematics report commented on students' inability to "write in mathematical form" (CXC, 2011e, p. 4).

Difficulties with language use featured in all reports, most of which described students' writing as "vague" or "ambiguous." For example, in evaluating students' response on one question, the examiner commented that "some candidates gave broad, ambiguous answers … which were inadequate because the specific reason for the transport system was not indicated (CXC, 2010d, p. 3). In addition, students had difficulty using different genres of writing such as description, analysis, exposition, and argumentation, which are required in mathematics and science:

> In Part (b), describing the rotation proved particularly challenging for candidates. Some of them stated the centre correctly but they used informal language when describing the

> direction. Responses such as to the left, westward and south east were often given. It was evident that candidates did not know how to state a geometrical relationship between a triangle and its image. (CXC, 2010e, p. 9)

The examiners also referred to weak skills in grammar and mechanics, one observing that students "did not use appropriate linking words to compare" (CXC, 2011a, p. 8). Such difficulties with language resulted in little or no elaboration of answers, the inclusion of irrelevant information in students' responses, and, consequently, low scores on the examination.

To some extent, the writing competence that is critiqued in the reports refers to general writing skills expected across the curriculum. For example, the ability to use comparative terms is required in all subject areas and, when writing, students need to show a command of grammar. However, when writing reports on experiments, specific formats are required, and students cannot write as though they are reporting on an accident or event.

Reading and Interpreting Skills

The final major category identified in all subjects, except physics and mathematics, related to students' ability to read and interpret the questions on the examination papers. Based on students' responses, examiners sometimes concluded that students had misinterpreted the questions they were asked. Invariably, examiners judged this to be a consequence of students' inability to distinguish among key verbs of interrogation in the examination questions such as *state*, *explain*, *describe*; or students' lack of content vocabulary. The following comment in the report for human and social biology was typical, stating that it "seemed that candidates were not reading the questions carefully and, therefore, provided answers that were in no way related to the questions" (CXC, 2010c, p. 2).

Two issues arise here in relation to the examiners' comments. The first relates to reading in the content areas. When students are taught mathematics and science, their skills in reading the texts associated with the disciplines must be developed. They cannot approach the reading of a science text as they would read a literary text such as a poem. The same is true when they have to interpret the meaning of parts of a text in mathematics, such as a word problem in which the structure of phrases and their relationship to each other are critical in determining the selection of procedures to solve the problem. The process might require them to represent information given in one mode, in another mode. Put

another way, the syntax of a word problem is not the same as the syntax of a line of poetry, and students need to be helped to negotiate the meanings created in the text structures they encounter in the disciplines.

The second issue relates to the extent to which students are taught strategies to interpret and respond to examination questions. The fact that students appeared unable to provide the details signalled by key verbs does not mean that they would do so if they knew the meaning of words such as *state*, *define*, and *explain*. They must be taught how to analyse the text structure of the question and arrive at an accurate interpretation of its meaning, in order to respond with appropriate content knowledge.

Examiners' Recommendations to Increase Levels of Achievement

The examiners offered several recommendations, which covered pedagogical approaches, strategies, and activities. This section addresses only those recommendations that are relevant to the language issues identified above.

Most examiners urged teachers to adopt more student-centred approaches, which would allow increased oral and written engagement of learners, and provide opportunities for students to acquire appropriate subject terminology:

> Students should have opportunities to express their ideas and to communicate effectively, orally and in writing, in the classroom. These experiences are necessary to develop mathematical vocabulary and proficiency in communication, not only in mathematics but in their daily experiences. (CXC, 2010e, p. 9)

The examiner for chemistry (CXC, 2011b, p. 2) similarly suggested that teachers facilitate student conversation on subject-related concepts; while the physics report (CXC, 2011f, p. 5) called for a review of teaching emphasis to include more discussion on the relationship between concepts. The integrated science (CXC, 2011d, p. 7) and human and social biology (CXC, 2010d, p. 6) reports recommended an emphasis on the use of scientific vocabulary, and opportunities for students to differentiate concepts and to improve their knowledge of conventional text features.

The mathematics report also stressed the importance of teachers recognizing the role of language in teaching mathematics concepts, and the need to consistently use subject terminology and conventions such as the use of brackets: "Teachers should also pay close attention to mathematical vocabulary so that students are familiar with basic terminology such as solve, simplify and factorize" (CXC, 2010e, p. 5). In order to address the challenge of distinguishing terms, the examiner

further suggested that "in teaching approximations, a clear distinction must be made between significant figures, decimal places and standard form" (CXC, 2010e, p. 3). This was supported in the report for integrated science: "Students need more practice in distinguishing between related and sometimes unrelated concepts and should be guided in expressing differences in terms of parallel points to improve completeness of responses" (CXC, 2010d, p. 10).

With respect to the challenges of data representation, the reports recommended that students be exposed to many opportunities to develop skills in communicating through visual representations. One advised that "teachers should use diagrams and graphs in teaching. Students need to be taught how to analyze and interpret graphs" (CXC, 2010c, p. 3). Other reports directed teachers to increase opportunities for practice, with the mathematics reports strongly recommending that students be instructed in the interpretation and use of graphic representation:

> Teachers should teach students to verify that the information recorded in their Venn diagram accurately represents the given data. (CXC, 2010e, p. 6)
>
> Teachers need to emphasize the role of language in teaching functional notation. In particular, students need to understand the meaning of f(x) and gf(x). (CXC, 2010e, p. 7)

The reports contained few recommendations aimed at improving writing in mathematics and science. However the integrated science report commented on:

> the need for proper grammar, sentence construction and spelling. Marks are more accessible when answers are communicated effectively. Teachers can incorporate these elements as part of their evaluation of students' work. Occasional or regular spelling quizzes or games with scientific terms may also help. (CXC, 2010d, p. 10)

Although most reports identified difficulties for students in reading and understanding the examination questions, few recommendations addressed this language concern. The report in integrated science, though, suggested that candidates "need to be encouraged to read questions clearly, paying attention to key words that should guide responses" (CXC, 2011d, p. 7).

The examiners frequently recommended increased opportunities for students to practise areas where they appeared to experience the greatest challenges. However, mastery of subject registers would be enhanced through the development of all the language modes, and requires more

opportunities for students to speak, read, write, and visually represent their ideas to develop their thinking and acquire concepts in mathematics and science. The paucity of recommendations addressing writing and reading in the disciplines could be due to an emphasis on visual representations and subject terminology in mathematics and science, and a lack of prominence of reading and writing in the content areas. The consequences of this are addressed in the next section.

Discussion

This section discusses three main themes in relation to the language issues that emerged in the study in relation to classroom pedagogy. These are, firstly, the development of student proficiency in the registers of mathematics and science; secondly, the significance of multiple modes in interpreting and creating meaning in school disciplines; and, thirdly, language differences as reflections of cultural differences. The challenges that students experienced with examinations can best be understood within the larger context of these issues.

Although the reports were based on written responses, examiners made inferences about a wide range of students' communicative skills in the disciplines. Thus, in addition to an evaluation of students' writing skills, spelling, and vocabulary, the examiners pronounced on students' ability to read, interpret, and translate knowledge into visual and graphic representations to communicate meaning. Examiners also concluded that many students showed a limited ability to use textual features and cues in the language, format, and structure of questions to produce conventionally acceptable responses. At times, they noted improvement in some aspects of students' language performance; however, most observations emphasized limited competence in using the language conventions of mathematics and science.

Some of the recommendations made by examiners are in line with best practices in the literature on language and literacy in the content areas. For example, some advocated the use of more student-centred approaches and more encouragement of student discussion to deepen their understanding of concepts, thus providing students with more opportunities to develop the ability to use subject registers.

The recommendations in the reports reflected the limitations of the examiners' perspectives and purpose. Consequently, they did not address many of the critical socio-linguistic issues pertinent to education and student learning in the Caribbean context, although they serve as a timely stimulus for deeper inquiry into the role of language in student learning across the curriculum, and the way their achievement is measured.

Implications for Pedagogy

From a systemic-functional perspective, students experienced challenges using the registers of mathematics and science on examinations. Aspects of the registers include subject-specific vocabulary, associated grammatical forms and structures, and all other prescribed ways of communicating in the disciplines, including the use of language for reasoning and argumentation. A categorization of the language issues into different components of language separates the language from the content. However, as Shanahan and Shanahan (2008) point out, language and literacy are embedded within disciplines and are connected to specific learning situations. Thus, if students are to develop ways of thinking, speaking, reading, writing, and representing used by mathematicians and scientists, educators would need to immerse them in the discourse of the disciplines. In this way, students can assume the roles and participate meaningfully in the community of the subject disciplines.

Although reading and writing challenges did not feature as significantly in examiners' reports, students must read textbooks and other texts that contain linguistically and conceptually dense content (Schleppegrell, 2001). Norris and Phillips (2002) argued that reading is not merely a functional tool but a constitutive part of disciplines. Successful teaching of science and mathematics, therefore, cannot be accomplished without consideration of language and literacy teaching, since language processes are intrinsically linked to the nature and fabric of these disciplines. It is therefore unreasonable for content area teachers to expect language teachers to effectively instruct their students in the language of mathematics and science in the absence of the critical knowledge necessary for language teachers to do so effectively.

The same can be said of writing in content areas. A major genre, expository writing, is privileged in the sciences, and students are required to report, hypothesize, argue, and use language in conventional ways. According to Worth, Winokur, and Crissman (2009), "writing in science is not only for communicating with others; it also is a tool for learning that supports scientists and students alike in clarifying thinking, synthesizing ideas, and coming to conclusions" (p. 49). If students are to write convincingly as mathematicians and scientists, and display their understanding of these subjects on standardized tests, they must be highly engaged in activities that promote their writing skills. Performance on writing tasks should demonstrate conceptual understanding, and such understanding is facilitated by extensive talk in the classroom. Teachers and learners must therefore connect reading and

speaking to writing, especially if writing is the primary mode in which learners are assessed. Indeed, the integration of the modes of language has proven to be the most effective approach to language instruction, rather than one that isolates and segments the different skills. This would be most effectively done through meaningful and authentic learning experiences that cater to the linguistic and cognitive development of all students in an inclusive environment.

Another crucial consideration in teaching mathematics and science is the fact that students must learn to understand and use different semiotic codes to translate their knowledge into multiple modes of representations. With reference to mathematics, Altieri (2010) stressed that along with developing word knowledge, students need to learn to visually represent mathematical information and use representations to enhance their literacy skills, while strengthening their mathematical knowledge (p. 132). This position is supported by Schleppegrell (2007), who argued that students must not only understand terminology, but must also manipulate all other linguistic elements to understand how the registers construct knowledge in the disciplines, including the graphic symbols and notations that are pervasive in mathematics and science. As the CSEC examiners' reports highlighted, students had particular difficulties creating, reading, and reasoning with visual representations such as diagrams, models, and graphs. Such activities are ways of making meaning, and are "among the fundamental elements of scientific learning" (Wu & Krajcik, 2006, p. 853). Mathematics and science education must therefore also facilitate the development of this competence along with all other features of the language of the subject, since students must transact such features when they read and write, when they think and talk, and, ultimately, when they are assessed in examinations.

Teacher classroom pedagogy must also address linguistic and cultural diversity in classrooms, in order to make the link between students' everyday language use and the academic language of school science and mathematics. Subtle and abstract features, such as differences in vocabulary and terms denoting relationships among ideas, make learning science difficult for all learners, particularly those who are not being instructed in their first language or dialect (Gagnon & Abell, 2009). If Caribbean students are to be given better chances of success in mathematics and science, educators must address the need to make the kind of academic language privileged in schools more accessible to them. The greater the distance between the nature and the patterns of discourse at home and at school, the more demanding the process of learning would be for students. Some of the reports referred to weak

conceptualization or concept formation exhibited in students' responses; all of them offered examples of "misconceptions" that students reportedly brought to school science and mathematics, and suggested possible consequences for students' performance on CSEC examinations. As educators, therefore, we need to identify those areas of differences between the knowledge that children bring to school and the school knowledge that we expect them to learn, and on which we assess and evaluate them. Many of the differences between home and school are cultural, and are often expressed in the language of the students. The difficulties that students experience when learning school disciplines can possibly be linked to the distance between their social and cultural frames of reference and those valued by the schools they attend (George, 1995; Gorgorió & Planas, 2001; Herbert, 2003, 2008).

Conclusion

Even though this study was based on the limited perspective of examiners' assessment of students' language use on CSEC examinations, it is evident that there is need for greater investigation of classroom discourse in content areas to assess the extent to which language competence is a factor in students' achievement across the curriculum. Linguistic analysis of textbooks, learning materials, and examination questions would provide educators with critical knowledge of the way texts work to construct knowledge in school disciplines. Access to classrooms at all levels—primary, secondary, and tertiary—would enable educators to gain insights necessary to create appropriate curricula to cater to linguistic and cultural diversity, and to develop the potential of all our students. This is also imperative if we wish to improve teacher pedagogy and make learning more accessible for all students, especially in the Caribbean region where the language of instruction differs from the vernacular of the majority of students.

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HONING A PROFESSIONAL IDENTITY: The Outcome of a Teacher Education Programme

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This study examined the outcome of an in-service postgraduate professional development programme for secondary school teachers in a developing country. It investigated the influence of the programme *after* completion, with a focus on the professional identity of three modern language teachers three years after they had completed the programme. This qualitative phenomenological case study used interviews, questionnaires, and document analysis to collect data from the participants. The data were analysed using codes, categories, and themes. The findings revealed that the three participants were influenced by the programme in a positive and enduring way, in that they all showed growth in terms of their professional identity. School context was found to have a determining role in the extent and longevity of the influence that the programme had on the participants.

Introduction

The Postgraduate Diploma in Education (Dip.Ed.) Programme of The University of the West Indies (UWI), St. Augustine, Trinidad, was initiated in 1973, and continues to provide professional development for in-service secondary school teachers on a part-time basis. Currently, teachers are admitted into the secondary school system without teacher preparation, and the Dip.Ed. is not compulsory, except in cases of promotion to the positions of Dean, Head of Department, and Vice-Principal or Principal. UWI is the only local institution that offers the Dip.Ed. for secondary school teachers. "The programme attempts to ensure that classroom practice is informed by a solid theoretical base in the foundation disciplines, curriculum theory, and methodology" (The University of the West Indies. Faculty of Humanities and Education [FHE], 2011, p. 54). Ultimately, it is hoped that the teachers would develop the desire for the "continued use of sound practice and the sustained search for professional excellence beyond the end of the programme that will ensure the high professional status of the teacher" (FHE, 2011, p. 54).

Both researchers are interested in foreign language teacher education specifically, and teacher education generally. Thus the study, while using a sample of foreign language teachers from the Dip.Ed. programme, also looks at teacher education holistically as it relates to professional identity.

There is no formal follow-up to the Dip.Ed. programme to ascertain how it impacts upon teachers. As such, the intent of this study is to acquire concrete feedback about three Modern Language teachers' perceptions of the influence of the Dip.Ed. programme on them, as it relates to their sense of professional identity. It seeks to answer the following question:

- *What are the teachers' perceptions of the influence of the Diploma in Education experience on their sense of professional identity?*

For the purposes of this study, the term *professional identity* refers to teachers' sense of self and who they are as teachers, including their sense of self-efficacy as it relates to teaching; how they see themselves as teachers in terms of teaching philosophy, conduct, competency, and preparedness.

Literature Review

The Ministry of Education (MOE) of Trinidad and Tobago believes that "teacher training for quality teachers is…a high priority**"** (Trinidad and Tobago. Ministry of Education [TTMOE], 2010). It is the MOE's view that as Trinidad and Tobago strives to meet the challenges of the 21st century, "the need for teachers who demonstrate not only academic excellence but also dedication to the profession and integrity will become increasingly pre-eminent" (TTMOE, 2010). Thus, high demands are made of teachers, not only by their employer but also by parents and students, and the society at large. As such, teacher professional development is highly valued in Trinidad and Tobago.

The beliefs held by the MOE are also similar to those of education agencies across the globe. One such agency is the Florida Department of Education in the United States of America. It notes that "just as knowledge and skill requirements are changing for Florida students, so, too, are those for Florida educators" (Florida Department of Education [FLDOE], 2000, p. 22). Furthermore, it is of the opinion that:

> Schools and districts must be committed to offering the highest quality professional development opportunities for their teachers. Learning opportunities must be provided in which pre-service

> teachers as well as more experienced teachers can develop or acquire the necessary knowledge and skills to deal with change and pursue lifelong learning. (FLDOE, 2000, p. 27)

The FLDOE (2000) sees professional development as "a continuous improvement process lasting from the time an individual decides to enter education until retirement. It encompasses the processes that educators engage in to initially prepare themselves, continuously update themselves, and review and reflect on their own performance" (p. 30)

At the School of Education (SOE), UWI, St. Augustine each year, teachers pursue the Dip.Ed. The programme aims to create in teachers a desire for "continued use of sound practice and the sustained search for professional excellence beyond the end of the programme that will ensure the high professional status of the teacher" (FHE, 2011, p. 54). Morris and Yamin-Ali (2006) conducted a study of a group of foreign language teachers on this programme, which is significant because it is the only one that looks at foreign language teachers' reflections on their experiences of the programme. That study began with the understanding that "the programme aims to produce a teacher who considers herself to be a lifelong learner and who understands that critical reflection is at the heart of professional development" (Morris & Yamin-Ali, 2006, p. 288). It investigated the concept of the professional teacher, and asserted that there was a clear and undeniable link between the teacher as individual and his or her practice, which includes beliefs. The study asserted that "the beliefs that teachers bring to the classroom determine their actions…[and] to a great extent, it can be said that those beliefs contribute to how one may see one's professional identity" (p. 288). Teachers' sense of self-efficacy, then, is linked to their personal and professional identity and, by extension, their classroom practice. This view was also shared by Korthagen (2004), who, according to Morris and Yamin-Ali (2006, p. 288), supported the view that "self concept is inextricably linked to professional identity and informs teachers' behaviour" in the classroom.

Morris and Yamin-Ali (2006) further explored the notion that teachers' experiences on professional development programmes, coupled with those in the classroom and school contexts, help to shape a teacher's professional self or identity, and that through the training programmes teachers are able to "test their prior tacit and unexamined beliefs, attitudes and knowledge" (p. 288) as they try to figure out their mission as educators. In addition, it was concluded that the tensions and challenges which teachers meet in their school context "lead to the dynamic formation of their professional identity" (p. 288). The study also

found that one's own self-concept, very often, is a defining factor in the formation of a teacher's personal and professional identity. The teachers involved in the study showed "that there was still room for growth but that they were on the way to being professionals, conscious of and committed to continuing the process of reflection and self-examination" (p. 288).

Education researchers are now viewing professional development as an opportunity for growth, exploration, learning, and a more profound development in the teacher. Some researchers now believe that it is a lifelong process which could either be formal or informal. Cochran-Smith and Lytle (2001), as well as Walling and Lewis (2000), describe this era as a revolution and a new paradigm in teacher education and professional development. These thinkers and others like them have identified some new tenets of teacher professional development which include:

- It is a lifelong or long-term process.
- It is related to classroom experiences and is not disconnected from it.
- Schools are now seen as communities of learners, communities of inquiry, and caring communities.
- It is linked to school reform.
- The teacher is seen as a reflective practitioner.
- It is a collaborative process among teachers, administrators, parents, and the community at large.

They believe that adherence to these tenets can make any teacher development programme effective.

Much of the literature has also placed a great deal of emphasis on why teacher professional development is important, placing focus on its value as it relates not only to classroom practice but also to teacher professional identity. Villegas-Reimers (2003) cited three areas in which teacher professional development has an impact: teacher beliefs and practices, students' learning, and the implementation of educational reforms. In a study involving Norwegian teachers, Kallestad and Olweus (1998) showed that teachers' attitudes, preparation, and practices all showed strong, positive, and significant growth, which was sustained for several years following their involvement in the training programme.

Professional development programmes have been seen to be important in educational reform, but not so much as having an impact on teachers' beliefs and attitudes, which are so intertwined with teachers' professional identity. For the purposes of this study, professional identity includes sense of self and sense of self efficacy as it relates to teaching,

teaching philosophy, conduct, competency, and preparedness. However, all these are not disconnected from one's experience as professionals engaged in learning and knowledge creation, which is inextricably intertwined with being able to interact with all kinds of situations and people. A sense of professionalism assumes membership of a learning community, which is transformative (Lave & Wenger, 1991).

Bandura (1997) posits that efficacy beliefs help to determine the amount of effort, perseverance, and resilience of the teachers in the face of adverse situations. As such, school context may be seen to play a significant role in teachers' realistic response on the ground to professional development. Such context includes active support of teacher development by principals and administrators, which can enhance teacher efficacy. According to the Rand Change Agent Study, such support is critical to the success of any change effort (McLaughlin & Marsh, 1978). The Rand research sets the role of the principal as instructional leader in the context of strengthening the school improvement process through team-building and problem-solving in a "project-like" context. It suggests that principals need to give clear messages that teachers may take responsibility for their own professional growth. Furthermore, Stallings and Mohlman (1981) determined that teachers improved most in staff development programmes where the principal supported them and was clear and consistent in communicating school policies. Likewise, Fielding and Schalock (1985) report on a study in which principals' involvement in teachers' staff development produced longer-term changes than when principals were not involved.

If teachers' development of their professional identity is to be enabled, then relevant interventions have to be carefully considered. With regard to the type of staff development considered useful, Joyce and Showers (2002) suggested that a stand-alone workshop has less than a 5% chance of actually changing teacher practice in the classroom. However, if you add ongoing and embedded professional development, provide professional learning communities where teachers interact with their colleagues, and ensure ongoing support from coaches and administrative staff, the chance of really affecting teaching and learning increases dramatically to nearly 90% (Wolf, 2009). However, such professional development contexts do not necessarily ensure adequate provision for meaningful growth or learning. Unless we engage practitioners in reflecting on their beliefs and practice, we are denying them the opportunity to develop their sense of self-efficacy.

This concept of the teacher as a reflective practitioner who reflects in action and on action is promoted by Donald Schon (1987). One of the benefits of being a reflective practitioner is being able to think on your

feet as you implement your practice. This implies that teachers must be able to adapt their classroom practice to the unexpected occurrences. Reflecting on action occurs after the action has occurred and can be linked to teachers reflecting on lessons that were taught during the course of the day, for example. The impact of Donald Schon's work on reflective practice has been significant, with many training and education programmes for teachers and informal educators adopting his core notions, both in organizing experiences and in the teaching content.

One study conducted among a small group of pre-service teachers enrolled in a Bachelor of Education degree programme at Flinders University, South Australia, reports that links were found between guided reflective writing in the context of the practicum and the development of a professional identity among pre-service teachers (Cattley, 2007). The author recommends that supportive structures be put in place to promote reflective writing as a tool for the emergence of novices' professional identity within the professional development experience.

In another study involving in-service teachers enrolled in an online Primary Teacher Education course at the University of Padua, Italy, it was found that narrative and discursive processes can, in fact, activate the process of professional identity construction. Teachers positioned themselves and negotiated between the different possible identities emerging not only within the formal professional development context, but also in their everyday school environment (Grion & Varisco, 2009).

The studies cited above have focused on the impact of professional development on teachers' practice. However, professional identity has not been a main theme in much of the literature on teacher development. In light of the important role that professional identity plays in decision-making in the profession, this paper fills a small part of the vacuum created by a lack of research, not only in the area of teacher development programmes and their outcomes in terms of professional identity generally, but also in programme outcomes specific to the foreign language teacher education component of the Dip.Ed. programme at the SOE, UWI, St. Augustine.

Methodology

This study sought to acquire feedback about three foreign language teachers' perceptions of the influence of the Dip.Ed. experience on them, as it relates to their sense of professional identity. The Foreign Language group consisted of 10 students who, apart from their curriculum

specialization, shared a common core curriculum with approximately 130 other students pursuing varying specializations.

Thus far, local researchers have conducted studies on this programme while the programme was in progress. No study has been found where the students were studied after the programme to ascertain what influence the programme had on them. The study recognizes that whereas all teachers may have completed the programme in the same year, they each would have had their own subjective and unique understanding of the programme and how it impacted on them. The intention, then, is to use the words of some participants to find evidence of their varied as well as shared perspectives.

The study is characterized by a phenomenological case study design and is particularistic in nature. It focused on a particular programme, group, and phenomenon. Its heuristic nature allowed exploration of the lived experiences of three foreign language teachers who completed the Dip.Ed. programme to see what influence it had on their sense of professional identity, thereby elucidating our understanding of the phenomenon of professional identity, at least in this context. Purposive sampling was used to select three teachers who had all completed the programme at the same time and who were committed to the study and willing to share openly their experiences and thoughts. The latter was a contributing factor to the choice of participants in the study.

All three were female teachers of Spanish as a Foreign Language and each had at least 10 years of teaching experience at the secondary level. The latter was another main reason for selecting these three teachers out of the total of 10. They were all in their thirties and had completed the Dip.Ed. programme in the same year. They taught in very different school contexts. One taught at a single-sex denominational school, another at a recently transformed senior comprehensive school that was changed to a seven-year government secondary school, and the third came from a composite five-year school. The uniqueness of each school context was an important consideration in this study and it may have impacted on the influence of the Dip.Ed. programme on the teachers.

The qualitative paradigm offered the opportunity for the participants to share their subjective perspectives on issues related to their experiences and understandings during and after their professional development (Dip.Ed.). Participants completed a questionnaire specifically designed for this research, which informed the preparation and conduct of semi-structured interviews. The teacher questionnaires were administered before the interview in order to encourage the teachers to reflect on their Dip.Ed. experience, so that when they came to the interview they would not have difficulty recollecting information about

their experience. The responses from these questionnaires guided the elaboration of the semi-structured interview, which in essence was designed for clarification of information on the questionnaire.

The Teacher Questionnaire focused on professional identity and included questions on professionalism, professional identity, and teaching philosophy. Further, more probing questions were compiled for the interview component. The interview questions focused on the same issues as in the questionnaire but were meant to explore and clarify information that was given in the questionnaire. Teachers were also asked to bring documentation samples of their lesson plans, assessments, and philosophy statements to provide concrete examples of what they were saying. Additionally, documents such as teachers' reflections and their written teaching philosophy were examined. Excerpts from these are included in the emerging themes elaborated below.

Data Analysis

Coding, establishing categories and themes, member checking, and peer review formed the methods of data analysis used in order to arrive at conclusions.

The questionnaire focused on professional identity including professionalism, professional identity, and teaching philosophy. Samples of their lesson plans, assessments, and philosophy statements were used only to verify points that were being made and were not used for analysis.

Once the interviews were done, data collected from the questionnaires and the transcribed interviews were then analysed to find categories and themes. These themes were then explored to find similarities and differences in terms of the teachers' perceptions of their experiences. Common themes were noted. The questionnaire, interviews, and teachers' written reflections and teaching philosophy were analysed, with results being presented according to the following eight themes which, according to the results, were seen to have a role to play in the construction of a teacher's professional identity:

Factors that play a role in a teacher's professional identity

- ***Sense of professionalism*** – Teachers' interpretation of what it means to be a "professional"
- ***Recognition of professional identity as evolutionary*** – Awareness that one's professional identity grows along a continuum

- ***The nature of one's teaching philosophy*** – One's teaching philosophy determines the decisions one makes in the teaching/learning context
- ***Being able to redefine one's role and purpose*** – The concept of "re-definition" requires reflection and evaluation
- ***Individual school context*** – Each person's experience and growth are determined by individual circumstances specific to his/her school
- ***Reflection*** – the ability to reflect signifies the potential to analyse, critique, and grow
- ***Sense of self-efficacy*** - The extent to which a person feels that s/he has the capacity to exercise personal control over his/her behaviour, thoughts, and feelings
- ***Collegiality and/or collaboration*** – Engaging with others in the field and valuing the role of such engagement

Findings

The primary focus of the study was to consider the three participants' perceptions of the influence of the Dip.Ed. programme on their sense of professional identity.

Sense of Professionalism

An intrinsic part of professional identity is professionalism. All three participants expressed the belief that the Dip.Ed. programme clarified and enhanced their sense of professionalism.

Participant 1, AM, felt that her sense of professionalism was enhanced: *"I think as a teacher it reinforced the whole idea of being a professional."* In her view, the programme stressed that professionalism was important for *"the performance of one's duties"* and *"developing one's credibility."* She admitted, though, that professionalism was always important to her as she came from a family of teaching professionals, so that *"it* [the Dip.Ed.] *reinforced the whole idea of professionalism, looking at how you do things, what you do, when you do it, being on time and things like that."*

The second participant, SS, also felt that the Dip.Ed. influenced her sense of professionalism. Her idea of it was clarified and she endorsed the programme for giving her the professional qualifications that made her the professional that she is today:

> *The course was crucial in making me a better Foreign Language teacher and I can quite readily answer 'yes, I am a*

> *professional'... I have been exposed to knowledge and skills and undergone a process ... that has impacted upon my identity.*

LC, the third participant, saw professionalism as consisting of *"some core and fundamental concepts but also something that each person makes into his/her own…. It is a product of mindful interior blending of pedagogical proofs with one's distinctive personality."* Having completed the Dip.Ed., LC was able to further define and understand her sense of professionalism: *"In my case, knowledge of the scope of education as the program presented did chisel out, in greater detailed grooves, the concept of being professional."*

All participants viewed professionalism as important in the conduct of their duties as teachers.

Professional Identity and Its Evolution

In addition to clarifying and enhancing these three teachers' sense of professionalism, the Dip.Ed. experience also allowed them to define, re-define, and develop a clearer understanding of their professional identity.

AM saw professional identity as:

> *knowing oneself as professional, setting standards of professionalism and performing one's duties by the same guiding principles…one should continue to pursue relevant developmental courses or seminars to continue shaping one's professional identity, so that the identity is constantly evolving*.

In her view, the experience also helped her to build on her personal strengths, which form part of her professional identity. These include *"flexibility, time management, decision-making, creativity, a sense of purpose and sense of direction."* AM was equipped to develop her own sense of professional identity, which she admits she still continues to maintain until this day.

> *The things that came out of the professional identity seminars…what it meant to be a good teacher, how students perceived you to be, what you really want for yourself… the emphasis placed on being on time, being prepared, being regular, being punctual and of course being human to the students and those that you interact with. I think I implement all of them. I still use all of them in my teaching practice when I'm teaching*.

She felt that prior to the Dip.Ed. her sense of professional identity was *"a bit incomplete."* Consequent to the programme she felt that her

"purpose as an educator became clearer and so did [her] *teaching philosophy."* She believes that her purpose as an educator is *"to make language learning more relevant in a meaningful way."*

Similarly, SS sees professional identity as *"my understanding of who I am as a teacher."* She feels that it is *"made up of the qualities a person has and how he applies them to his job."* In her opinion the quality that characterizes her professional identity is her *"love for children, for education and for country."* SS elaborates further by indicating that her professional identity both before and after the programme was similar, except that after the programme she knew more about the art of pedagogy.

SS confirmed that the knowledge and skills she was exposed to during the Dip.Ed. had impacted on her professional identity: *"I have been exposed to knowledge and skills and undergone a process with other members of my teaching fraternity that has impacted upon my identity."*

Participant 3, LC, viewed her sense of professional identity as ill-formed prior to the Dip.Ed.: *"I believed myself to have the raw materials but was lacking a laboratory or refinery to tap into the true worth of what I detected within myself."* It was not that her professional identity was non-existent. It was that she was able to refine what she had known deep within herself. According to her, the Dip.Ed. made her see her image as a foreign language teacher in the following way:

> *I am to embody the language that I teach. Persons whom I instruct must be enervated not only by the techniques I use in the classroom but ought to be infected with the passion for the language. I am an instrument in the foreign language tool kit with a task to keep myself, my teaching and love for the language sharp*.

Clearly, the professional development that these teachers were exposed to during the Dip.Ed. had served to refine their understanding of their professional identity. It was not that their professional identities did not exist prior to the experience, but that it was polished, refined, and clarified, and continues to evolve as the years progress.

Teaching Philosophy

Another key theme that was identified as an important part of professional identity for these teachers was the importance of having a teaching philosophy that was a reflection of one's professional identity.

Participant 1, AM, indicated that her purpose as an educator became clearer and so did her teaching philosophy. In her beginning years as a

teacher, AM believed her teaching philosophy to be simple: *"It was simply to do my best to be the best teacher to my students."* Her experience on the programme redefined this for her so that her teaching philosophy evolved. She felt that the experience:

> *redefined my role as a FL teacher, equipped me with the theoretical underpinnings of different approaches to FL instruction. It also gave me a broader perspective on my role as an educator and my role in preparing students to be good citizens, inculcating good values and morals.*

Since completing the Dip.Ed. programme, AM has started a master's programme by distance, to which she attributes the evolution of her teaching philosophy.

SS, the second participant, felt that prior to the Dip.Ed. she did not consciously have a teaching philosophy, but if she were to put it into words she would say her philosophy was *"always trying to do better, learn from my mistakes and considered it important to build relationships especially with students."* In SS's view the Dip.Ed. had a great impact on her teaching philosophy. She stated:

> *This served to make me consider that it is important that as teachers, we have only one chance at the first impression, and it is a lasting one…Made me aware that I have a special ability, talent for teaching Spanish to English students and it gave me the confidence to be more of a leader in the class.*

She adds that since completing the course of study three years ago her philosophy has not really evolved, but has taken on other meanings, which she attributes to her school context:

> *My philosophy has not so much evolved as taken on other meanings and understandings…the challenges of teaching have lent a bit of disillusion to the job, affecting my self esteem and motivation at the worst of times, especially in comparison to a feeling of wasted specialised knowledge…no resources in the classroom kind of take away from the Diploma in Education goal of training you to be the best teacher under the best of circumstances and really I am back in the reality of being the best teacher under the worst circumstances.*

She did, however, manage to elaborate on her mission, which is also very much similar to her teaching philosophy and reflects her strong sense of self-efficacy. As a teacher she believed that she had:

1. *To be self-motivated to do my best and to be a source of motivation to others to do their best*
2. *To be a good listener and observer*
3. *To be a skilled and interesting teacher*
4. *To serve as an example of a good citizen and to impart the morals and values of the unwritten curriculum that I teach*
5. *To render utmost assistance in improving the functions of the Spanish Department at my school*

What SS demonstrates is that in the same way that one's concept of professionalism and professional identity is ever evolving so is one's teaching philosophy. So that the programme helped her to discover her philosophy, but her actual experience impacted on it and shaped it into what it is today.

Like her colleagues, LC says that she was unable to articulate her teaching philosophy before the Dip.Ed. She had basic thoughts about it, which were confirmed during and after the programme: *"It confirmed what I knew. It gave me that assurance that I was on the right page as regards my approach to pedagogy."* Since completing the programme, LC admits that her students have a greater role to play in her class, and in this way her philosophy has changed to accommodate their input.

Redefined Role and Purpose as (a) Educator and (b) Foreign Language Teacher

As a foreign language teacher, AM sees herself:

> *as the competent person in the classroom, as an ambassador of the language and culture that I teach. It is a huge responsibility, and I am constantly trying to be the role model for my students - using the language and getting them to use it in a meaningful way*.

In her view, her mission is *"to get students to achieve a good level of communicative competence in the TL [Target Language]."* She accredits her discoveries to the Dip.Ed. programme as *"it gave me an introduction to methodologies, approaches and unit and lesson planning."*

AM is very confident in herself as a foreign language teacher. She says with much conviction:

> *I consider myself a linguist in my own right of a very high calibre and I think that for me is very important, you know, knowing the language and passing it on to younger folks. I think*

> *as a teacher I strive to be organized because I think that being organized is a very important part of the delivery of whatever topic or communication structures you are passing on.*

She learnt many key things about herself. She realized she was not as shy as she had imagined herself to be. She also discovered her own teaching style and understood what was meant by *"*professionally trained teacher*"*: *"What I enjoyed most as well was discovering my own teaching style and discovering what it really meant to be as a professionally trained teacher in the foreign languages."*

As a consequence of the programme, SS takes her role as an educator seriously as well:

> *I think I have a very heavy responsibility in the reinforcement of attitudes and values. As a teacher, I am here to serve as an example to the students of what it means to be a good citizen and well-rounded individual, someone whom the young students can look to for help, advice, and comfort and also as someone who delivers her duty with thoroughness and capability.*

This is influenced by her school context, which demands this outlook because of its challenging nature. As such, SS also sees her role as a change agent and she believes *"that as teachers we have the right and also the vocabulary to speak up and voice opinions about matters concerning the school."* She admits that although the programme was tough she believes that it has made her a better teacher: *"It was stressful if you couldn't organize yourself properly, but more than anything I can say I came out of the programme a better teacher."*

LC views her role as a teacher and a foreign language teacher in the following way:

> *My role as teacher is to make my students experience learning as an enjoyable thing. My role as foreign language teacher is to allow students to either fall in love with the language or feel engaged in the class even if they have minimal interest in languages.*

She feels that they are not mutually exclusive terms and/or identities. According to her, the Dip.Ed. helped her to realize that teaching was her calling. It enriched other aspects of her life. She became confident that she could handle all levels of classes. She became confident in her abilities to lead her students where they needed to go. She grew in confidence:

> *As a person I believe I became more aware of what my calling was. I became more convicted that this is where I needed to be and this is how I can serve not only in my school but also in my church... As a teacher I think it has allowed me to be confident enough to take on a Form Five class.*

The three teachers mentioned many epiphanies. According to them, they each came out of the experience knowing more about themselves as individuals, educators, and foreign language teachers.

Role of Individual School Context in Shaping Professional Identity

The literature has identified school context as having a significant impact on teachers' sense of professional identity. According to the literature, school context can shape it in a positive or a negative way, nurturing the teacher's professional identity or eroding it.

AM's school context, in her opinion, definitely nurtures her sense of professional identity because:

> *We are always encouraged to be professionals in what we do, say, wear, our regularity, punctuality etc. Excellence and quality is our ultimate goal as educators in our institution and our administrators invest heavily in our professional development through workshops, reading and audiovisual resources.*

SS adds that since completing the Dip.Ed. three years ago, her philosophy has not really evolved but has taken on other meanings. She attributes this to her school context, which contributes to her de-motivation. Her school context shapes how she sees her role.

LC is very much willing to continue to do the things she learnt during the Dip.Ed., but because of administrative changes at her school she sometimes feels hindered by a lack of time:

> *I think the theory is good, the policies are good but in reality I feel that what is happening during the course of the day is militating against that… like feedback or correcting papers …supervision has taken away a lot of my time.*

All three participants clearly confirmed the role school context plays in empowering or debilitating teachers. In AM's case, it nurtures her sense of professional identity as a teacher, while it has the potential to debilitate the sense of professional identity for both SS and LC.

Reflection and Professional Identity

Reflection is a critical element in classroom practice today. It breeds growth in teachers and if taken in the right stead it can bring about a myriad of positive changes.

SS indicated that reflection was in some way part of her professional identity, whether directly or indirectly: *"I was like a Scientist – able to assess and evaluate what I was doing wrong, and able to go back and fix it. That's one of the consequences of the Diploma in Education, it makes you reflective."*

LC also infused reflection as part of her practice. She does it regularly. Again she attributes this to the Dip.Ed.: *"Also the importance of reflection and looking at your day's work and looking at ways that it could have been better…maybe trying to reverse and switch gears and see if another method could be applied."*

Sense of Self-Efficacy

The belief that you are a competent teacher and that you have what it takes to do an excellent job is a key part of teacher self-efficacy. The three participants in the study reflected this competence and showed that self-efficacy was important to professional identity.

AM was consistent in her responses, both in the questionnaire and the interview, leaving no doubt that she possesses a strong sense of self-efficacy:

> *I think that I am dynamic because I am not really stagnant I am highly motivated by choice... I think too that I am very autonomous. I find ways and means of finding out and then trying to practise it. I am a good teacher.*

Some of the key characteristics that she highlighted about herself were that she is dynamic, highly motivated by choice, very interested in how students learn the foreign language, very autonomous, and a good teacher. All of these descriptors aptly reflect her high sense of self-efficacy. She acknowledges that her confidence has increased as a result of the Dip.Ed. experience. She has confidence in terms of the method that she uses and she is also confident in using the target language in the classroom. She therefore sees herself as a capable and competent teacher, and this she accredits to the programme.

Her high level of teacher self-efficacy is reflected in the fact that she has chosen to continue to improve her craft by furthering her studies. AM is one who has chosen to continue her development so as to ensure progress in her job. She obviously sees continuous training as part of her

professional identity and performing her job competently: *"I found that this programme* [a Masters in Spanish] *that I've been doing, it has been very rewarding. I feel a lot more competent in what I am doing."* She admits at the end of it all, *"I feel a lot better about myself and what I am doing now."*

Participant 2, SS, shows her strong sense of self-efficacy when she says *that "as teachers we have the right and also the vocabulary to speak up and voice opinions about matters concerning the school."* This shows her desire and willingness to change things. She sees her role as a change agent. On the other hand, though, she admits that she feels inadequate for not using the instructional strategies and methodologies that she learnt during the programme to teach her students. This is connected to her sense of self-efficacy as well. She believes that she would and could use it but her school context constrains her efforts. She says it *"makes me feel inadequate for not meeting the needs of all the students in the optimal manner."* SS seems very despondent when she thinks about her present school predicament, which has eroded her sense of self-efficacy somewhat. This is clearly reflected in her words:

> *Dip Ed right now just feels utterly useless….it buoyed you up with the feeling of being in control of your classroom and feeling that as teachers you are empowered to make decisions regarding the direction of your school, without taking the specific context of your school into consideration... all we are is a person to carry out decisions that have been made above our heads without any input from us.*

Her school context notwithstanding, SS really wants to teach: *"I really, really enjoy the job. I really enjoy teaching."* This is confirmed by a strong sense of who she is in the classroom: *"I would say that I am entertaining… and able to get the interest of the kids and get the kids involved."* SS is of the opinion that her sense of who she was as a teacher improved after completing the Dip.Ed.:

> *Well, it made me take myself seriously as a professional. Completing the programme, I felt I came out of it having learned a lot – being exposed to the theories, pedagogies and the actual experience of learning about teaching as a Science, it made me take myself more seriously. It felt like an art form and I realized that I had a lot of abilities, capabilities.*

She continues further: *"During the period of Dip.Ed. and afterwards, I really felt like I walked into the classroom with that knowledge and confidence that I was an authority on what I was doing."*

LC describes herself as an entertainer and a counsellor. These descriptors speak loudly of how she sees her role as a teacher. She believes that she can capture the interest of the students and that she can help them through situations that they encounter daily. The Dip.Ed. programme helped LC to find her calling and enriched other facets of her life. Her words reflect her strong sense of self-efficacy:

> *As a person I believe I became more aware of what my calling was. I became more convinced that this is where I needed to be and this is how I can serve not only in my school but also in my church... So I think it has made my other facets, it has enriched the other facets of my life. As a teacher I think it has allowed me to be confident enough to take on a Form Five class... So it gave me that assurance that I could take them to where they needed to be and I didn't need to be afraid of it, afraid that I would let them down.*

All participants felt empowered as a result of their experience on the professional development programme. It is something that they have taken with them three years after having completed it.

Collegiality and/or Collaboration

AM spoke with certainty when she spoke about the relationships that she had developed with her colleagues on the programme: *"What I enjoyed most about the programme was really, I think, the relationships that I developed with the people in my year group and really seeing other people teach."* AM feels that at her school the amount of pressure and the hectic pace that teachers are forced to work at prevent a lot more sharing from taking place. She confesses that while they do collaborate on certain things in her department, there can be more collaboration amongst them: *"We collaborate on the schemes of work and on exams and on what we do, where we are at, but I must be very honest and say there could be more sharing."* She feels, too, that the older, more experienced teachers are not as open to sharing since they are quite set in their ways:

> *Some of the senior teachers they are not very flexible in terms of change…So I think the relationships are linked to my professional identity in the sense that it can either interfere, it can either impact on me.*

AM clearly indicates how staff relations can affect her sense of professional identity.

Just like AM, SS also attributes much credit to her colleagues from the programme:

> *The Dip.Ed. course material did not do anything to impact on my mission – the people who were on the course with me – especially my curriculum group were and remain my inspiration to want to do my best to uphold the nobility of teaching profession.*

She corroborates this in her interview.

> *It was cool because we really developed close friendships – it was a sisterhood and a brotherhood – there was only one guy on the programme and our Curriculum Supervisors… really went out of their way to be there for us on the programme and to assist us in every way that they could have.*

Like her two colleagues, LC views the collegiality and coaching or collaboration of her curriculum group as the most enjoyable part of the Dip.Ed. programme. This was one of the things that she took away from her experience. The collegiality and collaboration that she enjoyed during the programme continues to exist in her relationship with colleagues at her school. She admits that they collaborate, swap, and share ideas. She finds this enlightening.

Discussion

From the analysis conducted, it is clear that the Dip.Ed. programme had a very positive influence on the three participants' sense of professional identity, especially with regard to their sense of professionalism, their sense of self-efficacy, their ability to analyse their school context, their ability to reflect, and the awareness that their professional identity was constantly evolving.

Sense of Professionalism and Self-Efficacy

One of the first things that can be noted is the teachers' high sense of professionalism and self-efficacy. It is hoped that SS, who faces the most challenging school context out of all three participants, would be able to withstand the feelings of demotivation and demoralization by relying on her underlying passion for what she does. This may very well be possible as not only is teacher efficacy linked to student achievement, but it is also linked to teacher persistence in the face of obstacles, and to teacher effectiveness (Bandura, 1997; Cantrell, Young, & Moore, 2003).

In the cases of SS and LC, the support of the principal can impact on whether these teachers continue to have a positive outlook and continue to use what they have learnt from the Dip.Ed. programme (Fielding & Schalock, 1985; McLaughlin & Marsh, 1978; Stallings & Mohlman, 1981). It is clear that in order for these three teachers to continue to improve professionally, there is need for continuous professional development, the design of which should be carefully considered by the school's administration (Joyce & Showers, 2002; Wolf, 2009).

Ability to Analyse School Context

School context clearly has a determining impact on these teachers' sense of professional identity. Morris and Yamin-Ali (2006) explored this fully in their study of in-service teachers on this same programme, and found that:

> the different contexts in which they taught influenced the way in which each of these teachers responded to the demands of the programme and how they negotiated and constructed their professional identity in a way that allowed them to deal with the specific issues which arose in their school environment. (p. 291)

Clearly, the contexts in which the participants teach have influenced their professional identity. In reviewing the interview with SS, it was obvious that there was an internal struggle going on which was impacting on her teaching philosophy. Although she has a passion for the job, this passion is constantly being eroded by her very unstable school context. As this struggle is taking place, SS's belief system about herself as a teacher is being challenged and changed.

Reflection

One of the strengths of the influence of the Dip.Ed., viewed from the perspective of the three participants in this study, is that it has made them reflective practitioners. It may be because of their "reflection-in-action" and "reflection-on-action" that they have been able to grow in the profession, and may very well continue to do so. It was very evident from their feedback that this is very much a part of who they have become. This endorses Schon's (1987) position on the value of reflection in the practice of the professional teacher.

The Evolution of Professional Identity Over Time

The three teachers involved in this study all showed strong, positive, and significant growth, which has been sustained in the three years following

their involvement in the professional development programme. This reflects one of the goals of the programme, which is the "continued use of sound practice and the sustained search for professional excellence beyond the end of the programme that will ensure the high professional status of the teacher" (FHE, 2011, p. 54). The data analysis showed that several factors contributed to the ongoing professional identity of the three teachers. Above all, they recognized their professional identity as evolutionary, they were able to redefine their role and purpose through reflection, and their sense of self-efficacy continued to be strengthened.

Conclusion

This study focused on three modern language teachers' perceptions of how the Dip.Ed. professional development programme had influenced them as teachers. It concentrated specifically on the programme's influence on their professional identity. This study has revealed that there was indeed a definite and enduring influence of the programme on the three participants in terms of their professional identity.

With regard to professional identity, several elements remained with the three educators in the three years after completion of the programme. One was that professional identity was constantly evolving. Beliefs held during the Dip.Ed. were refined and new discoveries were made. Having completed the programme, the same processes have continued to shape each participant's perception of who they are as teachers.

A specific area of professional identity that showed definite influence was the conception of professionalism. This was reinforced by the programme, resulting in each participant having a clear and comprehensive understanding of what the term meant to them personally. For them it has evolved into a concrete concept, which they have embraced as an asset to them as teacher professionals.

Not only had their beliefs about professionalism changed, but they also discovered and defined what their individual teaching philosophy was. They each realized their purpose as teachers and ascertained what was important to them. Teaching philosophy was no longer an abstract idea; it was given form and shape. Additionally, the three educators were able to outline, with precision, their role and purpose as educators and, more specifically, as foreign language teachers. They are convinced of their roles and responsibilities, and this drives their teaching.

Furthermore, it can also be said that what was learnt during the Dip.Ed. experience has continued to have an influence on these teachers because of their reflection on their profession. Since completing the programme, it has been reflection that has allowed them to improve on

their craft. This was something that they were always encouraged to do during the programme, as the established belief was that reflection equalled growth. Even relationships and the collaborative spirit were a consequence of the programme, as this was one of the most memorable areas noted by all three teachers.

The areas of influence discussed have all contributed to each teacher's sense of self-efficacy. They all exhibited a strong sense of confidence in their abilities as foreign language teachers. The programme empowered them and has left a lasting belief in them that they possess much of what it takes to be effective foreign language teachers and educators in general.

What is very clear with regard to these teachers' perceptions of the programme's influence on their professional identity is that school context had a lot to do with the extent and the longevity of the influence. It was, and still is, the determining factor. For instance, in the case of Participant AM, the school environment supports and promotes a lot of what she has learnt from the programme. It is part of the school's culture and, as a result, AM continues to utilize much of what she gained from the Dip.Ed. SS, on the other hand, feels somewhat demotivated and demoralized, and much of it is as a result of her school setting. As a consequence, SS feels that some of the ideals of the Dip.Ed. are not relevant to her because of her situation. LC speaks about a similar administrative upheaval at her school, although she admits that it is not all bad. All three teachers' professional identity has been affected in one way or another, either positively or negatively, by their school context. It is a factor that one cannot ignore when ascertaining the influence of a programme like the Dip.Ed. on teachers.

Therefore, it can be concluded that, external factors notwithstanding, the Dip.Ed. programme has served a useful purpose for the three teachers. For all three teachers it was the initial teacher preparation that they received, and while it may not be the last, its influence seems to have laid the foundation for the construction of their professional identity.

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WHAT ARE UPPER PRIMARY SCHOOL STUDENTS' PERCEPTIONS OF SCIENCE?
The Trinidad and Tobago Context

Rawatee Maharaj-Sharma

In this study, 840 9- to 12-year-old upper primary students from schools across Trinidad and Tobago were surveyed to determine their perceptions of science, and to explore their views about the likeability of science. It was found that the students' perceptions of science were wide ranging, and that these perceptions were linked in large part to the way that science is delivered at the upper primary level. In general, students expressed high levels of liking for the discipline when it is delivered to them using practical hands-on approaches. This study also showed that there were differences in the perceptions held by boys and those held by girls, and that these differences were linked to certain science topics. It was also found that certain science topics were highly favoured by the students, and that the topics favoured varied with students' gender, age, and ability.

Introduction and Background

The *Education Sector Strategic Plan 2011–2015* of Trinidad and Tobago (Trinidad and Tobago. Ministry of Education [MOE], 2012) identifies the achievement of a seamless education system as one of its primary goals. With this in mind, curriculum documents are planned, designed, and written to facilitate the scaffolding of content and instruction from the early childhood care and education (ECCE) level, through the primary level (7 years), to the secondary level (7 years) of schooling. At the ECCE level, the curriculum is broad-based; designed to allow young students to develop skills in the creative arts and information technology, but there is also a focus on the development of literacy and numeracy skills—all aimed at equipping the students with a holistic array of knowledge and skills in preparation for primary schooling.

At the primary level, the curriculum continues to be broad-based and spiralled along subject-specific lines, so that primary school students are exposed to learning in a range of subject areas, including, but not limited to, mathematics, English language, science, social studies, creative writing, health and family life education (HFLE), arts and crafts, and

music. In most instances, students spend a minimum of 7 years (Infants I and II, followed by Standards 1–5) in primary schooling. Promotion from one level to the next is based on academic performance on internal class tests at the end of each year, so that some students may remain in the primary system for longer than 7 years, but not more than 9 years. Each subject area has a detailed syllabus, which teachers use to guide their classroom teaching in the respective subject areas. The syllabus documents (in all subjects and at all levels) provide teachers with suggested teaching/learning strategies that they can employ when delivering classroom instruction, as well as a range of possible assessment tasks that can be utilized to evaluate classroom learning in the various topics taught. At the end of the primary school experience, students are required to sit a high-stakes (external) national examination called the Secondary Entrance Assessment (SEA). While the primary curriculum covers all the subject areas in each year of schooling, the SEA examination assesses only in the areas of mathematics, English language, and creative writing. The consequence of this has been that teachers at the fourth and fifth year levels focus primarily on these three subject areas, in a concerted effort to ensure maximum preparation of their students for the SEA examination. Subjects such as science and social studies are taught minimally, if at all, during these final two years.

It is important to note that at the lower levels of primary schooling—Infants and Standards 1–3—a fair amount of hands-on science teaching/learning occurs in most primary schools. Therefore, for the most part, students are familiar with the approach and would have learnt science in this way before (MOE, 2005).

With the heightened focus on the SEA examination in Standards 4 and 5, even in those schools where science is taught in the fourth and fifth years, traditional methods of delivery in the form of teacher telling through the use of textbook reading and note-taking are adopted. Very few hands-on activities and group interactions are encouraged in any science that is taught at these levels. Teachers perceive that this approach requires too much teaching/learning time being devoted to a subject that is not tested on the SEA examination.

Against this background, it is not difficult to understand why students, on exiting primary school and entering secondary school, show little interest in pursuing science at the secondary level. Very often, this level of disinterest persists during the early years in secondary school, to the extent that secondary school students opt not to select subjects in the science disciplines beyond their third year of secondary schooling; at which point science is no longer a compulsory subject on the secondary school curriculum. The result is that students in the 9- to12-year age

range are exposed to science in a way that portrays the discipline as a body of knowledge to be learnt, and not as a dynamic subject characterized by inquiry-based learning, hands-on engagement, and discovery learning.

This study seeks to investigate the perceptions of science held by upper primary school students in Trinidad and Tobago, and to identify students' perceptions of science in relation to their gender, age, and ability. In this study, 840 questionnaires, in which students recorded their favourite subject, their general views of science, and the science topic they liked best, were analysed. In addition to the questionnaires, evidence was gathered from oral discussions about science between students and their class teachers.

In light of this background and purpose, the specific research questions being addressed in this study are:

1. *What science topics are favoured among upper primary school students?*
2. *What relationship exists between topics favoured by students and their gender, age, and ability?*
3. *What are upper primary school students' perceptions of science?*
4. *What are upper primary school students' views on what they like about science?*

Research in the Field

There has been growing concern in Trinidad and Tobago about the declining number of students who opt to pursue science in secondary school. While there is limited literature on the topic in the local context, several international researchers (Jenkins, 2004; Murphy & Beggs, 2001) have indicated that part of the reason for this is that children are "turned-off" by science at school when they are quite young. Most agree that the waning of students' interest in science occurs between the ages of 9 and 14 (Hadden & Johnstone, 1983; Murphy, Ambusaidi, & Beggs, 2006; Schibeci, 1984). During the last decade or so, the role of the primary school teacher in the delivery of science in the classroom has come into focus. Downing and Filer (1999) have cited problems linked to primary teachers' lack of confidence in teaching science and their weak scientific knowledge background as issues of concern. Other studies (Murphy, Beggs, Hickey, O'Meara, & Sweeney, 2001; Murphy, Neil, & Beggs, 2007) have criticized the level of the content covered in some areas of primary science, suggesting that it may be above the appropriate level of cognitive development for the students and therefore overly challenging

for upper primary school students. Ponchaud (2001) has also alluded to the fact that, in some instances, the quantity of science content knowledge presented to students at this level can be quite overwhelming, and could possibly promote the development of resentment to the subject among students.

These issues—teachers' weakness in the subject area, the advanced level of the content, and the quantity of science taught at the upper primary level—when taken together and weighed against the emphasis on high-stakes national tests, may be a major contributory factor to science being taught simply as a "body of knowledge" in the final two years of primary schooling. Murphy and Beggs (2001) suggest that the increased pressures placed on teachers in societies like Trinidad and Tobago, where the focus in high-stakes examinations is on numeracy and literacy, serve to militate against good science teaching. In this regard, Lavy (2007) and Dawson (2000) profess that the very limited attention and low priority given to science in Standards 4 and 5 is not surprising because, as they indicated in analysing teachers' behaviour, if the science is not being assessed, it will not be taught; and if it is in fact taught, it will not be taught well. With this being the case in Trinidad and Tobago and, as Ausubel (2000) suggests, in other parts of the world as well, many upper primary school teachers deliver science instruction through "rote methods" at these levels, deliberately opting to "ignore" the use of exciting, relevant, and engaging practical hands-on activities. They see these as being quite "time-consuming" and requiring "too much prior preparation." This, Ausubel (2000) argues, is another possible reason why students develop disinterest in science. In light of this final concern, Bruns, Evans, and Luque (2012) and Murphy et al. (2007) have pointed to the fact that science teaching and learning ought not to be a passive exercise. They have found, as Dawson (2000) and Linn, Clark, and Slotta (2003) have also found in contexts different from Trinidad and Tobago's; that if guided inquiry approaches are infused into science lessons, even the most critical and disinterested students are eager to engage in the learning because of the autonomy and the psycho-mental involvement this approach confers on the students.

What is known at this point about the local context is that science is not assessed on the external high-stakes examination, and that it is given low priority in the classroom compared to literacy and numeracy. We know also that on the occasions when science is taught to students at the upper primary levels, it is taught mainly through direct instruction and rote methods (Maharaj-Sharma, 2012).

The specific reason or reasons for the levels of disinterest in science by upper primary school students in Trinidad and Tobago is uncertain,

but in the context of the general practice alluded to above, there is speculation that it may be linked to either science not being assessed at this level, or the way science is taught at this level, or both. It is hoped that this work will provide some insight into the underlying reasons for the noted levels of disinterest among upper primary school students in Trinidad and Tobago. Specifically, it is also hoped that this work will identify upper primary school students' perceptions of science and the factors that influence their liking for the subject. At another level, this work attempts to reveal any possible relationship that may exist between students' preference for specific science topics and their age, gender, and ability.

Method

In this study, 840 9- to 12-year-old primary school students from 40 schools across Trinidad and Tobago were surveyed by way of a 3-point-type questionnaire and informal teacher-student discussions. The gender distribution (53% female, 48% male) corresponds to the gender percentages in the entire population of 9- to 12-year-old students. In October 2009, the students completed the questionnaire. Most students were able to read the questionnaire themselves; students with literacy challenges completed the questionnaire with the help of their class teachers, who read out the questions to them.

To supplement the data from the questionnaires, the class teachers from each of the 40 schools recorded the verbal responses of a purposively selected subset of students from each class. This subset totaled 160 students—an average of 4 students from each of the 40 schools involved in the study. The students were selected from each class in order to achieve maximum diversity, in terms of age, gender, and ability. In these informal discussions, students responded to a series of questions regarding their feelings about science. The informal discussions were carried out in February 2010.

The Questionnaire

The questionnaire consisted of two sections. The first section, which was close-ended, focused on perception items. The second section contained a list of topics in the primary school science curriculum and a free response section. The perception items were largely adapted from a survey of the comparative attitudes towards science of primary school students schooled in urban and rural settings (Maharaj-Sharma, 2007), in which the instrument validity and reliability checks are detailed. This

adapted version of the questionnaire was however piloted with 120 9- to 12-year-old students from eight primary schools not included in the main survey in this work. Students had no difficulties interpreting the questions and completing the questionnaires.

The topic list and free response section of the questionnaire were designed by a teacher-researcher (Joseph, 2008), who teaches upper primary science at a primary school in Trinidad. She has intimate knowledge of the primary school science syllabus document and of the range of topics taught to students at that level. She has both a bachelor's and a master's degree in science education.

The students were asked to indicate their responses to the perception items on a simple 3-point scale (*yes*, *not sure*, or *no*). For the section containing the list of science topics, students were asked to indicate whether or not they liked each of the topics by ticking *like* or *don't like*. Students then completed the free response section, in which they were invited to write freely about their liking for science and any reasons for their particular disposition in this regard.

Informal Teacher-Student Discussions

The sub-set of students selected for the informal discussions was mixed across gender, age, and ability. Four students from each of the participating schools were selected, in an attempt to provide views from a cross section of the students who participated in the study and from the range of schools participating. Discussions were held in a time period corresponding to a regular scheduled science teaching session, and the selected students and their teachers met either in the library or the audio-visual room for the discussions. In-class supervision was arranged for the other students in the class who were not participating in the discussions.

Class teachers were used to facilitate the informal discussions because the aim was to source students' perceptions in a comfortable and familiar setting. They were encouraged to respond openly and freely, and having the class teacher facilitate this interaction added a degree of authenticity; an aspect that may not have been fully captured if an unfamiliar person facilitated the discussion. These teachers had all attended an interviewing techniques workshop prior to the start of this study, and so were trained in effective interview techniques. Though recorded, the discussions were classified as informal since the discussion protocol was altered on occasion by the teachers, in order to probe students' responses in some instances, and at other times to keep the focus on perceptions when students' responses began to stray (Johnson & Christensen, 2007). Responses from the 160 students were recorded, transcribed, collated,

and compared with the data from the questionnaires in the analysis process.

Ethical Considerations

Parental consent, as well as approval from the Ministry of Education, was obtained for all students participating in this study. Students completed the questionnaire anonymously, that is, they did not put their names on the written questionnaires. Each questionnaire, however, was assigned a code (before being administered) to reflect the school, the class, whether it was completed by a boy or a girl, and whether the particular student was in the older or younger age group (The older age group comprised students aged 11-12 years while those aged 9-10 years were labelled as belonging to the younger age group.) This allowed for structure in the data analysis procedures, and also for students' anonymity to be maintained to some extent. With this system, it was easy to go through the questionnaires and to select four students from each school, who represented the scope and diversity of the participants and the data (questionnaire), to participate in the informal discussions. Therefore, it was possible to align questionnaire responses from each category (as per age, gender, and ability) to discussion responses from the same group.

Determination of Ability

Ability was determined by looking at the students' overall performance in science in the previous semester. Students with overall scores less than 50% were classified as low ability and those with overall scores more than 50% were classified as high ability. This is a common classification used in Trinidad and Tobago to rank students' ability.

Results

The Questionnaire

The sample comprised 840 students with approximately equal numbers of girls and boys. Of these, 55% (462) were in the younger age group (9-10 years) and 45% (378) were in the older age group (11-12 years).

Science topics: How is topic preference related to age or gender?

In the questionnaire, students were asked to indicate whether they liked or disliked each of 16 topics commonly encountered in primary school science. The topics were:

The Human Body	Animal Characteristics
Hygiene	Plant Characteristics
Life Cycles	Solids, Liquids, and Gases
Materials	Rusting
Water Cycle	Care for the Environment
Reduce, Reuse, and Recycle	Forces and Friction
Electricity	Energy Consumption and Conservation
Sound and Hearing	Light and Seeing

These topics are covered in the upper primary school science syllabus, some in greater detail than others. The topics cover areas in the biological, physical, and chemical sciences. For the purposes of this study, topic preference among the students were analysed descriptively, as a more comprehensive quantitative analysis is planned for subsequent work in this area.

In general, all the topics were liked more by the younger students (9-10 years) than by the older ones (11-12 years). Table 1 shows the difference between the age groups and between girls and boys for the six most liked science topics.

Table 1. Topics Most Liked by Students According to Gender and Age

Topics	**Girl (Y) %**	**Girl (O) %**	**Boy (Y) %**	**Boy (O) %**
Hygiene	80	55	78	48
Life Cycles	83	68	78	62
Reduce, Reuse, and Recycle	81	68	76	63
Sound and Hearing	88	55	79	52
Care for the Environment	90	80	85	75
Energy Consumption and Conservation	72	55	79	71

Key: Y – Younger age group (9-10 years)
O – Older ager group (11-12 years)

It is clear from Table 1 that the younger students liked the various science topics more than the older students; and that for these six topics, more girls than boys indicated that they liked the topics. Interestingly, the topic that was most liked by the students—girls and boys in both age

groups—was Care for the Environment. Among the girls, though, more of the younger girls (90%) than older girls (80%) liked the topic. Energy Consumption and Conservation was a highly favoured topic among the boys—young (79%) and old (71%)—and the younger girls (72%). For this topic, though, only 55% of the older girls indicated that it was a preferred topic for them. Sound and Hearing, as well as Reduce, Reuse, and Recycle were topics that were well liked among the younger students—boys and girls—but the strong liking for these topics was not seen among the older students.

Age and gender difference in perception to science

Descriptive analyses of responses to the perception items on the questionnaire indicated that 9- to 10-year-olds were more enthusiastic about school science than 11- to 12-year-olds; the younger students enjoyed and appreciated the study of science more that the older students. Table 2 summarizes this finding. It shows the distribution of students who responded in the affirmative to questions about enjoyment and appreciation of science. In both age groups, girls seemed to enjoy science more than boys and were more appreciative of the impact of school science on their lives outside school. Table 2 shows the relationship between age/gender and perception of science.

Table 2. Enjoyment of and Appreciation for Science of Boys and Girls in Both Age Groups

Emerging Themes	**Girls %**		**Boys %**	
Looking forward to science classes	72	42 (Y)	53	32 (Y)
		30 (O)		21 (O)
Enjoyment through engagement in experiments	88	56 (Y)	71	36 (Y)
		32 (O)		35 (O)
Appreciation due to better understanding of the environment	69	39 (Y)	60	38 (Y)
		30 (O)		22 (O)
Appreciation due to increased knowledge about the body	86	46 (Y)	58	33 (Y)
		40 (O)		25 (O)

Key: Y – Younger age group (9-10 years)
O – Older age group (11-12 years)

The emerging themes were all worded to be skewed toward an expression of positive perception to make the data presentation consistent. It should be noted, however, that the questions used in the data collection process were **not** skewed in this way. From the responses

given by students, it was clear that in each of the themes larger numbers of younger students than older ones expressed positive perceptions. With respect to this finding, it might be speculated that at the Standard 4 level (younger students) some focus on science still occurs in the classroom. However, this may be significantly reduced, or even eliminated, at the Standard 5 level (older students), in the final run-up to the SEA examination, which consists of assessment components in mathematics, language arts, and creative writing, with no assessment component in science.

Informal Teacher-Student Discussions

The discussions between 160 students and their teachers revealed the specific aspects of science that the students enjoyed (or did not enjoy); why they felt science was important; and what they felt was most difficult about science. A summary of some of the questions and responses follows.

What do you enjoy best about science?

The most popular response was *experiment* from almost all the students, regardless of age, gender, or ability. Responses included the following (b = boy, g = girl; 9, 10, 11, or 12 = age; H = high ability, L = lower ability):

"…doing experiments is fun … it lets you find out how things work … I like doing experiments…" (b,9,H)

"I have fun when I am learning … with the experiments…" (g,9,L)

"The experiments are the best thing for me…" (b,11,H)

"… I remember the things when I remember what I did in the experiment …" (g,11,H)

"I enjoy learning when I can do things…" (g,9,H)

What part of science do you not enjoy?

The younger students were again more positive in their responses; 70 of the 80 students in the younger group said that they liked all science. Only 25 of 80 students in the older group liked all aspects of science. Typical responses from students in the older group who did not like certain aspects of science included:

"I didn't like the topic on the flower … there were too many parts to remember….and the names were hard to spell …" (b,11,L)

"… writing over the notes from the textbook is boring … I don't like doing that…" (g,11,H)

Why do you think science is <u>important</u>?

Across the board, students indicated that they felt science was an important subject, indicating mainly that it is a subject that can help them to "*understand how the outside world works*." The following were some of the responses given by students:

"…learning about the eye and seeing made me understand why my sister has to wear glasses…" (g,10,H)

"I know now that I should eat less salty snacks…" (b,12,L)

"… plants and animals depend on the environment…. So we must not litter… this destroys the environment." (b,9,H)

"I know now how a caterpillar becomes a butterfly…" (g,9,L)

Other similar responses indicate that students realize the importance of science to their lives, either to them personally or to the wider community, country, and world in which they live. Two such examples are as follows:

"…knowing about ways to care for the environment could make Trinidad a cleaner place…" (g,10,H)

"…doing the experiments … made me feel like a famous scientist…" (b,10,L)

What is the most <u>difficul</u>t thing in science for you?

Many students claimed that content detail was the most difficult thing for them. Labelling the parts of the ear (b,8,L) and explaining the difference between melting and dissolving (b,8,H) were two examples cited by students as topics illustrating the difficulties associated with content detail. Interestingly, while practical activities were best liked by many of the students in this study, a few students indicated that some aspects of practical work were the most difficult part of science for them. Examples to support this claim included "*circuits … not knowing exactly where to connect the red and black wires…"* (g,9,L) and *"… how to tell if a simple machine is a first, second or third class lever…"* (g,9,H)

However, most students, across age, gender, and ability, indicated that even though science might be a "*difficult subject*" that they would be "*excited*" about "*learning about the world*" if their teachers "*did things in the class*" to make it "*easier for them to understand it* [science]."

Conclusions, Discussion, and Implications

The results showed that, generally, greater numbers of older students (11-12 years) had negative perceptions about science, and that more of the younger ones (9-10 years) had positive perceptions. The reduced popularity of certain science topics among the older students was clearly illustrated in this article, with older boys having even less liking for certain science topics than the older girls. In work done by Morrell and Lederman (1998), it was found that even though older primary school students have an overall less positive attitude toward science than their younger colleagues, the older students had highly positive attitudes towards schooling in general. While students' attitudes toward school were not the focus of this study, its findings, in the context of those of Morrell and Lederman (1998), compel one to ask: What is it about science in the senior primary years that is putting students off? This article suggests that several factors seem to work collectively to turn students away from science. These include, among others, methods of science delivery, methods of assessment in science, and science curriculum content.

Hands-on Engagement

The informal teacher-student discussions revealed deeper insights into what students thought about science. The response by most students to what they liked best about science was "*doing experiments*," and the reasons offered for this view centred on experiments being fun and the feeling of enjoyment they experienced when they learned by doing. One of the boys from the older age group, whose response was reflective of many others in this group, remarked that doing experiments helped him to remember new things. Many of the girls from this age group indicated that hands-on activities helped them to better understand how things worked.

A number of students from the younger age group suggested that doing experiments helped them to understand how things around them worked. In light of these responses, it is clear that students are sending a powerful message—practical activity is not only important for effective and meaningful learning in science but it is also critical in crafting positive perceptions of science.

The findings of this study, which are in agreement with reports by Campbell (2001) in which upper primary science students indicated that "doing experiments" was the best part of science for them, indicate quite convincingly that students like to learn by being active participants in the science learning process. Campbell suggests further that if in fact

students are indirectly asking for more practical activities to be included in their science lessons, teachers have an obligation to ensure that they not only teach the allotted and prescribed science at the upper primary level, but that they do so with a more hands-on approach. Murphy and Beggs (2001) suggest that sacrificing content in one curriculum area for content in another curriculum area may not be just educational erring, but moral inefficacy as well. In that context, therefore, and to address some of the concerns this study raises about students' perceptions about science at the upper primary level, teachers must be encouraged to find ways to execute the primary science curriculum, to allow for more frequent, and perhaps longer-term, experiments and investigations in science lessons.

The Tests

The heavy emphasis on the SEA examination seems to be one factor that is turning students off from science. This notion is supported by the following quotation from one student in the study, who reflected similar views held by other students:

> *"… sir only does mathematics and language with us to prepare us for the exam … we have to read the science for ourselves … and make notes … and this is very boring…"*

According to Murphy and Beggs (2001), this "transfer science" approach is in fact "boring and repetitive," and in the Trinidad and Tobago context, where the focus at the upper primary level is on preparing students for the examination—which comprises mathematics, language, and creative writing only—science is done merely in passing, so that students are not provided with exciting and engaging practical activities in their classroom science experiences.

Curriculum Content

In addition to the focus on the national test, as work by Harlen (1997) shows, this study indicates that it may be the curriculum content itself that leads to the reduced interest shown by students at the upper primary level. Topics such as Forces and Friction, and Rusting and Plant Characteristics were topics described by students as "*difficult*," "*hard to understand*," "*not important*," and "*not interesting*." Osborne and Simon (1996) have explained that, often, at the primary school level, science students are exposed to an overloaded science curriculum; attempts are made to cover many areas of science; and the suggested depth of coverage, as per the guiding syllabus documents, is much too cognitively

challenging for upper primary school students. A close examination of the science curriculum document for Standards 4 and 5, against criteria outlined by Osborne and Simon (1996), seems to suggest that this may be a valid concern in Trinidad and Tobago.

With this in mind and based on the current findings, it is quite possible that students' less than favourable perceptions may not have resulted from a lack of exposure to hands-on learning alone. Furthermore, the issue of teacher confidence, as articulated by Downing and Filer (1999), when called upon to deliver an overloaded curriculum which may contain some topics that the teachers are not fully competent in, may indirectly impact students' perceptions of those topics. While this aspect is not a part of the current study, it does suggest that there is need to re-examine science teacher preparation programmes to determine what could be included or altered to help teachers develop their confidence and competence in areas of science that might be challenging for them.

Gender Difference

In general, girls were more positive than boys about the study of science, in terms of enjoyment, appreciation for the environment, and appreciation for personal health and well-being. In respect of the topics liked by boys and girls: generally, girls favoured topics in the life sciences while boys preferred topics in the physical sciences. Works by Woodward and Woodward (1998) and Johnston, McKeown, Cowan, McClune, and McEwen (1999) support this finding, suggesting that it might be important for teachers to consider this fact and therefore deliberately cater for gender-preferred topics in their science teaching. Given that the topics taught at this level are mandated by the syllabus document, teachers have very little choice in the content they are asked to deliver. However, noting the relationship between topic preference and gender emerging from this study, teachers could revisit their teaching methods to cater for this gender difference. One way this can be done in the local context is to treat each student as an individual by acknowledging each perspective, regardless of gender, and incorporating these, in an unbiased manner, into the discussions and activities being used to teach the topic.

Most Favoured Science Topic

The science topics discussed/presented in this article were generally more liked by the younger students. However, Care for the Environment was the topic liked most by both age groups and by girls and boys alike.

Topics such as Reduce, Reuse, and Recycle; Life Cycles; Hygiene; Energy Consumption and Conservation; and Sound and Hearing were also well-liked topics, with just over 60% of the total sample indicating that these were their favourite topics. Electricity; Rusting; Forces and Friction; and Materials were selected by 32% of the students, mostly boys, as their most favoured topics. Interestingly, Plant Characteristics and Animal Characteristics were selected as the most favoured topics by only 5% of the total sample. The immediate implication here is that there is need to look closely at the relevance of what is being taught in these topics, and perhaps to revisit the way content in these areas is delivered to students.

Perceptions of Science

This article shows that students at the upper primary level have wide-ranging perceptions about science, and that these perceptions may be linked, in large part, to the methods by which science instruction is delivered at this level. To a lesser extent, it would seem that teachers' content knowledge, which determines the degree of confidence with which they teach science, can also impact on students' perceptions. In other words, if a teacher is very knowledgeable and comfortable with a science topic, he/she would deliver that topic with greater ease and confidence than a topic for which content knowledge is relatively weaker. In this context, it is easy for students to develop positive perceptions of a topic that is passionately delivered and negative perceptions of another topic that is not delivered with equal passion. Additionally, this article suggests that concerns linked to an overloaded, content-challenging science curriculum may have a bearing on students' perceptions of science.

Views About Science

Upper primary school students agree that science is a hands-on discipline, and they seem to suggest further that when science is taught to them via this method it is most meaningful, enjoyable, and beneficial to them. They appreciate the relevance of science to their everyday lives and recognize the value of the knowledge of certain science topics to understanding their bodies, their environment, and the world in which they live. In general, upper primary school students see science as an important subject, but they seem to indicate that the methods of delivery are not always palatable to them. Their implicit suggestion is that classroom instruction ought to be revisited to deliver science in a more appealing manner.

In conclusion, therefore, this article suggests that it is time for science teachers, and particularly primary school teachers, to take careful note of what students are saying and to make concerted efforts to adopt classroom practices and institute instructional measures geared at improving the primary science experience of students at that level. As was revealed by previous works, this article also shows that students' overall perceptions of science are linked to method of delivery, quantity and level of the content taught, and teachers' confidence in delivering science instruction. All these factors, combined or individually, would have contributed to the students' perceptions reported in this article. In conclusion, this article has revealed that:

1. certain science topics are more favoured by upper primary school science students;
2. topics favoured varied among students by gender, age, and ability;
3. younger students had more positive perceptions of science and, in general, girls had more positive perceptions than boys;
4. students generally liked science because they saw its meaningfulness to their everyday lives; and
5. even though the hands-on practical approach is not a frequently used strategy in upper primary science teaching, primary school students are familiar with the approach and it is this aspect of science teaching/learning that seems to appeal most to students.

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SECONDARY SCHOOL ENTRANCE EXAMINATIONS IN THE CARIBBEAN: Legacy, Policy, and Evidence Within an Era of Seamless Education

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Secondary school entrance examinations remain an important feature of education systems within the Anglophone Caribbean. This is at a time when many high-performing school systems have either diversified traditional test-based placement mechanisms or completely postponed early selection and placement. In contrast, high-stakes secondary school selection/placement examinations have persisted in Caribbean nation states, albeit under the guise of reform. Paradoxically, in the postcolonial era of seamless education, some form of test-based selection and/or placement continues, with newly added roles, refined purposes, and exotic new names. These high-stakes systems compete strongly with formative classroom assessment and large-scale learning assessments used for monitoring student achievement. This paper argues that the persistence of test-based early selection in the Caribbean points to a widespread and implicit belief in the infallibility of test scores. This naïve perception among different publics has remained, even in the face of evidence from early sociological studies demonstrating inequalities on the examination. In the era of seamless education reform, there is need for an explicit measurement focus to better judge fairness, validity, and equity. Unless a fledgling Caribbean measurement community can head in the direction of collecting credible evidence, abuses and test score misuse will continue.

Early Test-Based Selection in Trinidad and Tobago: Towards an Analytical Framework

Caribbean societies have traditionally placed a high value on education in general and on secondary school education in particular (Ellis, Ramsay, & Small, 2000). In Trinidad and Tobago, the value attached to secondary schooling was evident even prior to independence. In the colonial period, secondary education was considered to be very different from primary education and technical or craft training because it was

designed to provide "an academic education for the intellectual elite of the Colony" and was considered to be "an avenue for the few to reach the Universities and enter the learned professions" (Trinidad and Tobago [T&T]. Government, 1947, p. 18). Although places were restricted to a privileged few prior to the 1960s, secondary schooling remained in great demand across the wider population (Campbell, 1996, 1997). The limited numbers and high demand meant that from very early on, some method of selection was required. In the post-independence period, the demand for secondary education continued to rise, fuelled perhaps by the arguments of then premier, Eric Williams; the desire to emulate other successful locals; and the belief that schooling was the most productive route to social mobility (Alleyne, 1996; Brereton, 2007).

Secondary school entrance examinations are test-based selection and placement systems positioned at the transition between primary and secondary schooling. As part of a colonial legacy, these systems function as gatekeepers by determining entry and placement into what was once considered a cherished pathway. In most of the Anglophone Caribbean, secondary school examinations are still administered. Selection occurs at age 11 and above in most countries, except Belize, where the Primary School Examination (PSE) is administered at age 12+. Thus, secondary school entrance examinations result in a high-stakes selection process early in the schooling career of students. In the period just after independence, the primary purpose of secondary school entrance examinations was selection; but with universal secondary education instituted in many Caribbean islands during the first decade of the 21st century, that role has shifted towards placement into different types of secondary schools. This paper argues that the test-based selection system in Trinidad and Tobago, which developed during the colonial era, evolved unique characteristics aligned to function and purpose. It will show that many of these features have been repeated as a legacy during the post-independence era. The most important of these are (1) high societal legitimacy and valorisation, (2) overall administrative stability and persistence, and (3) experimentation and tinkering without evidence.

The analytical framework makes use of an explicit postcolonial probe to interrogate and deconstruct past policy and practice. London (2003) has noted the value of using such a frame when analysing educational issues in the Anglophone Caribbean:

> The postcolonial probe therefore provides some new ammunition and perspectives which might be used to investigate some old themes and, in so doing, helps to revise understanding of the "colonial." The approach has been credited with capability

> to impart new prominence to matters relating to colony and to independent statehood alike and in recent times has had a major impact on established modes of cultural analysis. The reason is that the post-colonial theoretic is an approach which has potential to bring to the forefront interconnections among issues relating to race, nation, empire, and cultural production, of which education and schooling are components. (p. 291)

Thus, postcolonial theory is a mechanism through which we might examine "development" or "change" over time, while at the same time gauging the persistent impact of colonial administrative structures and mechanisms (Shahjahan, 2011). Used in an abstract sense, the experiences of colonialism become an important referent for understanding the direction of, and processes associated with, assessment reform in the Caribbean (Tikly, 1999). The key analytical questions in such a historical analysis then become: (1) Are changes associated with secondary school entrance examinations really new or do they represent more of the same, a mirror from the colonial context? (2) Why have secondary school entrance examinations been retained in the post-independence era, with modern and expanded school systems?

The analytical framework also makes use of an explicit measurement perspective. There is no contradiction in using both postcolonial and measurement theory within a single analytical framework. Indeed, this paper argues that modern measurement theory has had very little impact upon the development of assessment systems in the Caribbean. However, measurement theory can highlight critical concerns about the efficiency and impact of an early selection/placement system, and therefore is able to extend the socio-historical postcolonial perspective by focusing upon the quality and utility of the selection instrument. Measurement theory challenges the implicit assumption that tests are simply neutral tools, and provides a framework for gathering credible evidence about psychometric functioning (Mislevy, 1996). Far from being blind to the issue of test use in society, measurement theorists consider fairness as central to their work, and this issue has been explicitly considered in the 1999 *Standards for Educational and Psychological Testing* (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 1999). Notably, then, Messick (1998) argued that "the concept of fairness is impossible to divorce from the concept of validity because the two share mutuality of meaning and import" (p. 12).

In this paper, the historical account is divided into two main periods separated by the watershed event of independence. The pre-

independence era includes the modern colonial era (pre-1950) and the era of growing nationalism and greater democracy starting in 1950. For convenience, the post-independence period has also been organized into two periods: 1960-1987 and 1988 to present. The year 1987 is a critical milestone because notable changes were made to the Common Entrance examination in 1987 (London, 1997; MacKenzie, 1989). Another possible milestone is the year 2001 when universal secondary education was instituted. Although Campbell (1996, 1997) has documented the history of education in Trinidad and Tobago, dealing extensively with the different examinations, he did not explicitly plot the course of assessment reform. As such, this paper focuses specifically upon the evolution of form and function in secondary school entrance examinations. The historical analysis is based on both secondary and primary documents. The latter include selected annual reports from the colonial era, along with policy papers, academic papers, and task force reports from the post-independence era. Attention is focused upon those documents that contain empirical data or which refer to significant policy decisions for the examination.

The Colonial Period: The College Exhibition

In colonial Trinidad and Tobago, the forerunner to the current system of secondary school selection was the College Exhibition Examination. This examination was established in 1879 for boys and girls under the age of 12. However, the first girl to actually present for the examination was in 1926 (T&T. Working Party on Education in Trinidad and Tobago [Working Party], 1954). Campbell (1983) wrote at length on the nature of the College Exhibition system, which stood shoulder to shoulder with fee payment for secondary school placement. Secondary school fees were established at 16 dollars per term, a goodly sum for the working class at that time. These fees meant that the College Exhibition system was the only viable mechanism for social promotion for the majority of locals. The increasing demand for places in secondary schools led to policymakers granting more and more College Exhibition awards. For example, in 1941, only 16 exhibitions were awarded, but by 1947 that number had increased to 55, and by 1950 to 100 annually (T&T. Government, 1947, 1950, 1951; Working Party, 1954). From this perspective, it is understandable that the disenfranchised local population would come to see a selective examination as valuable in its own right and advantageous compared with other alternatives.

Although the numbers of test takers earning places in secondary school were kept low for a time, one of the advantages of the College

Exhibition system was that the great majority perceived test-based selection to be a relatively transparent and "fair" mechanism (Olmedilla, 1992). In time, it was widely accepted as the primary gateway through which some African-Trinidadians and a few Indian-Trinidadians could earn a secondary school place and, most importantly, quite possibly an island scholarship. O'Callaghan (2009) observed that the College Exhibition was perhaps the only viable mechanism at the time for social mobility among locals such as Arthur McShine, who later qualified to become a doctor. She wrote:

> For Arthur Hutton McShine, more than a generation before, winning one of the few exhibitions was crucial to his future. He would get one of those exhibitions in spite of his mother's first begrudging the extra cost of electricity that his studies entailed. He would, like some other students of his time, cotton on to the very useful street light. He won the exhibition, went to QRC and eventually won that Island Scholarship to study at a University abroad, which Dr Patrick Solomon in his autobiography related as being all that stood between the failure which was the lower rungs of the Civil Service and the success of becoming a doctor or lawyer.

It is in this way that the examination-based selection system might have become legitimized, leading ultimately to intense valorisation by the public. This valorisation of successful test takers, their families, and institutions goes back to the very birth of high-stakes public examinations for the Chinese public service (Miyazaki, 1976). Likewise, in colonial Trinidad and Tobago there was no shortage of support for the College Exhibition, and some of the adherents were surprisingly successful locals who became the examination's most notable and trusted advocates. For example, Campbell (1996) reported H.O.B Wooding as bemoaning the actions of administrators trying to limit the College Exhibition as the proven pathway to success. His cry was in response to a suggestion that places were to be opened up in the intermediate schools for other high performers in the College Exhibition. Such strong advocacy for a selection examination was reasonable considering what success meant to the test taker. Inevitably, it was these successful test takers, a chosen few from the local populace, who would be inducted into the colonial administrative structure. The testimony to the success of the system as a vehicle of social mobility was perhaps best embodied in the first premier himself, who had successfully "earned" the ultimate reward of a university degree in the motherland. He returned to open the door into what was believed to be a new era—one of greater opportunity

and fairness. Such solidly presented myths associated with an examination are not easily erased from the minds of observers.

Still, the records of the time showed that there were also several unintended and negative consequences associated with the College Exhibition system. Substantial evidence came from the Working Party (1954) report, which noted the distortions in the organization of the primary school and the promotion of intense examination coaching:

> When the examination was introduced, the papers were set in English, Arithmetic, Geography and Spelling; and there was a test of Reading. It seems that the purpose then was to secure a few brilliant children who would hold the honour of being 'scholars'. The result was that special classes were started in the schools into which were put only the children who appeared to have the best brains, to be given individual attention and to be kept apart from the rest of the school. Coaching then became intensive, was extended to out-of-school time, and has grown to such an extent that we must condemn it in the strongest terms. (p. 74)

Thus, from very early on, the competitive nature of the College Exhibition created a strong washback effect on both teaching and school organization. As defined in the modern literature, washback is the positive or negative effect of a high-stakes test on pedagogy, organization, and learning in schooling. The concept of washback is especially prominent in modern-day language testing (Alderson & Wall, 1993; Cheng, 1997; Cheng, Watanabe, & Curtis, 1994). The Working Party (1954) explored several dimensions of negative washback, including the reorientation of the purpose and nature of teaching in the primary school. Thus, the committee observed that "the rest of the school is often neglected in order to provide for the needs of the 'exhibition' class" (p. 70), with the syllabus truncated in line with examination demands.

Another significant adverse impact was the intense examination orientation promoted among test takers, teachers, and parents. Again, the Working Party noted that the College Examination tended to spawn additional internal examinations prepared by head teachers. These were designed to "weed out" unprepared students. Such actions were possibly prompted by the numerous reports on the unpreparedness of candidates. For example, in the 1928 Administration Report, the Director of Education had noted that:

> In my previous reports I have called attention to the undesirability of making children sit for an examination for which they are not prepared, and which they have not the smallest chance of passing, but in spite of these remarks, matters were even worse this year. (T&T. Government, 1928, p. 6)

This finding also alluded to the overall poor performance of candidates, which was accompanied by large urban-rural disparities in performance. Thus, both quality and equity were notable issues at that time.

Nevertheless, despite these adverse and unintended consequences (Broadfoot, 2002), there was also much public and administrative resistance to stopping the examination altogether, leading eventually to its retention over the years (Payne & Barker, 1986). Arguably, the system of test-based selection may have survived almost intact because of the high value and perceived legitimacy of the system. Paradoxically, however, this apparent stability did not prevent frequent modifications in the assessment design. Indeed, small-scale administrative tinkering by technocrats was a common feature of the College Exhibition. As defined here, such tinkering included minor changes to assessment content or format, scoring, and the number and value of awards. These changes were commonly made without the benefit of empirical evidence (T&T. Government, 1947, 1950, 1951). For example, in 1947, the redesign led to English and Arithmetic being retained and a third paper covering Geography, History, Hygiene, and Nature Study added. In 1953, another design was implemented so that the constructs then measured included English Language and Grammar, English Composition, Arithmetic, and Geography. The Working Party (1954) linked changes in assessment design to a need to avoid specialization in the primary school and achieve greater alignment with the curriculum.

Post-Independence: Changing Contexts, New Policies, and Rebirth

Three features of the colonial College Exhibition system have been retained in the post-independence secondary school entrance examination systems: (1) high societal legitimacy and valorisation, (2) overall administrative stability and persistence, and (3) experimentation and tinkering without evidence. However, residualism from the colonial era is both contradictory and ambiguous, especially for motives, purposes, and explanations for assessment changes (MacKenzie, 1989; Payne & Barker, 1986). This is because the processes associated with residualism lie outside the rhetoric of modern technical explanations for

education reform, such as efficiency or measurement-driven instruction, but operate at the much deeper level of value assumptions and belief patterns, which are the primary motivators for institutional change in postcolonial systems (Jones, 1975; Jones & Mills, 1976).

MacKenzie (1989) documented the several changes made to the Common Entrance examination in the 1970s and 1980s, most notably the inclusion of Social Studies and Science in the battery of tests, and the introduction of a written essay (T&T. Ministry of Education. Examination Review Committee [Examination Review Committee], 1983a[1], 1983b[2]). London (1997) had rationalized the inclusion of the essay component by pointing to the advantages of measurement-directed reform, whereas the Examination Review Committee (1983b) pointed to advice given by a foreign consultant[3]. Despite several further changes, however, the examination persisted even with the implementation of universal secondary education in 2001[4]. Indeed, some features, such as legitimacy and valorisation by the public have continued unabated. To illustrate, performance in the Secondary Entrance Assessment (SEA) is now associated with scholarships and awards for the best-performing students. The sources of these awards include the Ministry of Education, private sector institutions, and even the regional university (11 in Secondary Entrance Assessment, 2010; SECU awards, 2011; T&T. Government, 2011).

During the post-independence era, there were several proposals for managing adverse consequences arising from the selection and placement mechanism, the most notable being in the Moses and St. Clair King reports (T&T. Cabinet Appointed Committee [Moses], 1975; T&T. Committee Apppointed by Cabinet [King], 1982). However, the National Task Force on Education (T&T. National Task Force, 1994) was much more cautious in recommending a gradual change to the inclusion of scores from continuous assessment and "national tests" to determine selection and placement. There was intense opposition within the Ministry of Education to some of these minor changes, as seen in the case of the "St. Clair King" Working Committee, which had suggested reducing the number of attempts from two to one (King, 1982). This idea was strongly rejected by the Examination Review Committee, which raised concerns about the fairness of such a policy to test takers in general (Examination Review Committee, 1983a[5]). However, although the argument over restricting the number of chances might have centred on fairness, data were never presented by either of the opposing sides. In the modern era, the 1998 Task Force Report (T&T. Task Force) was the source of two notable changes in the examination—the first in 2001 was

a change in format and content, and the second in 2005 was a change in calculating the composite score and the essay rubric.

Most of the debate over these seemingly minor changes did not involve the general public, but was handled "in-house" by the technocracy. Although there was little stakeholder involvement in the 1980s debate over the number of repeats, there was some stakeholder voice in the proposed changes in format and content of 2001. The salient point, however, is that policymaking remained obscure and evidence was rarely used to guide these critical technical decisions. Instead, strongly held personal views or political realities tended to dominate both the dialogue and the policymaking. Sometimes, however, formal positions might be clothed with the logic of educational theory. Such an approach to policymaking appears to be especially common in the opinion-led societies of Latin American and the Caribbean (Cueto, 2005). In such contexts, evidence and indigenous knowledge are scarce, and movers and shakers are able to influence public opinion (Isaac, 2001).

Admittedly, this view of evidence-based policymaking runs counter to the postcolonial analysis of Shahjahan (2011), who considered the current evidence-based rhetoric promoted by the West to be simply another instance of neocolonialism. This paper argues, however, that colonial structures could not be evidence-based and, currently, true evidence-based systems are not easily built within postcolonial societies (Sutcliffe & Court, 2005). Indeed, a review of the history of measurement in the Western world suggests that the evolution of secondary school entrance examinations in the Anglophone Caribbean is very dissimilar to the development of selection testing in the West, especially with regards to use of evidence to inform policy and assessment design (Cole, 1973; Cole & Zieky, 2001; Linn, 1973; Linn & Werts, 1971).

Firstly, then, secondary school entrance examinations in the Caribbean remained relatively immune to evidence, with questions of selection bias (fallibility) infrequently addressed. Secondly, and more importantly, in the Western world, selection testing in education, which developed from intelligence testing for the military, remained intimately connected to a growing measurement community (McArthur, 1983). This academic measurement community retained a significant role in the theoretical development and debates of the 1960s and 1970s. In the Caribbean, however, no such measurement community existed in this period, although several prominent sociologists, educationists, and economists provided useful insight into the nature of selection through rigorous empirical studies (Cross & Schwartzbaum, 1969; Hamilton, 1979; Manley, 1963). Nevertheless, the influence of this scholarly

community on policymaking remained minimal. Thus, what emerged in the 1960s was a selection/placement system in the Caribbean that was relatively immune to evidence, able to perpetuate itself through the non-transparent policymaking cathedrals of Ministries of Education.

In the 1960s, the introduction of the secondary school entrance examinations across several Caribbean countries was associated with increasing numbers of students accessing "free" secondary school places (Alleyne, 1996). The systems in Jamaica, Barbados, and Trinidad and Tobago were the oldest, dating back to the period 1957 to 1962 for first implementation. In both Trinidad and Tobago and Jamaica, the numbers of test takers rose sharply after independence, becoming a significant source of failure for students from the lower socio-economic bracket and from rural areas (Cross & Schwartzbaum, 1969; Mahabir, 1973). An analysis of these studies suggested that student failure was associated with both poor performance and the restricted number of secondary school places. Still, the examination retained credibility in countries like Jamaica and Barbados, perhaps because the test batteries were constructed in England. Nevertheless, both Manley (1963) and the Barbados Committee to Review the Operations and Effects of the Common Entrance Examination (1974) pointed to the inappropriateness of many items. At that time, however, the level of measurement knowledge in the Caribbean did not facilitate an extensive consideration of cultural or any other type of test bias. On a more positive note, the report by the Barbados Committee (1974) included a supplemental statistical report. However, few other government reports of that time made adequate use of empirical evidence, including the 1998 Task Force for the Removal of the Common Entrance Examination in Trinidad and Tobago. This is indeed surprising given the potential access to examination data by Ministry of Education technocrats.

It could be that the examination's credibility remained despite the evidence because tests are widely perceived as neutral tools in the Caribbean, a perception that may be greatly facilitated by the general lack of transparency in the processes associated with public examinations. In the early period after independence, Cross and Schwartzbaum (1969) provided credible evidence highlighting the segregating impact of the examination. The authors analysed the composition of the Form 1 classes, focusing upon socio-economic status and ethnicity. Jules (1994) also studied multiple cohorts and came to a similar conclusion, but used data obtained directly from examination databases. That study was conducted on behalf of the Centre for Ethnic Studies in Trinidad and Tobago, a unit appointed to gather data on the impact of race and ethnicity in the social and educational systems of the

country. Unlike the work of Manley (1963) and Cross and Schwartzbaum (1969), however, Jules did not use an explicit sociological perspective but instead focused on attainment gaps for different target groups. The study disaggregated the data by ethnicity and race, along with other exogenous variables such as gender, socio-economic status, and geographic location. Jules also addressed less frequently studied issues such as transfers and geographic location.

The Jules (1994) study is one of the few empirical studies to have accessed actual examination data. Nevertheless, there were limitations to the methodological approach chosen. Firstly, multivariate analytic techniques, such as logistic regression, were not used. Secondly, interaction effects were largely ignored so that the subtle interactions among ethnicity, social class, and gender remained unclear. Thirdly, effect sizes or odds ratios were not reported, so that judgements cannot be made about the magnitude of the differences. Thus, it might well be that some of the differences found for the ethnic groups were practically small although statistically significant. Likewise, the conclusion that African-Trinidadian females of the lowest economic strata were the most disadvantaged remains questionable because the extent of this disadvantage was not directly measured.

After 1994, there were very few high-quality empirical studies of secondary school entrance examinations. Thus, "new" secondary school entrance examinations emerged in an evidence vacuum. It might be that by changing the name of the examination, some have been led to believe that the issues associated with high-stakes selection are no longer valid. Such a misconception appears to be evident in the report of the 1998 Trinidad and Tobago Task Force, whose terms of reference required them to eliminate the Common Entrance Examination. In the end, the Task Force chose to retain the examination as a placement tool and rename it as the Secondary Entrance Assessment (SEA). This government-commissioned report did little to eliminate local measurement misconceptions, such as the direction and size of the gender gap, fairness of ability testing, role of the essay component in weighting of the composite score, and the utility of standard scores for placement (De Lisle & Smith, 2004).

In Barbados, the name and role of the examination was also changed to the Secondary Schools' Entrance Examination (BSSEE); and in Jamaica, the Grade Six Achievement Test (GSAT) (Barbados. Ministry of Education, Youth Affairs and Culture, 2001; Jamaica. Task Force on Educational Reform, 2004). With hindsight, it would appear that the politics of educational policymaking in Caribbean states might also have been a critical factor. To illustrate, the 1998 Trinidad and Tobago Task

Force did not include Vena Jules, who four years earlier had accessed the Ministry of Education's confidential databases to study the sensitive issue of differentials across ethnic groups. Perhaps more significantly, the Task Force did not include an educational statistician to provide the necessary analysis for evidence-based decision making, as in the case of the Barbados Committee (1974). There is little doubt that such exclusionary practices have contributed to misdirected policymaking.

Another salient issue brought to the fore by the 1998 Trinidad and Tobago Task Force was the popular perception of emerging gender differences in achievement outcomes. The term *notable,* with reference to the size of the gender gap, is used cautiously here because, in reality, there was little large-scale empirical evidence at that time to prove whether or not females had a practically significant advantage in subject areas at the primary school level. Still, the absence of evidence has rarely stopped Caribbean policymakers from proposing drastic solutions to manage issues that they perceive as important, often without regard to the consequences that might accrue (De Lisle & Smith, 2004). The solution to the perceived issue proposed by the committee centred on test redesign for greater perceived gender fairness (Gipps & Murphy, 1994; Willingham & Cole, 1997). De Lisle and his collaborators examined the issue of a female advantage in secondary school entrance examinations, using cohort data from the Trinidad and Tobago Ministry of Education. In a series of published articles from 2004 to 2006, they highlighted the complex nature of the issue and the danger of rushing to judgement based on evidence gathered on small-scale or even single cohort studies (De Lisle, 2006; De Lisle & Smith, 2004; De Lisle, Smith, & Jules, 2005).

Since 2006, additional full cohort data have been made available, facilitating a better judgement on the magnitude of gender differences in the SEA. As shown in Figure 1, the evidence from these full cohort studies confirms the existence of frequent medium-sized gender differentials in Creative Writing and sometimes in Language. However, few Mathematics or composite score differentials reached Cohen's benchmark of 0.5 for a medium-sized effect from 1995 to 2005 (Cohen, 1988). Ironically, however, this data suggest that the change in assessment design proposed in 1998, and implemented in 2001, led directly to the current greater female advantage in Language and Mathematics. This change in assessment design included the use of constructed response instead of multiple-choice items, and the omission of Social Studies and Science measures from the battery of tests, where gender differences were usually negligible or small in the pre-2001 assessment design. The result of these two changes in assessment design

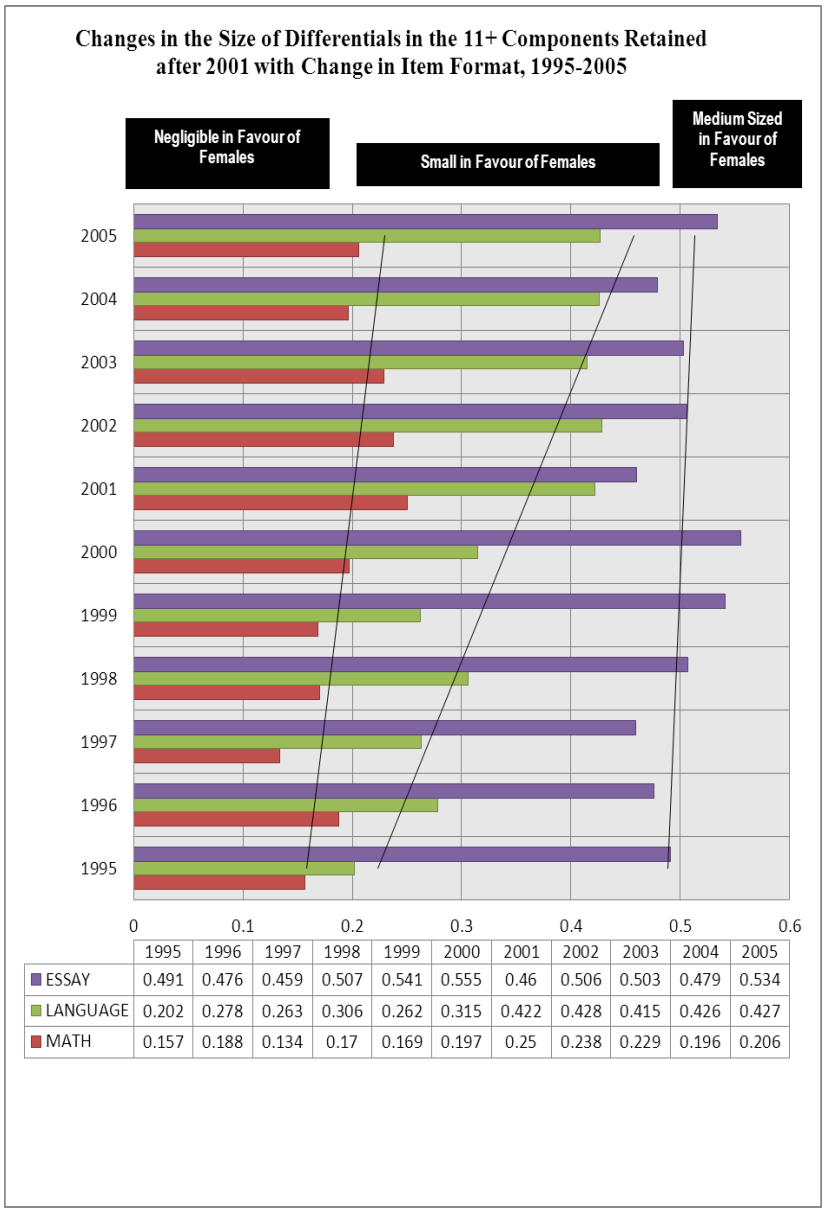
was that the composite score increased sharply, although it is below the benchmark of 0.5. This finding points to the danger of policymaking that excludes evidence (Willingham, 2002; Willingham, Cole, Lewis, & Leung, 1997). Policymaking based on expertise or intuition can lead to changes that worsen the problem they were trying to resolve.

It is clear from the analysis of policy changes in the post-independence era that opinion-led tinkering and experimentation on secondary school entrance examinations have continued. At the same time, there has been little consideration of the possible negative impact of early selection on system stratification or individual mobility. Moreover, to Caribbean policymakers, new education reform concepts like seamlessness are compatible with the retention of secondary school entrance examinations.

Some policymakers have even considered new uses for examinations positioned at the primary-secondary school interface. For example, policymakers from the Organisation of Eastern Caribbean States (OECS) have considered the possibility of regional harmonization (OECS, 2010a; 2010b). This reform being seen as modernist, rational, and perhaps even "decolonizing," as noted by the Head of the OECS Reform Unit:

> We believe that for purposes of comparison and efficiency, and generally for raising the standards, the region needs to institute one examination at the end of the primary level. We know that each country undertakes a very expensive system of developing items, storing items and preparing exams on a yearly basis and we believe that there could be greater efficiency gains if it is done by CXC for the entire region. It will also present the opportunity to compare performances among the different countries as well as establish a standard of assessment for the region at that level as to how our children are performing at the end of primary school. (OECS, 2010b)

From this perspective, then, it appears that current policymakers in Trinidad and Tobago and the Caribbean intend to make the secondary school entrance examinations a permanent and critical part of future schooling. Such a perspective is both naïve and simplistic, because it ignores the measurement limitations of high-stakes achievement tests, the threat of unintended consequences, and the inequalities in opportunities to learn that persist throughout the system. Such proposals position early selection and placement as a useful educational strategy in Caribbean societies, even in the modern era of globalization, and new roles can be successfully attached to the basic sorting function, including regional benchmarking.



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
ESSAY	0.491	0.476	0.459	0.507	0.541	0.555	0.46	0.506	0.503	0.479	0.534
LANGUAGE	0.202	0.278	0.263	0.306	0.262	0.315	0.422	0.428	0.415	0.426	0.427
MATH	0.157	0.188	0.134	0.17	0.169	0.197	0.25	0.238	0.229	0.196	0.206

Figure 1. Changes in the size of the component scores in the Secondary Entrance Assessment due to changes in assessment design.

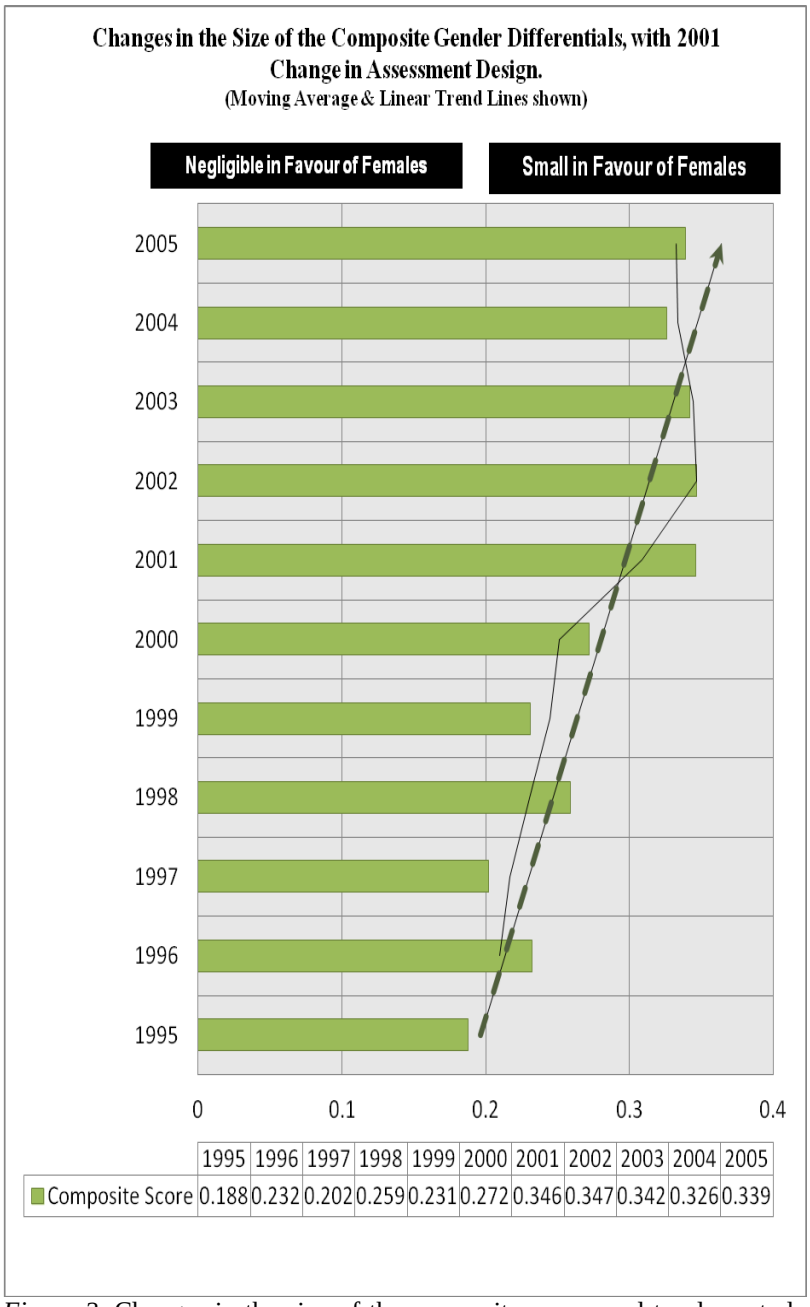


Figure 2. Changes in the size of the composite score used to place students in the Secondary Entrance Assessment due to changes in assessment design.

Judging a Legacy: Evidence for Validity, Fairness, and Equity

Fifty years on and well into the postcolonial era, the question becomes: *How do we judge the legacy of secondary school entrance examinations? What evidence do we solicit for making that judgement*? Evaluation is the process of judging the worth, merit, or quality of an educational innovation using credible evidence. There is little work on evaluating examination systems in the Caribbean, with testing agencies and universities remaining mostly consumers of examination protocols and procedures from elsewhere, rather than inventors or producers of technical knowledge about examinations (De Lisle, 2009). Judging a legacy requires a system to gather credible evidence using a strong evaluative framework. This framework must make use of measurement theory, possibly supported by a socio-historical analysis to illuminate the context. Three broad areas in a proposed evaluative framework are (1) test validity, (2) test fairness, and (3) assessment design. These issues must extend from use of test scores to the study of placement protocols.

In the early 1980s, some proponents of selection testing in developing countries touted measurement-driven instruction as a theoretical rationale to retain these examinations (Chapman & Snyder, 2000; Eisemon, 1990; Heyneman, 1987). For example, Chapman and Snyder outlined five advantages when implementing high-stakes testing:

1. Policymakers can use test scores to target educational resources for low-achieving schools and regions.
2. Testing can be used to shape and "pull" teachers' pedagogical practices in desirable ways.
3. Testing can be used to motivate teachers to improve their teaching.
4. Testing gives the teachers information with which they can target remediation.
5. Assessments can support cross-national comparisons.

The problem with these recommendations is that they do not acknowledge the unintended, negative consequences associated with high stakes (Broadfoot, 2002). Such consequences can nullify or make contentious some of the propositions stated above. The current evidence from studies on washback certainly does not support propositions 2 and 3 (Wall, 2005). These propositions also ignore the issues of appropriate test use and test validity (Bachman, 2005), which are critical issues in educational testing (Messick, 1989).

The assumption that scores from secondary school entrance examinations can facilitate efficient and appropriate placement of students in different types of secondary schools is really a question of test validity, defined as "the overall plausibility of a proposed interpretation or use of test scores" (Kane, 2001, p. 328). However, there are several other concerns to be addressed before validity is fully investigated. One such concern is identifying the construct being tested. This relates to whether the examination measures anything apart from elements associated with socio-economic status (London, 1989).

Thus, secondary school entrance examinations present quite a challenge to developing an argument-based approach to validation because the first step requires clear documentation of the claims made about the examination scores (Kane, 2011). However, the usefulness of the scores for placing students into different school types is not the only claim made about this examination. Increasingly, scores from secondary school entrance examinations are also used for additional purposes such as monitoring standards, and judging quality and equity in the system (Planning Institute of Jamaica, 2009). In Trinidad and Tobago, the accountability function is evident in the use of the 30% capricious cutscore to determine which schools are failing, and assigning students under this score to remediation status.

Each of these new purposes is a documented claim and must be validated along with the primary placement function. Indeed, an argument-based validation framework for the secondary school entrance examination would consider each claim, providing warrants, rebuttals, and evidence (Chapelle, Enright, & Jamieson, 2008; Kane, 1992, 2002, 2004, 2006). Bachman (2005) has argued that a claim might centre on what the test performance is supposed to measure and the decision made in response to the assessment-based information. Consider Figure 3, which provides a sample argument structure for the primary claim found in the 1998 Task Force for the Removal of the Common Entrance Examination, namely, that the examination can place students of different abilities within schools of different quality. Unpacking the argument shows that there are really two claims being made: (1) that the examination can measure ability, and (2) that measuring ability or ability by proxy allows us to make efficient school placement decisions.

The argument structure in Figure 3 is based on the work of Llosa (2008) and Chapelle, Enright, and Jamieson (2010). The claim is the intended interpretation about the student and of test use; the grounds are the basis for making the claim; the warrant is the proposition used to justify the inference from the grounds to the claim; the rebuttal is an alternative explanation; and the backing is the evidence to support the

warrant. In Figure 3, both an anecdotal and an evidence-based backing for the warrants and rebuttals are provided. Anecdotal backings may be important in opinion-based postcolonial societies. Presenting the entire validity argument in this way guides the systematic selection of evidence in validation (Llosa, 2008). Although the claims, grounds, and backing appear to be coherent, the rebuttal suggests that the original claims might not be solid. Moreover, presenting criterion-related validity evidence will be insufficient to support the claim, since the rebuttal demands exploration of the processes occurring within each school type. Put simply, saying that students who attend different secondary school types are less likely to do well is not an adequate justification for the placement process, because an alternative explanation is that teacher expectations and behaviour are the causal antecedents. Thus, credible evidence for the claim requires analysis of data from qualitative or mixed methods studies on equal opportunities to learn before and after the secondary school entrance examination.

An issue closely connected to test validity and fundamental to efficient selection within a multicultural society is test fairness (Stobart, 2005). London (1997) has noted that both policymakers and the public have promoted this aspect of examination-based selection in their rhetoric. Thus he observed that:

> The Common Entrance Examination is a key component in attempts to establish an egalitarian society in Trinidad and Tobago. In this connection state managers have agreed that "all children pass through the same door to life" (quoted in Garcia 1985, 6), and that through its principles for allocating secondary school places, the Common Entrance Examination offers some degree of fairness in achieving this ideal. Support for the examination also comes from parents. They believe that despite the social difficulties that the test might pose, the device serves as an opportunity for their children to escape poverty and class prejudice which in the past hindered socioeconomic advancement of the poor and the hapless. "The examination is not perfect," argues a leading daily newspaper, "but no-one has suggested a better system of selection." (p. 67)

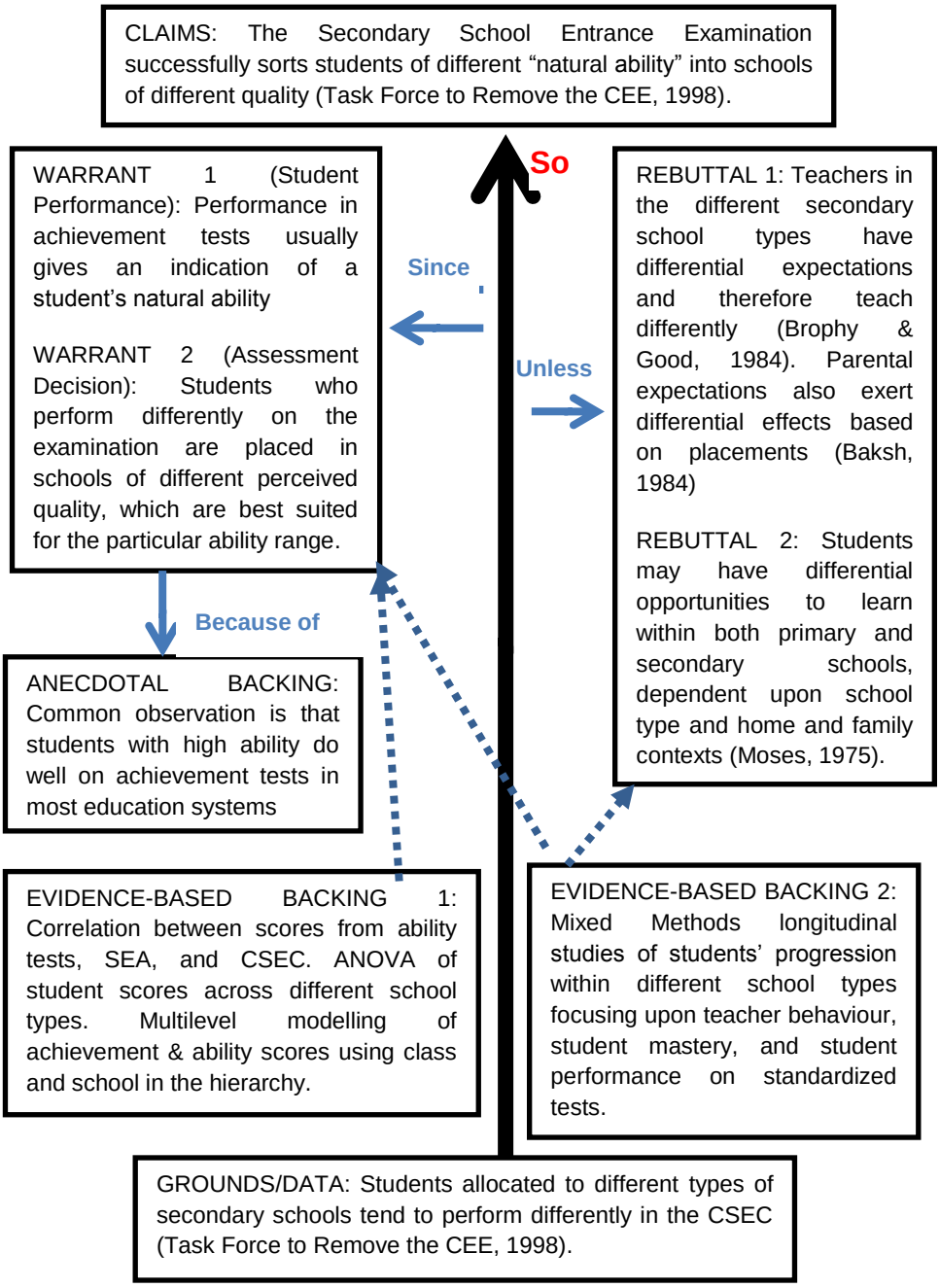


Figure 3. Illustration of a validity argument for the Secondary School Entrance Examination.

Such claims are widespread in the current societal setting, but to be validated, evidence must be gathered using an explicit argument-based validity framework or a separate fairness-based approach (Willingham, 1999). There are three possible relationships between validity and fairness. As proposed by Xi (2010), there might be no direct relationship between validity and fairness; a second sees fairness as an all-encompassing characteristic subsuming validity; and the third considers validity as the fundamental test characteristic with fairness subsumed under it. I would argue that fairness considerations cannot fully be captured by a pure validity framework, because there are dimensions of fairness not directly related to the psychometric properties of the test. Indeed, in a multicultural society like Trinidad and Tobago, fairness is critical and may be considered as the overarching feature of any selection system (Stobart, 2005). The fairness of a test-based selection system must draw on measurement theory as well as constructs in sociology and economics, with moral, societal, and political dimensions made clear.

Fairness is more than the actual test (as in bias) or its administration (as in equal treatment of test takers), and extends to opportunities to learn prior to the test (AERA, APA, & NCME, 1999). For test-based selection systems, fairness may also be regarded as equitable treatment of relevant groups, with no group having an advantage based on extraneous characteristics related to the group's identity (Paes de Barros, Ferreira, Molinas Vega, & Saavedra Chanduvi, 2009). Cole and Zieky (2001) recounted the development of fairness concerns among the measurement community in the United States, noting a period of little interest prior to the civil rights era of the 1960s. However, in the Anglophone Caribbean, fairness considerations were critical even in colonial times (Campbell, 1996). Such interest might have been fuelled by the segregated nature of the society. Indeed, examinations such as the College Exhibition were really responses to the demands for greater equity and fairness in these societies. Debate on fairness was especially intense during the period of nationalism in the 1950s and post-independence in the 1960s (Campbell, 1997). In these periods, the theme was even broached in the political campaigns. However, the absence of a Caribbean measurement community meant that these concerns were not supported by theory or evidence.

In the past, some have considered the secondary school entrance examinations to be fair, simply because the examination agency was external to the country—Education Testing Services in the past and now the Caribbean Examinations Council (Examination Review Committee, 1983b). However, the perception that the examination is defensible and impartial merely because it is scored by an apparently neutral agency is

surely flawed. Surprisingly, unfailing trust in the test scores and placement process has remained despite known imperfections in the 20% allocation and transfers (London, 1989). There is also a persistent belief that the examination is able to measure "merit" precisely. However, even if merit could be defined and measured, and there were equal opportunities to learn, a test-based system would still be fallible (Gardner & Cowan, 2005). Fairness theory helps to explain the continued perceived credibility of secondary school entrance examinations in the Caribbean. This subset of justice theory posits that for discrete events, individuals first gauge how that particular decision event affects them. If the decision is negative, these individuals will first try to blame decision makers, if they can hold them accountable. Individuals form "would," "could," and "should" counterfactuals in the process of assigning this blame (LaHuis, MacLane, & Schlessman, 2007). The tendency to form all three counterfactuals might be low in the current context because of prevailing perceptions of infallibility and system-wide lack of transparency. Thus, stakeholders might be prone to assign blame to the test takers' ability rather than to the examination process or agency.

In judging the fairness of test-based selection systems, both distributive and procedural justice principles must be considered. There is little empirical support for believing that test-based selection can be neutral to group differences (Cross & Schwartzbaum, 1969; De Lisle, Smith, Keller, & Jules, 2012; Jules, 1994; Manley, 1963). In a region already distracted by the size of differentials favouring females, implementing a test design that will further exacerbate differences might be considered foolhardy. Indeed, Willingham and Cole (1997) suggested that investigating alternative test designs provides a unique opportunity to use evidence when considering comparative gender fairness. An important consideration for procedural fairness is the operation of the school choice system. Both the test and the choice/placement systems are intimately intertwined in several other Caribbean countries, and the functioning of these different systems and their rules must be fully explored.

The decision to choose a secondary school is multi-staged and complex; not easily defined by the simple rules constructed by the Ministry of Education to guide decision-making (De Lisle, Keller, Jules, & Smith, 2009). Family choice of secondary school is also dynamic, responsive to the changing perception of the value of institutions and their physical location. It must be noted, however, that in the end, most students are assigned by the Ministry of Education to a secondary school and, therefore, to a large extent, the availability of choice is more imaginary than real, especially for students of low economic status. This

reality is shown clearly in Figure 4. The neighbourhoods chosen for this quantitative case study are located within the Diego Martin Administrative Region and are all in close proximity. The neighbourhoods are ranked by the Basic Needs Index (BNI), a measure that captures the economic and social conditions of the inhabitants (Kairi Consultants Ltd., 2007). Qualitatively, there are five high-income neighbourhoods, one middle class neighbourhood, and three low-income neighbourhoods—Carenage, La Puerta, and Point Cumana. In these highly populated low-income communities, the numbers receiving their first choice in school ranged from 3.6% to 16.1% compared to 21.4% to 35.0% placed directly by the Ministry of Education.

How is fairness related to equity—a moral and political concept? Equity implies fair treatment of different groups within a society. Critical to such fair treatment is not just administering the test, but ensuring equal opportunity to learn the content. At the same time, equity is not just a matter of numbers. The judgement of inequity assumes the operation of an extraneous characteristic like gender, ethnicity or religion.

At the same time, however, large inequalities (magnitude only) in a society might also be considered as morally unacceptable. Levin (2003) thus sees two broad issues in equity: (1) whether overall levels of provision are sufficient, and (2) whether they are of the right kind. These are broadly equivalent to the key sociological themes of access, opportunity, and attainment. These issues are embedded within the test-based selection system because of variability in the quality of education at the primary school level. Although early system reforms focused on improving and equalizing access and equalizing opportunity, dissimilar opportunities for learning remain even at the basic level of schooling, contributing to differences in attainment on the test.

So how rigorous and precise is the current secondary school entrance examination system? The level of precision is a good litmus test for judging fallibility, pointing perhaps to measurement error. Kane (2011) reminded us that large or random errors will challenge interpretations and inferences based on the test scores. In Trinidad and Tobago, a notable challenge to precision was raised in 2003 when several families requested a remark of the SEA. The issue was brought forward to the Trinidad and Tobago House of Representatives and is recorded in the Hansard (T&T. House of Representatives, 2003).

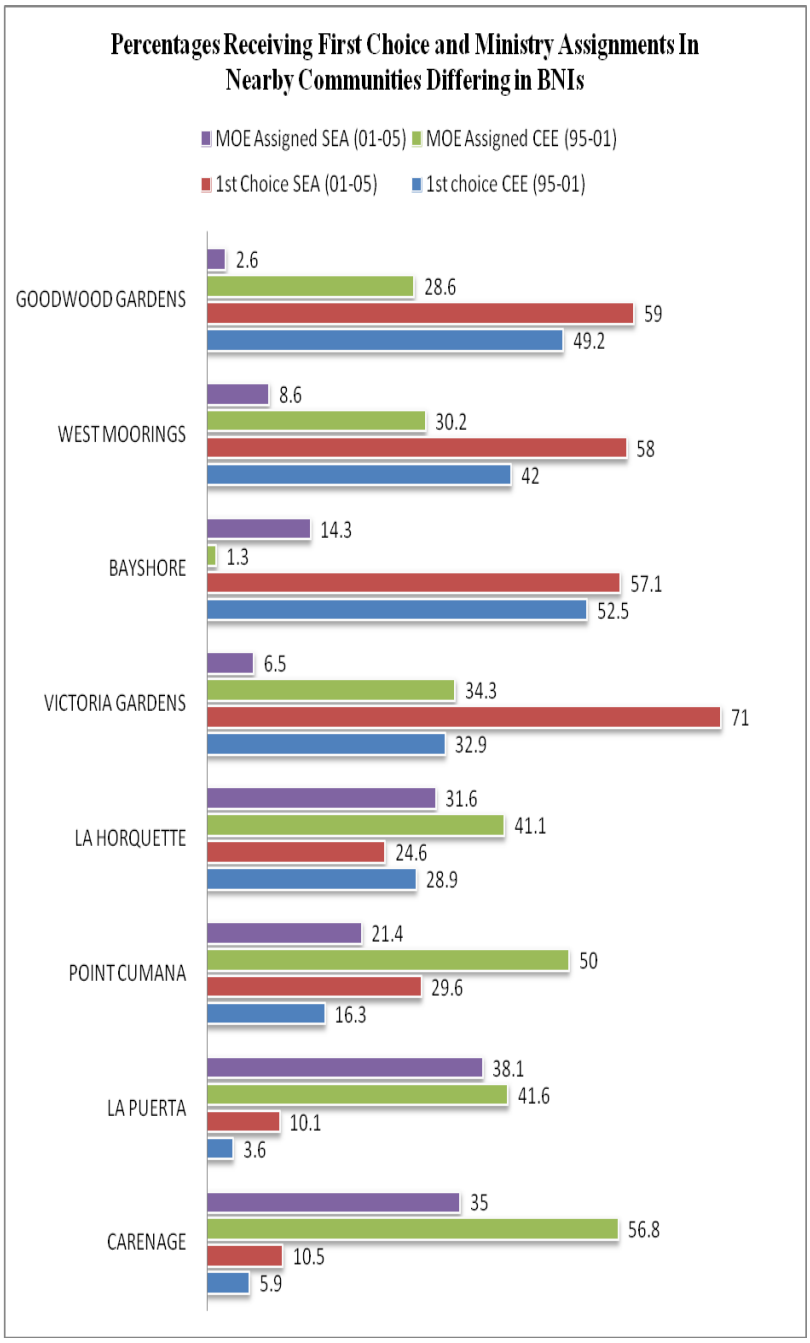


Figure 4. Percentages of students receiving their first choice in nearby communities in the Diego Martin Administrative Region (1995-2005).

The specific question raised was:

> Would the Hon. Minister of Education provide a list of the names of the students who were upgraded following complaints by their parents to the placement of their children following the 2002 SEA examination and identify the secondary schools involved? (p. 46)

A written response was provided, which described the procedure for remarking used by the testing agency. In 2002, there were 212 requests for reviews, and as many as 56 students were reassigned based on a new score in the remarking (26%) (T&T. House of Representatives, 2003). Figure 5 maps the approved changes in placement. As shown, the majority of the students were reassigned from 5-year denominational and new sector schools to 7-year denominational schools. However, there appears to be a tiered system operating, with students moving from the new sector schools to the 5-year schools, and students from the 5-year schools transferring to the 7-year schools. The number of successful transfers in this instance suggests that the test-based placement system is not as precise as many people believe. Interestingly seven students who were remarked and awarded new scores were not reassigned, including three for whom no spaces could be found. How fair can that be?

In Search of Evidence: Evaluation and Benchmarking for Future Change

Thus, the future of policy on the use of secondary school entrance examinations lies not in further tinkering or experimentation without evidence, but in developing a robust ongoing monitoring and evaluation system to provide information on examination processes and outcomes. A system providing evidence to guide policymakers and facilitating the evaluation of alternatives is the essence of empowerment and rational thought that is embodied in progressive postcolonial thought. In reality, then, using evidence to make decisions in the post-independence era is a critical element in the decolonization process. Arguably, then, the construction of high-quality systems for generating and using evidence might be the key to helping postcolonial societies break free from colonial structures and processes. Segone (2009) and Sutcliffe and Court (2005, 2006) have documented the value of an evidence-based approach to policymaking in developed countries. Schleicher (2009) confirmed that international benchmarking evidence has the capacity to shed light on education issues and solutions that would otherwise be hidden without the data. Indigenous evidence will certainly allow postcolonial societies

to achieve more effective context-relevant implementation and change (Louisy, 2004).

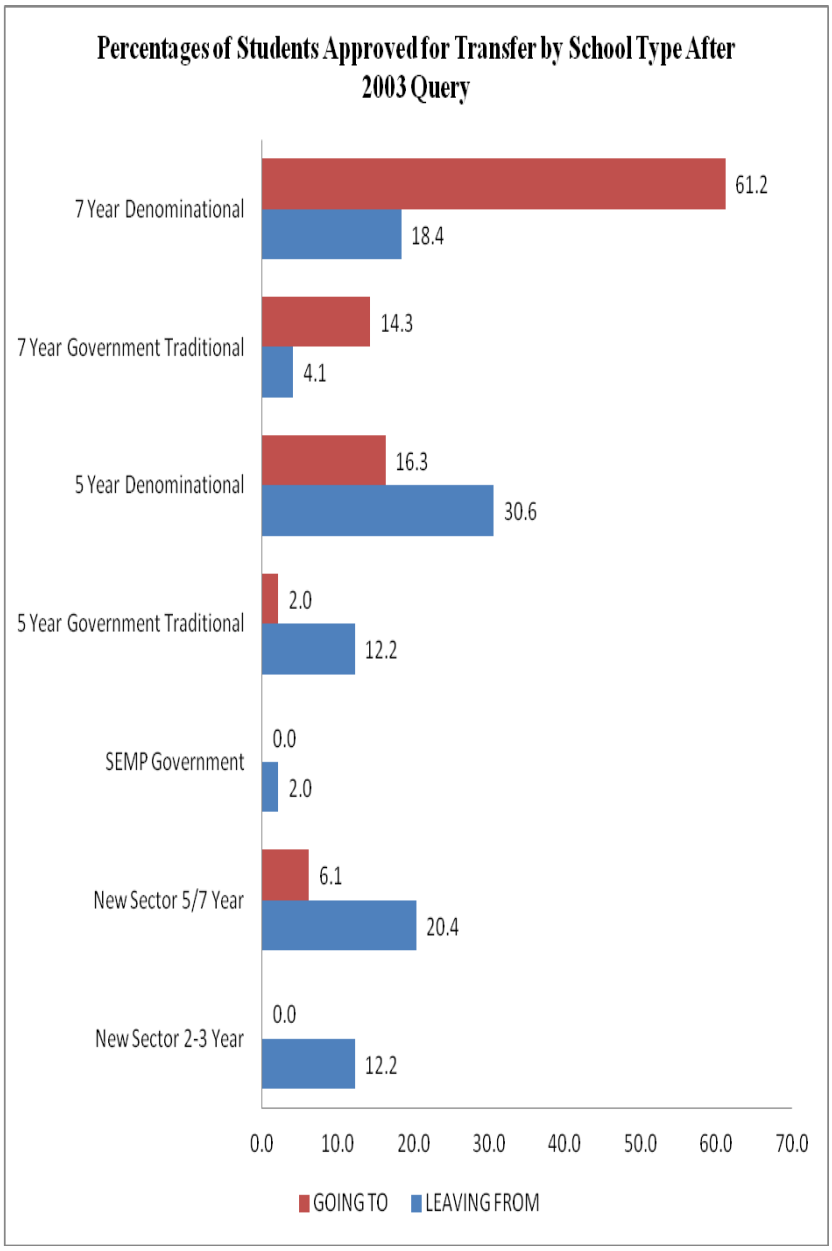


Figure 5. Percentages of students reassigned after remarking in the 2003 query issue recorded in the Hansard. (T&T. House of Representatives, 2003)

Of course, the capacity to provide evidence is one area in which Caribbean systems have traditionally been very deficient (Crossley, 2008; Crossley & Holmes, 2001; Lewis & Simmons, 2010). This is true even for established research or examination centres such as The University if the West Indies (UWI) and regional agencies like CARICOM and the Caribbean Examinations Council (CXC). For example, even now, there is limited published work on regional secondary school entrance examinations even though they are managed by a single regional agency. Yet, information on the functioning of examinations is needed to move the system forward. Information in a transparent system can create disequilibrium, a condition needed to motivate stakeholders to seek change. Caribbean agencies cannot remain consumers of information from foreign sources because most education systems are fundamentally different.

However, Caribbean education systems do not have to reinvent the wheel in pursuing assessment reform. As argued by Schleicher (2009), much can be learnt by benchmarking best practice in high-performing systems and recontextualizing policy guided by indigenous knowledge (Luke, 2011). Thus, the Caribbean can learn much from the trajectory of reform in the test-oriented societies of Shanghai, Singapore, and Hong Kong. In the case of Hong Kong, a decision was taken in the 1970s to replace the Secondary School Entrance Examination (SSEE). Likewise, Shanghai has recently abandoned early selection, although the rest of China continues to employ it. In Hong Kong, the General Schools Circular 10/76 first replaced the Hong Kong SSEE with internal assessments moderated by an Academic Aptitude Test (AAT) (Tam, 1977). Of course, this solution involved two contentious issues: (1) whether aptitude tests can measure future ability, and (2) whether school-based assessments can be conducted with fidelity when high stakes are attached. Since then, however, several additional evidence-based reforms have helped Hong Kong to construct an improved system. It would seem, then, that the key to successful assessment change is comprehensive reform that includes structural and policy changes aligned to examination reform.

This is not to say that removing early selection was done without much public dissent in Hong Kong. Cheung (1979), for example, observed that:

> The outcries for the resumption of the S.S.E.E. are mostly based on selfish reasons. Since it is free junior secondary education for all and most of the prestigious schools in which parents wish to have their children enrolled are publicly financed, children of all

> categories and abilities should have the privilege to study in these schools. To maintain the S.S.E.E. and its bad effects on teaching and learning simply to enable some children to get into the secondary schools of their choice is too selfish and short-sighted. In the long run, the new system of allocation will even up the standard of schools in Hong Kong at both the primary and the secondary levels. If education is not for the elite only, it really should not matter that much where a child receives his/her schooling. (p. 145)

Cheung (1979) correctly positioned the need for the reform on the future performance of the education system. The problem in the Anglophone Caribbean is that most policymakers have not considered reform from the perspective of future global competitiveness. Thus, they have been at great pains to retain placement systems, regardless of the merits or demerits of the new assessment designs.

Can Caribbean societies successfully confront an issue so deeply rooted within the postcolonial culture and mindset? Radical education change and bold decision making is needed, as seen in the case of both Hong Kong and Shanghai:

> In both Shanghai and Hong Kong, deep cultural influences in values surrounding education (such as the emphasis on exams) have been perceived as problems and have provoked a reaction in order to modernise the system: moving from elite to massive popular education, from emphasis on teaching to emphasis on learning, from fact memorisation to development of learning capacities, and from economic needs to individual needs. In both cases, the change in the nature and orientation of the entire education system involves struggles against the culture. (Organisation for Economic Co-operation and Development [OECD], 2011, p. 106)

From this perspective, there is need for a clear coherent unified policy on the direction of education and the role of assessment in the Anglophone Caribbean. One might postulate that differences in Caribbean economies might lead to the question:

> *To what extent can the faster growing, more industrialized Caribbean economies adequately stand on the platform of "harmonized" secondary school entrance examinations?*

The evidence from international assessments suggests that these higher-performing economies will not progress much further, nor adapt

sufficiently to the demands of a global economy, if they choose to retain the colonial impediments of early selection and highly differentiated school systems (Buchmann & Hanuman, 2001; Demeuse & Baye, 2008).

Nevertheless, there might also be alternative pathways to assessment reform, considering the experiences of other high-performing school systems such as Singapore and Germany. Singapore has continued to administer the high-stakes Primary School Leaving Examination (PSLE) even while maintaining high performance in international assessments. However, since 1997, it has also vigorously pursued a policy of formative classroom assessment under the successive national school philosophies of Thinking Schools, Learning Nations (TSLN), and, later, Teach Less, Learn More (TLLM) (Tan, 2011). In terms of administrative reform of the placement system, some students are now allowed direct entry into some secondary schools. Likewise, the early selection system of the three-tier German system is now being diversified in different independent provinces (OECD, 2011). Therefore, there is no one best solution to the issue of reform when considering secondary school entrance examinations. What is required is full stakeholder participation, with dialogue informed by the data, an approach proposed in the 1993-2003 Task Force report (T&T. National Task Force, 1994).

Notes

1. The First Report of the Examination Review Committee recommended that the Common Entrance, in its present structure, be modified to broaden its content by incorporating General Science and Social Studies into the existing scheme of the examination.
2. The Fourth Report of the Examination Review Committee recommended that an "essay-writing" component be introduced into the scheme of the Common Entrance Examination to replace the existing Section III multiple-choice "writing skills" component, and that the Educational Testing Service of Princeton, New Jersey carry out the essay exercise—production, printing, scoring, processing detailed in paragraph 21 (1 to 6 initially).
3. The consultant was Dr. R.T. Green, an American who wrote a memorandum back in 1966.
4. The 30% cutscore on the examination is still used to retain some students in the primary school.
5. The Second Report of the Examination Review Committee recommended the rejection of the St Clair King Working Committee recommendation that "the two chances at the Common Entrance Examination be abolished" and replaced by a single chance, and made counter proposals.

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TOURISM EDUCATION FROM A RELATIONSHIP MANAGEMENT PERSPECTIVE

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This paper adopts a relationship management perspective to examine tourism education in a Caribbean country. It aims to examine the extent to which relationship management can be infused into tourism education. A questionnaire was administered to the employers in hotels, restaurants, and travel agencies on the island to get an idea of the skills they require and their expectations of students' competence upon graduation. Interviews were conducted with other stakeholders in the industry and with education providers to get their views on the level of collaboration that exists between the industry and the educational institution. The results indicated that the employers required a number of industry-specific skills, as well as other employability skills. The employers expressed concerns that students are not adequately prepared for the workplace upon graduation, and that there is a need for collaboration between the industry and the institution to enhance the quality of graduates. The stakeholders suggested that the institution needs to understand the dynamic nature of the industry and to develop a relevant curriculum to cater for their needs. They also suggested that the institution should liaise with the stakeholders to get a greater understanding of the industry's needs so that the curriculum developed would be relevant.

Introduction

Tourism is considered to be one of the largest industries in the world (Goeldner & Ritchie, 2003). In a number of Caribbean islands, the tourism industry is the main industry and sustainable tourism is necessary to maintain the competitive advantage. As a consequence, these islands have developed signature products to attract tourists to their shores, for example, wedding and honeymoon destinations. The quality of the human resources in the tourism sector will impact on the competitive advantage of the islands. Therefore, tourism education plays a vital role in the development of personnel with the employable and employability skills needed to ensure that the Caribbean remains a viable option for visitors.

Purpose of the Paper

This paper aims to explore the nature of tourism education in a Caribbean island from a relationship management standpoint. It examines how employers and stakeholders in the tourism industry manage their relationships with the educational institution on the island. This investigation is relevant and timely because tourism and hospitality education providers in small island states of the Eastern Caribbean need to establish symbiotic relationships with all their stakeholders, so that there is congruence between the curriculum delivered by the institution and the needs expressed by the stakeholders. Relationship management is used as a springboard in this paper for a discussion concerning the future of hospitality education. The argument advanced is that hospitality education has not fully embraced the changes in the industry in order to establish and maintain nurturing relationships with the major stakeholders in the industry. It is hypothesized that relationship management can enhance the quality of instruction and result in graduates who are trained to meet the needs of the hospitality industry. The key issues investigated are:

1. *What are the relationship antecedents necessary to develop and maintain a relationship among the stakeholders?*
2. *What is the nature of the relationship between the industry and the education provider?*
3. *What strategies can be used to develop and maintain effective relationships between the industry and the educational institution?*
4. *What is the impact of the relationships on the development of industry-specific skills?*

History of Tourism Education

Tourism education emerged from vocational education in Europe, where students were trained in critical areas of hospitality and business (Morgan, 2004). As the tourism industry evolved, tourism educators started to redefine tourism education to include the skills necessary for employability in the industry (Inui, Wheeler, & Lankford, 2006; Tribe, 2001, 2002). The emphasis placed on vocational education was seen as redundant, and the debate on the relevant pedagogy for tourism education examined the design of the tourism curriculum (Airey, 2005; Croy & Hall, 2003; Morgan, 2004; Tribe, 2001). Tribe (2002) argued

that tourism education should be flexible enough to enable a "balance between satisfying the demands of business and those of the wider tourism society and world" (p. 340). The shift to a more fluid pedagogy would include "some non-vocational aspects" (Tribe, 2001, p. 447).

Tourism Education in the Caribbean

The overall growth of tourism and hospitality education in the Caribbean started with a modest beginning in the 1970s. This was followed by accelerated growth in the 1980s and 1990s. While the growth in education for the tourism sector is worth noting, there is growing concern that that there is incongruence between the needs of the tourism industry and the training of personnel to meet its diverse and dynamic needs (Airey, 2005; Amoah & Baum, 1997; Baum, 1993; Conlin & Titcombe, 1995; Critchlow-Earle, 2000; Koh, 1995; Mayaka & King, 2002). It has been argued that the graduates do not possess the skills and attitudes needed to meet the requirements of the industry (Airey, 2005; Conlin & Titcombe, 1995). Other complaints echoed are that the courses lack vocational relevance and practical operational inputs to cater for the changes in the workforce. After graduation, students are still required to pursue additional training in order to perform effectively in the workplace.

The perceived dichotomy between graduate students' skills and the needs of the labour market has been the concern of stakeholders in many Caribbean countries. Tourism officials have lamented the disjointed and inadequate curriculum, and the inadequate collaboration between the workforce and the training providers (Charles, 1997; Conlin & Titcombe, 1995; Critchlow-Earle, 2000; Lewis, 2006). Conlin and Titcombe (1995) have argued that tourism education in the Caribbean, which they described as "fragmented, uncoordinated and usually redundant" (p. 67), has suffered serious problems. They were concerned that the problems experienced in tourism education would hinder the growth of the industry. Luke and Ingold (1990) insisted that the needs of the industry must be considered in all stages of the curriculum planning process; otherwise, the curriculum would lack purpose and credibility.

Charles (1997) reviewed the state of tourism and hospitality education and training in the Caribbean. He posited that tourism and hospitality education is vital for the economic viability of Caribbean tourism. He further contended that there is a need to adopt a strategic approach to tourism education and training on the part of both educators and policymakers. He also suggested that the proper selection of people for

the industry, through quality educational and training opportunities, would give the Caribbean a competitive advantage in world tourism.

Critchlow-Earle (2000) also suggested that training institutions in the Caribbean need to focus on developing market-driven standards for tourism and travel. She further explained that tourism education must be highly individualized, and that the role of the instructor should change to that of manager and resource person. This would result in students assuming a greater responsibility for their own learning. She also identified the need for appropriately educated, trained, and experienced faculty to help facilitate the changes in tourism education.

A critical analysis of the role of The University of the West Indies (UWI) in tourism education focused on issues faced by educators (Hall & Jayawardena, 2002). The results suggested that there is need for a collaborative approach to ensure the sustainability of the industry. McLeod (2002) highlighted the need for well-trained human resources to ensure sustainable development of the industry, and examined *getting the industry into education and getting education into the industry* as a strategy to enhance the quality of graduates who enter the industry. She suggested that this strategy could initiate some level of collaboration among all stakeholders in the industry.

More recently, Lewis (2005) examined the relevance of stakeholder theory in planning and developing a hospitality curriculum for the Caribbean. She concluded that stakeholder involvement in curriculum planning and development is pivotal because it has implications for holistic tourism education. She suggested that curriculum planning and implementation in hospitality and tourism needs to take into account the stakeholders' view, in order to improve the quality of instruction and ensure relevance.

The demand for skilled workers in the tourism industry in the Caribbean will continue to be high. Although there is still great dissatisfaction about the quality of graduates with respect to their professionalism, greater collaboration among the stakeholders would help to enhance the quality of instruction. To be viable in the 21st century, all the institutions must build and nurture relationships with the employers in the tourism industry. The tourism educators need to take the lead in the discussion with the stakeholders, which will determine their position in the rapidly changing environment. They need to develop a curriculum that reflects the changes in the global tourism environment. Cognizance must be taken of the fact that the tourism industry is dynamic. To thrive in this ever-changing industry, the personnel must see their professional development as continuous, rather than as being

something that they engage in every now and then, and through short, unstructured courses.

Theoretical Perspective: Relationship Management

This paper examines tourism education in a Caribbean country from a relationship management perspective. The concept of relationship management is not new; it is used widely in business and public relations. From a business perspective, it has taken many forms to address specific organizational dynamics. While the concept of relationship management centres on areas in business and public relations, there is some discourse on the application of relationship management in education (Grönroos, 1994; Gummesson, 2002; Jain, Jain, & Khar, 2003). Relationship management in workforce education is based on the premise that education and industry can develop relationships that are manageable and nurturing (Grönroos, 1994; Gummesson, 2002).

Education – Workforce Relationship Management: A Conceptualization

Relationship management has become increasingly important in the corporate world (Broom, Casey, & Ritchey, 1997; Huang, 2001). Although relationship management is used in many business sectors, there is concern that the construct of *relationship* is not clearly defined (Broom, Casey, & Ritchey, 1997, 2000).

Broom et al. (1997) examined one of the major obstacles to the development of the relationship management perspective: the absence of a common definition for the term *relationship*. They reviewed relationship theory in the fields of public relations, interpersonal relations, family relations, group dynamics, organizational relations, psychotherapy, and international relations. Their findings suggested that what was conceptualized as a relationship by diverse fields was not commonly operationalized. In their opinion, the lack of a common definition would impede the study of relationship management from an academic standpoint because it would be difficult to measure. One can also argue that relationship management may be a complicated concept because it means different things in different contexts. Broom et al. (1997) made the following observations:

> For a relationship to develop:
> - the parties involved must have perceptions and expectations of each other;
> - one, or each, party needs resources from the other;

- one or both parties perceive mutual threats from an uncertain environment; and
- there is either a legal or voluntary necessity to associate. (p. 95)

They further indicated that "relationships are the dynamic results of the exchanges and reciprocity that manifest themselves as the relationships develop and evolve, but they can be described at a given point in time" (p. 95). From their perspective, they have not given a concrete definition of relationship but have explained conditions under which relationships can develop. They subsequently proposed a three-stage model that could be used by researchers who wish to explore a relationship perspective. They acknowledged the need to look at relationship theory by the examination of the following elements: antecedents of relationships, the relationship state, and the consequences of relationships.

Antecedents of relationships would comprise the opinions, intentions, needs, and contribution of the individuals within the relationship. Although Broom et al. (1997) did not expand on *state of the relationship*, it can be construed as the nature of the relationship between the parties involved. The *consequences of the relationship* would include the results of the interaction, which would impact on the environment within which the organization operates.

Grunig and Huang (2000) also proposed a three-stage model of organization-public relationships similar to the model proposed by Broom et al. (1997). They also identified three elements in their model: situational antecedents, maintenance strategies, and relationship outcomes. They described the *situational antecedents* as the nature of the interactions and the environmental conditions that bring parties together to form a relationship. *Maintenance strategies* include the measures put in place by the parties to initiate and cultivate their relationships. They looked at the strategies as either stable or unstable interactions. *Stable interactions* would benefit both parties in the relationship and include mutual respect, open communication, networking, integrative negotiation, collaboration, and sharing of tasks. *Unstable interactions* would focus on one party's interest over the other, and include distributive negotiation, avoiding, competing, and accommodating. *Relationship outcomes* include goal attainment and perceptions of the relationship state.

In essence, a relationship develops when a number of conditions are met. These conditions are described by Broom et al. (1997) as "sources of changing pressures or tensions on the system derived from the

environment (p. 94). These changing pressures would involve the transactions between the parties. The transactions would involve the sharing of resources between the tourism sector and the education provider. It would be evident in the nature of the ‘‘interaction, transaction, exchange, and linkage between an organisation and its public" (Broom, Casey, & Ritchey, 2000, p. 18). We can therefore conclude that in relationships, there are mutual exchanges between the parties to ensure that everyone benefits from the transactions or exchanges (Grönroos, 1994).

Stakeholders are of the view that the relationship between education and industry needs strengthening in order to ensure that they share a common vision (Busby, 2005), focus, and commitment (Cooper & Westlake, 1998). The relationship that exists between the stakeholders and the hospitality education providers seems to focus primarily on work experience or industry placement (Theuns & Go, 1992). This represents the conventional way of looking at the relationship between the two entities (King, 1991). The work experience is seen as a prerequisite for graduation. The conventional form is one where the educational institution initiates the placement of students in various hospitality workplaces for a fixed period. Students are then placed in various departments by the human resource personnel. The students are usually supervised by the head of the department, with regular visits by the educators, who would do their final assessment based on the feedback received from the workplace personnel.

The conventional model of industry and education relationship is functional, because the industry receives cheap labour and the institution gets some structured training for the students. In that case, it can be viewed as a win-win situation. This paper argues that although the arrangement seems functional, it is static; because in a dynamic tourism industry such a practice does not display strategic planning, and the interests of all the players in the industry are not fully reconciled. It is necessary to reconstruct the relationship between the key stakeholders in the tourism industry and the education provider. Focus must be placed on the elements that address the needs of a labour-intensive industry adequately. The paper argues that relationships between the hospitality industry and education providers should be expressed by the interactions between the stakeholders and the educational institution, and characterized by mutual understanding and respect that benefits the sector and the training provider.

The argument articulated here is that it is necessary to examine the nature of the relationship between the industry and education providers from a *systems theory* and *resource dependent perspective*.

Systems Theory

Systems theory addresses the way information is communicated between entities. A system is described as a set of interdependent units that work together to adapt to a changing environment (Infante, Rancer, & Womack, 1993, p. 81). Systems are classified as either open or closed systems. An open system is characterized by a mutual exchange with other subsystems in the environment, through a permeable or semi-permeable boundary. In a closed system the boundary between the subsystems is impermeable and there is no exchange of resources (Infante et al., 1993). For the purpose of this paper, an open system can be construed as stable and results in a "win-win" situation. A closed system can be construed as unstable and benefits one entity over the other. The theory identifies the relationship among organizations as systems made up of members and associations. Communication is established in patterns called networks (Infante et al. 1997).

If one looks at the relationship between the industry and the education provider from the systems theory perspective, the interdependence of the two entities can be examined. The interdependence would be manifested in the following ways:

- the extent to which resources within the system are used and shared
- the availability or scarcity of critical resources
- the communication among units in the system

These elements determine the relationships among social actors—specifically, the degree of conflict and interdependence present in the social system. Conflict and interdependence, in turn, determine the uncertainty the organization confronts (Pfeffer & Salancik, 1978, p. 68).

For survival, the stakeholders and the education provider must interact as interdependent units through activities that could benefit both parties. As a permeable system, they can build a sound relationship and minimize incongruence between the industry and education provider. In order to ensure that the education provider meets the needs of the industry, it is necessary to understand the importance of building relationships among the units in the system and dealing with the changing pressures within the industry.

Resource Dependent Perspective

Sources of changing pressures on the system are perceived as the dynamic industry that needs competent workers to ensure that the Caribbean has a competitive advantage in tourism and hospitality. The antecedents of the relationship in this system can be explained from resource dependence theory (Broom et al., 1997).

From a resource dependent perspective, it can be argued that the tourism sector needs resources to maintain the competitive advantage of the industry. In this sector, the resource is human capital; the need for competent human resources. Therefore, the relationship would involve the exchange of resources between the education provider and the tourism sector. This, Broom et al. (1997) recognized as the "mutual benefit that comes from the voluntary transaction and mutuality of interests and rewards" (p. 91).

Pfeffer and Salancik (1978) suggested that the level of resource dependency among units is determined by three factors. First, the overall importance of the resource to the organization is significant in determining the resource dependence of organizations. Second, the shortage of the resource is also a factor. If the demand for the resource exceeds the supply, then the organization becomes more dependent. Finally, we must examine the other organizations competing for control of the resources. Together, the three factors determine the level of dependence that an organization has upon a particular resource.

The resource dependency is followed by an exchange of resources or a transaction between the entities. In a transaction, each party networks for the purpose of receiving the resource. There is an effort to develop the relationship, because the benefits are either realized immediately or there is an expectation that the other party will reciprocate at a later date.

Relationships are essential for the success of the industry partners. A relationship exists between the tourism sector and the education providers when there is an open or stable system which identifies the resources that are necessary for the development. Through mutual exchange, they will develop a curriculum that meets the needs of the industry.

One of the challenges of the tourism industry is to integrate the needs of the employer and the training of personnel to cater for that need. It is necessary to devise a good fit between the expressed needs of the tourism sector and the curriculum developed by the education providers. Relationship management will seek to harmonize and synergize the relationship between the two sectors in order to realize targeted benefits for the system.

The relationship management approach, if applied effectively, can be useful in understanding how education and industry could develop and maintain relationships for greater efficiency (Jain et al., 2003). It is important for education providers to enhance their links with the stakeholders in order to develop a symbiotic relationship, which would enhance the quality of instruction and, as a result, the quality of the graduates (Gummesson, 2002).

Methodology

A summative decision-oriented evaluation approach was employed for this investigation. In this approach, the evaluation determines the nature of the decisions to be made, such as selecting, collecting, and analysing the information needed in making these decisions, and reporting this information to the appropriate authorities (McMillan & Schumacher, 1997). Evaluation research is conceptualized as "the determination of the worth of an educational programme, product, procedure or objective or, of the potential utility of alternative approaches to attain specific goals" (McMillan & Schumacher, 1997, p. 542). In this paper, the relationship between the stakeholders and the educational institution is evaluated.

Population and Sample

The relationship management evaluation was conducted in a Caribbean country in order to get the views of the tourism sector and the education provider on the nature of the relationship in the system. Central to this study is the diversity of the units in the system, especially in the tourism sector. The units in the system included the tourism sector, which was comprised of accommodation, food and beverage, travel and attractions, and tourism services. The education sector was comprised of the administrators, curriculum developers, and lecturers. The aim of the selection was to get the perception of the different units, in order to obtain a holistic view of the nature of the relationship between the industry and the education provider.

A stratified random sampling procedure was utilized in the research. The sample comprised of 48 individuals from the tourism sector and five individuals from the educational institution.

Data Source or Evidence

A literature review (American Society for Training and Development [ASTD], 1990; Nibbs & Morgan, 1999; United States. Department of Labor. Secretary's Commission on Achieving Necessary Skills

[SCANS], 1991) and data from previous interviews with three employers in the tourism industry formed the basis of the needs questionnaire. The Caribbean Tourism Organization (CTO) classified the skills needs into four recognized levels of placement in the industry (Nibbs & Morgan, 1999). The categories were classified as follows: operational or front-line employees, supervisory personnel, management, and senior executives. This paper focuses on operational/front-line skills. The skills identified by the CTO are:

1. Operational skills such as ticketing, bartending.
2. Demonstration of a service attitude, which they describe as the ability to anticipate and respond to customers' needs.
3. Product knowledge, where workers need to have a working knowledge of, and interest in, their community in terms of its history, geography, and attractions as well as the availability of complementary services.
4. Corporate policies and procedures. They believe that the employees need to know their employers' expectations, and be familiar with the company's goals, objectives, and operational policies.
5. Selling and interpersonal skills. This includes self-presentation skills, the ability to sell the product and to be able to deal sensitively and effectively with multicultural issues, international clientele, and international business etiquette.

In the United States, two national studies—one by the American Society for Training and Development (1990); and the other by the Secretary's Commission on Achieving Necessary Skills (1991)—were instrumental in the identification of employability skills. They are often used as yardsticks or beginning points for other agencies. ASTD highlighted six skills groups across all job families:

1. Basic competency skills – reading, writing, computation
2. Communication skills – speaking, listening
3. Adaptability skills – problem solving, thinking creatively
4. Developmental skills – self-esteem, motivation and goal-setting, career planning
5. Group effectiveness skills – interpersonal skills, teamwork, negotiation
6. Influencing skills – understanding organizational culture, sharing leadership

The SCANS report (1991) identified and discussed the dynamism of the workplace over the century. The aim of the report was to help educators to understand that curriculum and instruction are dynamic, and that they need to ensure that they are relevant in the changing workplace. The report referred to the days when "a strong back, a willingness to work, and a high school diploma were all that was needed to make a start" (p. 1). This was contrasted with the new "high performance workplace." They argued that:

> in this new environment, work is problem oriented, flexible and organised in teams, labour is not a cost but an investment. Most important, the high-performance organisation recognises that producing a defective product costs more than producing a high quality one. The solution: design quality into the product development itself, particularly by enabling workers to make on-the-spot decisions. (pp. 3–4)

The SCANS report (1991) identified three fundamental skills and five workplace competencies that workers must have in order to succeed in the dynamic workforce. The three fundamental skills are: basic skills (literacy, numeracy, communication); thinking skills (decision making, problem solving); and personal qualities (responsibility, integrity, self-esteem, self-regulation). The five competencies are classified as follows: resources (identifies, organizes, plans, and allocates resources); interpersonal (works with others); information (acquires and evaluates information); systems (understands complex interrelationships); and technology (works with a variety of technologies).

Instruments and Instrumentation

Firstly, data were collected from interviews with a random sample of seven human resource managers in the tourism sector. From the interview data, a questionnaire was generated and sent to 12 employers from the accommodation sector, 12 from food and beverage, 12 from travel and attractions, and 12 from tourism services. The education providers were required to give an overview of the training provided and the status of the relationship between the stakeholders and the training provider.

The interviews, which were conducted with the human resource managers in the industry, yielded the relationship antecedents, that is, the skills and attitudes that they felt their employees need to possess in order to perform their duties successfully in the industry. The questionnaire consisted of two sections. Section A was a needs survey. A Likert-type

questionnaire was administered, which required employers to score the skills that they would like their employees to possess on a scale from 1 to 3, where 1 = *not important*; 2 = *important*; and 3 = *very important*. Twenty-six skills were presented. Section B consisted of open-ended questions, which asked for the employers' perceptions of the educational institution and the relationship that exists between the industry and the institution. The questions were designed to determine: (a) the status of the relationship between the education provider and the tourism sector, and (b) how collaboration could be enhanced to ensure that the institution produces competent students for the industry.

An official from the Ministry of Education was interviewed to determine (a) the status of the relationship and (b) how the Ministry and the institution could foster relationships to help enhance the programme to cater for the students' and the industry's needs.

A semi-structured interview was conducted with the head of the educational institution and three lecturers to get an overview of the nature of the relationship between the institution and the tourism sector.

Results

The data were analysed by examining four elements of relationships: relationship antecedents, relationship state, relationship development and management, and relationship outcomes (Broom et al. 1997; Grunig & Huang, 2000).

Relationship Antecedents

Relationship antecedents are described as the needs that are expressed by the units in the system (Broom et al., 1997). The units are seen as the tourism sector and the education sector. The questionnaire was analysed from the tourism sector perspective. Principal component factor analysis with Varimax rotation resulted in five factor solutions with eigenvalues greater than 1.0. The factor solution accounted for 60% of the total variance. The component reliability for all factors ranged from .431 to .796. Five distinct factors emerged, as illustrated in Table 1.

Table 1. Factor Loadings for Important Tourism and Hospitality Skills

Skills	Factors				
	1	2	3	4	5
Tourism- Specific Skills					
Ability to deal with guests' complaints effectively	.758				
Knowledge of company's goals and operational procedures	.739				
Ability to deal with international clientele	.666				
Knowledge of the island in terms of history, attractions, geography, and complementary services.	.518				
Ability to sell the tourism product and facility	.517				
Knowledge of the tourism industry	.477				
Interpersonal Skills					
Willingness to work as a team member		.764			
Ability to make guests feel welcome		.738			
Ability to deal sensitively and affectively with multicultural issues		.719			
Knowledge of international business etiquette		.670			
Basic Skills					
Ability to speak fluently and confidently			.738		
Computer literacy			.723		
Foreign language skills			.593		
Good academic qualifications			.477		
Qualifications in vocational education			.435		
Thinking Skills					
Willingness to learn new skills				.796	
Critical thinking				.781	
Problem solving skills				.612	
Creativity				.577	

Skills	Factors				
	1	2	3	4	5
Personal Qualities					
Friendly					.717
Reliable and trustworthy					.630
Cheerful, polite, and helpful at all times					.613
Clean and tidy appearance					.516
Positive attitude					.476
Willingness to take responsibility					.431

The factors were classified as tourism-specific skills, interpersonal skills, basic skills, thinking skills, and personal qualities. The ratings for the 26-item skills and attitudes were analysed by computing the mean and standard deviation for each item. The results suggest that all of the employers in the industry identified operational skills—ability to deal with guests' complaints effectively; ability to make guests feel welcome; reliable and trustworthy; and cheerful, polite, and helpful at all times—as very important skills needed for the industry. The results obtained were arranged to compare the means and standard deviations of the different sectors of the industry (see Table 2).

Looking at the data from a resource dependent perspective, tourism-specific skills constituted the most highly rated skillset needed by tourism sector employers. This was followed by personal qualities. The basic skills component was the least popular choice among the employers. An examination of the most highly rated skills by the employers shows that tourism-specific skills and personal qualities are necessary skills to maintain the competitive advantage. The education sector then needs to understand the relationship antecedents in order to provide the relevant training. The status of the relationship between the two entities will determine the nature of the exchange.

Table 2. Important Skills and Attitudes Required in Tourism Sector Employment

Statement	Accommodation		Food and Beverage		Travel and Attractions		Tourism Services	
Tourism-Specific Skills	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Operational skills	3	0	3	0	3	0	3	0
Ability to deal with guests' complaints effectively	3	0	3	0	3	0	3	0
Knowledge of company's goals and operational procedures	3	0	2.9	0.3	2.9	0.3	2.8	0.4
Ability to deal with international clientele	3		3	0	2.8	0.4	3	0
Knowledge of the island in terms of history, attractions, geography, and complementary services	2.9	0.3	2.8	0.4	2.8	0.4.	2.8	0.4
Ability to sell the tourism product and facility	2.8	0.4	3	0	3	0	3	0
Knowledge of the tourism industry	2.4	0.5.	3	0	2.8	0.4	3	0
Interpersonal Skills	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Willingness to work as a team member	3	0	3	0	2.9	0.3	2.8	0.4
Ability to make guests feel welcome	3	0	3	0	3	0	3	0
Ability to deal sensitively and effectively with multicultural issues	2.2	0.2	2.5	0.5	2.5	0.5	2.5	0.5
Knowledge of international business etiquette	2	0	2	0	2.1	0.3	2.4	0.5

Statement	Accommodation		Food and Beverage		Travel and Attractions		Tourism Services	
Basic Skills	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Ability to speak fluently and confidently	2.8	0.4	2.9	0.3	2.8	0.4	2.8	0.4
Computer literacy	2.3	0.4	2.4	0.5	2.1	0.7	2.5	0.4
Foreign language skills	1.8	0.7	2	0.7	2.1	0.7	1.8	0.7
Good academic qualifications	1.8	0.4	2.2	0.4	2.3	0.5	1.8	0.7
Qualifications in vocational education	1.8	0.4	2	0.5	2	0.6	2	0.5
Thinking Skills	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Willingness to learn new skills	3	0	2.8	0.4	2.75	0.5	3	0
Critical thinking	2.5	0.5	2.6	0.5	2.3	0.8	2.8	0.4
Problem-solving skills	2.5	0.5	2.6	0.5	2.7	0.5	2.8	0.4
Creativity	2.2	0.4	2.2	0.4	2.3	0.5	2.1	0.7
Personal Qualities	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Friendly	3	0	2.7	0.5	2.9	0.3	3	0
Reliable and trustworthy	3	0	3	0	3	0	3	0
Cheerful, polite, and helpful at all times	3	0	3	0	3	0	3	0
Clean and tidy appearance	3	0	3	0	2.9	0.3	3	0
Positive attitude	2.9	0.3	3	0	3	0	2.9	0.3
Willingness to take responsibility	2.8	0.4	2.6	0.5	2.7	0.5	2.8	0.4

Relationship State

The status of the relationship influences the conversation that would take place between the sectors. The employers and the educators were required to give their views on the nature of the relationship between the two sectors. The question asked was: "What is the nature of the relationship between the tourism sector and the training institution?" Of the 48 respondents from the tourism sector, 36 (75%) were very concerned about the level of collaboration between the units; 10 (21%) were concerned about the limited dialogue between the units; and the remaining 2 (4%) expressed some level of satisfaction with the relationship state. The educators indicated that the employers were involved to a limited extent in terms of the internship component of the programme. Two major themes emerged from the data: (a) involvement in the curriculum design, and (b) consultation in the development of the internship component of the course.

Curriculum design. The employers stated that they had limited or no knowledge of what was happening at the institution. They expressed the desire to collaborate with the institution to develop an industry-relevant curriculum. One employer in travel and attractions responded that she was unable to answer the question on the nature of the relationship because she did not know what was happening at the institution. However, she indicated the need to became involved:

> *"Unfortunately, I cannot answer this question because I have no idea what is happening at the college. However, I would like to know and make a positive contribution to the department; at this establishment we do not know exactly what is happening and right now we are very keen as to what is taking place at the department."*

The internship component. The internship component of the programme was seen as important by all employers and educators. However, the employers were concerned about the level of collaboration between the units. One employer in food and beverage highlighted the importance of the internship to students:

> *"The internship component of the programme is important. Students get experience in the field and they are also able to identify an aspect of the industry that they feel most comfortable. They are also able to recognize areas that they would like to specialize in. That being said, I think that there needs more*

> *consultation between the industry and the institution to ensure that students get a holistic experience in the industry."*

The views were also echoed by another employer in accommodation:

> *"The internship programme was a good idea. Yet, there is a need for more collaboration between the department and the industry to make it more meaningful."*

The education providers acknowledged that the major contact is the placement of students in the industry, and that they are making strides to establish a more meaningful relationship. One lecturer stated:

> *"Our relationship is an historic one. We send our students to the different institutions to get industry experience. The tourism sector welcomes the students and they provide them with the practical skills needed to do well in the industry. We at the school think we need to go beyond that and establish more meaningful relationships with the sector."*

The findings suggest that a relationship exists between the two units. This relationship hinges on the internship programme. The internship is a traditional approach to the relationship. It has served the basic function of giving students industry experience. Although this initative has worked satisfactorily in the past, the two units need to move beyond the basic relationship to a more supportive relationship. The findings also suggest that the status of the system, although semi-permeable, can facilitate further development for both parties. Both parties were very keen to establish greater ties to give the tourism sector a competitive advantage. However, neither party had the foresight to make the initial move to initiate a symbiotic relationship.

Relationship Development and Management

Relationship development and management were conceptualized as policies and practices that are necessary to initiate and sustain the relationship. They represent the mechanisms in place to develop and sustain the relationship. The question focused on the development and maintenance of the relationship between the units to enhance the communication between the sectors and, by extension, the competitive advantage of the tourism industry. The question asked was: "How can the tourism sector and the education sector build and sustain meaningful relationships that can benefit both parties?" The responses from both parties indicate that there is a need for both to be a part of the planning process, and to develop a network between the two sectors to ensure that education remains relevant to the needs of the industry. All of the

employers and educators saw the need to establish collaboration between the two units. Three prominent themes emerging from the data were: the need to establish networks between the units; the need for trainers to have industry experience to execute their duties more efficiently; and the need for employers to play a pivotal role in curriculum planning.

Networking. The educators also suggested the need for networking between the parties for greater efficiency. As one lecturer indicated:

> *"We need to establish strong links with the industry so that specific needs will be met and the education provider makes itself more visible in terms of what it produces so that society will see the benefits of the programme."*

The employers in the tourism sector also endorsed the need to establish links. One restaurateur indicated that:

> *"the industry has tried to establish a link with the institution, especially in food and beverage."*

There was also the call for an advisory committee to initiate and maintain a relationship among all parties concerned.

Experienced trainers. One pertinent issue that emerged from the data is the quality of trainers at the institution. The employers commended the theoretical knowledge of the instructors; however, they were concerned about their field experience. This was explained by the human resource manager in the accommodation sector:

> *"There is a need to equip all technical vocational institutions with persons who are leaders in their field. That is, personnel who possess a sound background and good training. The personnel need to have industry experience and to keep abreast with the changes in the industry."*

The issue of the perceived disconnect between established standards in the industry and what is happening at the institution was noted also. An employer in accommodation suggested that the institution:

> *"expose tutors to an internship in the industry and as a result, the tutors will train students to meet the standards expected by the industry."*

The concern was also expressed by the curriculum development specialist, who felt that:

> *"the lecturers are competent but there is need for frequent placement in the industry. This will help the institution identify skill levels from the prospective employers."*

The role of the employers in curriculum planning. The role of employers in curriculum planning was seen as an element that could help to develop a symbiotic relationship between the units. One lecturer in the institution proposed that industry partners should be part of the curriculum planning:

> *"By allowing the employers in the tourism sector to take part in curriculum planning we will have a better idea of what is needed and what courses we need to re-examine, courses that are no longer relevant and new courses to develop. The sector is dynamic so we need to keep up with the changes in the industry."*

The internship segment of the programme is important because students gain experience in the industry. The employers were of the view that instead of the institution assigning students to the industry, students should apply to different sectors where they would be interviewed before they were placed. One travel agent explained why students should be given a chance to apply for internship in a sector of choice:

> *"Let us interview the students; in that way they will not only get industry experience but they will go through the process of being interviewed. That being said students will feel a sense of achievement and also they will know that they are placed in a sector or department of their choice."*

A general consensus from the industry is that the industry had tried to get its members to keep an open mind and to show an interest in what is happening at the institution. They also indicated that some professionals in the industry needed no prompting and that they had taken the initiative to contact the institution and offer their services.

The results suggest that the development and maintenance of the relationship requires mutual exchange between both parties. The industry and the institution display a willingness to collaborate to ensure that the human resources that the industry requires are relevant to a dynamic industry.

Relationship Outcomes

For this paper, relationship outcomes looks at the benefits of the symbiotic relationship between the tourism sector and the education

provider. The question asked was: "How would both parties benefit from a collaborative effort?" Two themes emerged: students' benefits and industry benefits.

Students' benefit. The employers looked at the benefits from the students' standpoint. They all agreed that students would benefit from the relationship because they would gain a better understanding of what is expected from them, and it would also make hospitality education an attractive option. An employer from travel and attractions stated that:

> *"I do not get the impression that hospitality education is the first port of call for students. As a result, there exists a last resort mentality from the students. The industry, with effective collaboration, can counteract this mentality by exposing the students to the realities of the industry and its possibilities."*

The lecturers also indicated that students would benefit from the relationship. They concluded that if there is a collaborative initiative between the industry and education, students would benefit. As one lecturer succinctly concluded: "*The students will be at an advantage because they will have the best of both worlds*."

Industry benefits. All respondents mentioned the benefits to the industry. It was noted by a restaurateur that this level of collaboration between the two entities would augur well for the industry. They would have the quality employees in their organization that would enhance the competitive advantage of the industry:

> *"I see the industry benefitting from this kind of collaboration in a positive way. We will get quality personnel in our organisations, we know what we want and we can indicate to the institution what type of worker they should produce for us."*

The relationship outcome can be viewed from the student standpoint or the industry standpoint. If relationships are developed and managed effectively, there could be a win-win outcome for both the industry and education providers.

Conclusion

The tourism industry has played a pivotal role in the economic and social landscape of the Caribbean. Many countries in the Caribbean depend on tourism for sustainable development. The revenue generated from tourism-related activities is injected directly into hotels, shops, restaurants, and recreational facilities. The interconnectedness of the world's economies makes the industry volatile and susceptible to seemingly unrelated events and economic conditions in other countries. In the best times and in the worst times, the market-oriented development strategies and the increasing pressures from the world economy will determine the direction of the industry. Caribbean governments have little control over the prevailing market conditions; however, they have direct control with respect to improving the quality of the tourism product. There is every indication that there will be greater demand for quality service, and less patience and tolerance from the global market for the Caribbean to request more time to adjust to the new demands or conditions of the market. The competitive advantage of the island is dependent on adequately trained workers in the industry. The results of this study show that the quality of human resource has been a major hurdle for many employers in the industry. One of the lamentations of the employers in the industry is the low productivity and the gaps in quality of customer relations and customer service. It is noted that the quality of the human capital in the industry will impact on the competitive advantage of the industry. In many countries, there have been attempts to enhance the quality of the human resource through formal pre-service and in-service training of personnel. The findings shed an interesting light on the relationship between the hospitality industry and the institution serving that industry.

The findings suggest that one unit alone cannot attempt to carry the responsibility of developing and maintaining the relationship on its shoulders. The educators alone do not hold the key to the success of training quality personnel. Collaboration between the units would yield the greatest influence on the tourism product. A symbiotic relationship between the units must be maintained in order to enable sustainable tourism. In that regard, stakeholders in the industry need to collaborate with the education providers to ensure the sustainability of the industry. Tourism education, from a relationship management perspective, could further extend the contribution by the stakeholders in the industry. This model is not a panacea for all the issues highlighted in this paper, but it can address the issues of collaboration and networking among the units.

The tourism product is dynamic and it is vital that the relationship established should be managed to realize the expected outcomes. It is recommended, therefore, that the stakeholders in the industry revisit the relationship that exists among the units, explore ways to develop a symbiotic relationship that will enhance the quality of the product, and establish mechanisms to maintain sustainable relationships that will directly and indirectly enhance the competitive advantage of the tourism product.

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IS ANYBODY LISTENING?
Stakeholders' Perspectives on the In-Service Diploma in Education Programme at the School of Education, The University of the West Indies, St. Augustine Campus

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The Diploma in Education (Dip.Ed.) programme at the School of Education of The University of the West Indies (UWI), St. Augustine, provides initial training for teachers employed in the secondary school system in Trinidad and Tobago. In keeping with the tenets and stages of fourth generation evaluation research, stakeholders' perspectives were integral to the process of evaluating the Dip.Ed. programme, which was delivered during the period 2004–2009. Through purposive and stratified random sampling, focus group and individual interviews were conducted with three separate groups of stakeholders: principals, heads of departments, and deans from a sample of schools; and Central Administration officers of the Ministry of Education. Teachers who had graduated from the programme during the period were asked to complete a questionnaire. Data were analysed, using the NVIVO qualitative data analysis software, to determine stakeholders' issues, claims, and concerns. This article reports on these selected stakeholders' perspectives on the programme. Preliminary findings reveal the extent to which the current in-service Dip.Ed. programme meets stakeholders' expectations, and the benefits and limitations of the programme. The implications of the findings for teacher education and reform are discussed.

Background

Research suggests that there is a strong relationship between the quality of teaching and student learning and achievement (see, for example, Darling-Hammond, 2000; Goe & Stickler, 2008; James & Pollard, 2006), and that well-educated and trained teachers are major contributors to high-quality education (Barrett et al., 2007; High/Scope Educational Research Foundation, n.d.). In keeping with this thinking, teacher education programmes are meant to provide participants with the knowledge, skills and competencies, and dispositions to perform the

teaching role competently and effectively within the environment in which they function. It is assumed that the teacher training will in turn redound to the benefit of the students by realizing the desired student learning and achievement outcomes.

The Diploma in Education (Dip.Ed.) is an in-service teacher education programme, which is intended to address the training needs of secondary school teachers in Trinidad and Tobago. The Dip.Ed. programme is delivered by the School of Education (SOE) at the St. Augustine Campus of The University of the West Indies (UWI) on behalf of the Ministry of Education (MOE), and is designed to address the professional development needs of teachers at the secondary level. Within the context of teacher education programmes worldwide, the programme is unique in that it provides initial training for secondary school teachers who have been employed by the MOE for at least two years. On average, participants enter the programme with approximately five years teaching experience.

From its inception in 1973, the programme structure comprised four courses: *Educational Foundations*, *Project in the Theory of Education*, *Curriculum Process*, and *The Practice of Education*. These courses were expected to achieve the programme's objectives, which, in essence, represented the expectations of the SOE for the graduates of the programme. Since 2004, the objectives of the programme, as stated in the SOE's *Regulations and Syllabuses* (The University of the West Indies. School of Education [UWI], 2004, p. 63), have been as follows:

1. To encourage teachers to give the greatest attention to past and present practices and future possibilities in the teaching of their subjects.
2. To encourage teachers to read and think about various problems related to the history and practice of education generally and their own subjects in particular.
3. To encourage teachers to think about education as a process involving delicate relationships among teachers and students.
4. To lead teachers to consider the professional implications of the nature of their occupation and to strive for continued professional growth.

During its 37 years of existence, there have been modifications and changes to the content of the programme, strategies for delivery, and the assessment modes. Three of the more significant changes within the past 10 to 15 years have been as follows:

1. A greater emphasis than before on reflective practice through the use of autobiography and journal writing.
2. Increased exposure to information and communication technology (ICT), both in lecturers' delivery of aspects of the programme and as a module, *Media in Education*, which aims to prepare the teachers to use ICT in their classrooms.
3. The introduction of a portfolio, which was included as an alternative assessment component of the final teaching practice grade. The portfolio accounts for 25% of the final teaching practice mark, whereas, prior to its introduction, 100% of the final teaching practice mark was based on an assessment of classroom performance.

These changes have been influenced by lecturers' knowledge of contemporary issues in education, the changed environmental context, and the enrolled students' responses to the programme. Students' responses are obtained each academic year during timetabled sessions in August, at the beginning of the programme; and later, at the end of the programme, in May of the following year. In addition, individual lecturers have engaged in case study evaluation as part of their own action research to improve their work (Herbert, 2009a, 2009b; James, 2005, 2009; Morris & Yamin-Ali, 2005-2006; Rampersad & Herbert, 1999, 2005; Yamin-Ali, 2010). However, there has not been a formal evaluation of the programme that takes into account the views of stakeholders in education, with respect to their expectations of the programme and the extent to which the Dip.Ed. programme is meeting those expectations. Some members of the SOE therefore designed a formal evaluation of the Dip.Ed. programme that was delivered during the period 2004–2009, to determine stakeholders' perspectives on the programme and the extent to which stakeholders' expectations were being met, as the first step in evaluating the programme and subsequent reform.

This paper addresses the research question: *What are stakeholders' perspectives on the In-service Diploma in Education programme?* and discusses the implications of stakeholder participation in the process of evaluating this professional development programme. It is hoped that this approach to teacher education and reform would contribute significantly to the work of staff at the SOE as they aim to prepare teachers who would make a positive difference in the lives of students.

Theoretical Framework

Evaluation research has evolved over the past four decades, from theory-based research, in which "the purpose of evaluation research is to measure the effects of a program against the goals it set out to accomplish as a means of contributing to subsequent decision making about the program and improving the future programming" (Weiss, 1972, p. 4); to research described as fourth generation evaluation (Guba & Lincoln, 1989). In fourth generation evaluation research, the stakeholders' role has changed from that of merely providing information to the evaluator to one in which they have a significant role in determining the focus of the evaluation as well as the dissemination of results. Stakeholder evaluation can thus be considered as "belonging to the wider family of theoretical approaches, which prefer constructivism to realism and pluralism to a single view of reality" (Vartiainen, 2003, p. 10).

The underlying assumption of such research is that stakeholders can provide invaluable insights, which can allow all parties to emerge more informed and with better understandings about the evaluand, and which can determine the future direction of the research to bring about the changes required to improve the programme.

Review of the Literature

A review of the literature has revealed that teacher education programmes—both pre-service and in-service—have been evaluated to assess their quality vis-à-vis (a) the match between programme objectives and outcomes—a discrepancy model of evaluation (Provus, 1971); (b) the match between programme outcomes and the characteristics of teachers' work (Tellez, 1996); and (c) programme outcomes and teacher effectiveness (Barrett et al., 2007; Darling-Hammond, Newton, & Wei, 2010; Goe & Stickler, 2008; High/Scope Educational Research Foundation, n.d.). Models of programme evaluation also address programme improvement, for example, the CIPP (Context, Input, Process, and Product) model (Stufflebeam, 1983). Evaluation studies have been underpinned by traditional positivist approaches to evaluation as well as the newer interpretivist paradigm.

Darling-Hammond et al. (2010), in a study of the Stanford Teacher Education Programme (STEP), found that teachers who had at least one year's teaching experience before entering the programme, who completed the programme, and then went back to the classroom:

- benefitted by demonstrating increased effectiveness in assisting struggling students and planning curriculum;
- valued collaborative teaching and assisting colleagues;
- created opportunities for feedback and reflection on their teaching practice; and
- developed an appreciation for the theoretical perspectives of education in their practice.

This research provided insights on how to educate teachers who entered the programme with experiential learning. These findings are pertinent to the conduct of teacher education at the SOE.

Characteristics of a 'Good' Quality Teacher Education Programme

Mathison (1992) proposes that good in-service teacher education lies in how teaching is perceived, namely, as technology or as craft. Viewed as technology, more efficient and effective teaching is achieved by adopting "sound techniques," such as state-mandated curricula and tests. When viewed as a craft, the knowledge and experience of the teacher influence decisions on how to improve education. This view of teaching-as-craft is seen as a "slow evolutionary change process … mediated by teachers' experiential learning" (p. 256). Fullan (as cited in Mathison, 1992) proffered that successful in-service programmes hold the teaching-as-craft perspective, in which the teachers' experiential learning is the basis of professional development that occurred over an extended period of time.

The model of teacher training undertaken at the SOE values the experiential learning teachers gained before entering the programme. It therefore promotes the concept of teacher as reflective practitioner (which may be characterized as the teaching-as-craft perspective), but recognizes the competing teaching-as-technology perspective communicated through state-mandated curriculum documents.

Mathison (1992) identified the following characteristics of *good* in-service training, which provide a framework for evaluation:

- *Correct* content—relevance and practicability—that is, the in-service education should be seen as relevant both to the teachers themselves and to the profession
- Good modelling on the part of the providers of the in-service programmes

- A developmental perspective, that is, an approach that supports teachers who come from different school cultures and who have different needs, knowledge, and skills
- Promotion of teacher professionalism by valuing what teachers know
- Provision of institutional support

In sum, Mathison has provided some expectations of (or indicators for) good in-service teacher education programmes, which can serve as a framework for programme evaluation.

Mathison (1992) also proposes that the process of evaluating in-service teacher education should look not just at the immediate impacts of the programme, but also at the long-term effects after completion, for example, changes of teachers' conceptions of teaching and their practice. Also, good evaluations should be open-minded enough to accept variations in individual's experiences of in-service education, as each teacher enters the programme with unique experiences. Good evaluations should be conducted over a long period of time, as change in classrooms and schools is a slow process.

Issues Involved in Programme Evaluation

In a review of literature related to the field of programme evaluation, Coldwell and Simkins (2011) have summarized the interrelated aspects of what they refer to as the "evaluation problem": "*what* should be the focus of evaluation; *how* should these aspects be investigated and *whose* views should count in the evaluation" (p. 144). Further, they indicate that the history of evaluation exhibits a wide range of perspectives regarding who should participate in evaluation and determine its outcomes. These perspectives range from that of those who give the key role in the evaluation to the evaluators themselves (Scriven, 1973, as cited in Coldwell & Simkins, 2011); through those who focus on the importance of commissioners and managers (Stufflebeam, 1983). Others seek to engage a wider range of stakeholders (Guba & Lincoln, 1989; Patton, 1997, as cited in Coldwell & Simkins, 2011); including some who place a particular emphasis on participative processes (Cousins & Earl, 1995; Torres & Preskill, 2001, as cited in Coldwell & Simkins, 2011) or on the engagement of the disempowered (Fetterman, 1996, House, 1991, as cited in Coldwell & Simkins, 2011). An approach to evaluation which seeks to identify and ascertain the views of competing perspectives from stakeholders assumes that the values and interests of stakeholders with a vested interest in the programme being evaluated will contribute to the effective use of evaluation results.

In reviewing early approaches to evaluation, Brandon (1998) distinguishes between collaborative and non-collaborative approaches to the evaluation of programmes in which the role of the stakeholders varied. The former approach is meant to engage stakeholders heavily in the evaluation process so as to enhance the validity of evaluation findings. It includes stakeholder-based evaluation (SBE), in which evaluators engage stakeholders at different phases of the evaluation process—in the beginning and ending phases of evaluations. In practical participatory evaluation (PPE), stakeholder involvement takes place throughout all evaluation phases. In education settings, the stakeholders typically involved are administrators, project managers, and curriculum coordinators.

By contrast, in using non-collaborative approaches, stakeholders serve primarily as data sources for the purpose of generating "valid knowledge concerning program functioning and effects" (Cousins & Whitmore, as cited in Brandon, 1998, p. 326). Brandon notes that in subsequent studies on stakeholder participation in evaluation, the distinction between collaborative and non-collaborative evaluations is not always clear.

In exploring the methodological underpinnings of stakeholder evaluation, Vartiainen (2003) makes the following point:

> On the one hand, with the increasing versatility of evaluation methods, qualitative methods which emphasize the role of the stakeholders have become much more commonplace. On the other, despite the fact that the methods are becoming more common, discussion concerning the position of stakeholders and the nature of the evaluation information, which they have produced, has received scant attention. (p. 2)

The central issue from the point of view of evaluation research is to recognize and analyse the qualities of each stakeholder and their significance in the evaluation process (Vartiainen, 2003). It is important to identify the characteristics of different stakeholder groups. This provides the evaluator with possibilities to better understand and analyse the information collected in the evaluation process. The stakeholder groups have different kinds of characteristics (Vartiainen, 2003). All stakeholder groups influence each other. From the point of view of the evaluation, it is important to recognize the influence relation between the groups. Despite this, every stakeholder is an independent unit with its own resources, will, and purpose. The characteristics of the groups can vary, but every stakeholder has at least one of the following characteristics: motivation, materialistic or symbolic resources, special

knowledge and skills, and a position of power or authority (Vartiainen, 2003).

In terms of *what* is being evaluated, Coldwell and Simkins (2011) indicate that evaluators have looked to *level models*, in which outcomes of training and development interventions result from a series of levels or interrelated components. Some of these are Stake's (1967, as cited in Coldwell & Simkins, 2011) antecedent-transaction-outcome approach; Stufflebeam's (1983) CIPP framework; and Kirkpatrick's (1998, as cited in Coldwell & Simkins, 2011) four-levels of outcomes for interventions, namely, 1) participants' reaction, 2) participants' learning, 3) participants' behaviour, and 4) desired results. Guskey (2000, as cited in Coldwell & Simkins, 2011) modified Kirkpatrick's model for teachers' professional development by proposing five critical levels of professional development evaluation, which occur in steps: 1) participants' reaction, 2) participants' learning, 3) organizational support and change, 4) participants' use of new knowledge, and 5) student learning outcomes.

For positivists, level models may be considered a "quantitative, unitary, and instrumental approach" (Coldwell & Simkins, 2011, p. 154). Criticisms of these models were mainly aimed at the sequential nature of the levels and accompanying assumptions. As experienced evaluators, Coldwell and Simkins found that level models, located in the positivist tradition, tended not to provide enough detail of the theory or mechanisms underlying the levels of the models and, therefore, were inadequate in explaining why particular outcomes occur in particular contexts. The recognition of the limitations of the positivist approach and the benefits of the participatory and collaborative approach to the evaluation, as outlined above, led to the adoption of Guba and Lincoln's (1989) fourth generation methodology for this study.

Methodology

In reaction to what they considered the limitations of the positivist approach to evaluation in providing in-depth understanding of the social processes in a complex world, Guba and Lincoln (1989) proposed a constructivist evaluation of programmes. They developed the fourth generation evaluation approach to accommodate the multiple realities that often emerge in relation to social phenomena. This approach takes the ontological position that the social world is constructed by those in it and, accordingly, varying perspectives are often contested. Fourth generation evaluation represents a radical shift in undertaking evaluation, from one in which the evaluator determines a priori the questions to be asked to one in which the perspectives of all those involved in the

programme being evaluated, that is, the stakeholders, are sought and analysed to guide the evaluation. Fourth generation evaluation methodology adopts a hermeneutic or interpretive approach reflected in a continuum of dialectic, iteration, analysis, critique, reiteration, reanalysis, resulting in a joint construction of a case (Guba & Lincoln, 1989).

This fourth generation methodology allows for the exploration of the "created realities" (Guba & Lincoln, 1989) of participants within the research context. A synthesis of these realities with other information is employed to arrive at a consensus. The hermeneutic dialectic plays a key role and also allows for the views of the inquirer. The methodology thus enables the empowerment and learning of all participants (Stapeleton, 2003), and allows for the tacit knowledge and the subjective and reflective sharing of participants and researchers. The fourth generation evaluation methodology, grounded as it is in a constructivist paradigm, emphasizes a joint construction of all participants' views and realities through comparison and contrast, differing from the original constructions offered by individuals (Guba & Lincoln, 1989).

There are two phases proposed in fourth generation evaluation, namely, discovery and assimilation. The discovery phase represents the evaluator's attempt to describe what is being evaluated and its context; the assimilation phase represents the evaluator's attempt to incorporate new findings into existing construction. The evaluator utilising the fourth generation evaluation approach must:

1. identify the stakeholders;
2. obtain from them their claims, concerns, and issues;
3. provide a context and a methodology for gathering and critiquing these;
4. arrive at consensus within and among groups of stakeholders;
5. have an agenda for negotiation if consensus is not reached;
6. collect and provide information for negotiation;
7. have a forum in which negotiation can take place;
8. prepare a report for stakeholders; and
9. review unresolved concerns, claims, and issues.

In keeping with the principles outlined above, this study adopted a qualitative approach to evaluating the effectiveness of the Dip.Ed. programme by soliciting the perspectives of a range of stakeholders who are directly affected by the programme. It was guided by the principles of fourth generation evaluation, in which stakeholder input was extended

beyond the traditional role as data sources to one that facilitates interaction between and among stakeholders' perspectives. The multiple perspectives in turn guided the process of evaluation.

The research design of this study is emergent, as it continues to be refined and extended in order to allow for future inquiry. As such, the immediate outcome of this research is a case study report, which feeds into an iterative model of programme evaluation.

Participants

The following stakeholders participated in the study—MOE personnel, principals, the middle management of schools (HODs and deans), and teachers. Purposive sampling was used to select three senior officers from Central Administration of the MOE. This sample represented those stakeholders who are in a position of power and authority within the MOE. Ten school principals, who comprised the executive of a principals' association, were also invited to participate in the study. With respect to participants from the middle management of schools, the number of persons selected was based on MacIntosh's (1993) principle. MacIntosh recommends 6–10 persons per focus group, but some researchers have used up to 15 people (Goss & Leinbach, 1996), or as few as four (Kitzinger, 1995).

The SOE group of researchers decided that between 8–10 HODs and 8–10 deans would be asked to participate. Stratified random sampling was therefore used to select two groups of eight schools from each of the eight educational districts, and one HOD and one dean was randomly selected from each of the eight schools comprising the respective groups. Two focus groups of 8–10 persons were then formed within each educational district—one comprising HODs and the other comprising deans. Sixty-seven out of 133 secondary schools were represented and 99 HODs and deans participated. With respect to teacher participants, questionnaires were distributed to all teachers who had participated in the Dip.Ed. programme during the period 2004–2009.

Ethical Issues

Permission was sought from the MOE to conduct the study, that is, to interview the principals, HODS, and deans and to obtain information from the teachers. All participants were apprised in advance of the purpose of the data collection, and their consent was requested for the audio-recording of the interviews. They were also assured that anonymity would be maintained in the reporting and use of the data. In the official letter granting permission for the research, it was suggested

that the district school supervisors be involved in organizing the interviews. Therefore, they worked alongside SOE staff to contact principals and participants, and to determine the venue and time of the interviews.

Data Collection

Focus group interviews, located within the interpretive research paradigm, facilitated the subjective perceptions of individuals and were the primary data collection instrument. Seventeen focus group interviews, each lasting between one to two hours, were conducted to gather data from school principals, deans, and HODs. A convenient location for each focus group interview was selected in order to avoid negative associations with the interview experience. Seven members of SOE staff conducted interviews with HODs and deans at their respective Educational District Offices or other agreed locations, while principals were interviewed at the SOE. During the interviews, the SOE staff adopted a moderating role by facilitating the presentation of perspectives through the control of group interaction and focus (Boddy, 2005; Parker & Tritter, 2006). A semi-structured interview guide was used for all interviews. The questions guided participants to reflect on their expectations of the programme, their experiences, and their perceptions of the impact of the programme. Two individual interviews were held with officials from the Central Administration of the MOE. Interviews with officials from the MOE were conducted at the MOE and at the SOE. Each interview lasted for approximately one hour. All interviews were audiotaped and transcribed. Written questionnaires were designed and distributed to all participating teachers.

Data Analysis

A thematic analysis of the transcript data using the NVIVO qualitative data analysis software was conducted to identify categories of perspectives expressed by the selected officers from Central Administration of the MOE, principals, and HODs. Data on the deans' and teachers' perspectives are still to be analysed. The analysis of stakeholders' views represents Step 2 of the fourth generation evaluation methodology, where their claims, concerns, and issues were raised, and areas of consensus within the groups of stakeholders were elucidated.

As part of the fourth generation methodology, this paper will be disseminated to all participants, including staff involved in the delivery of the programme, to facilitate the continuum of dialectic, iteration,

analysis, critique, reiteration, re-analysis, resulting in a joint construction of a case.

Findings

A number of themes emerged from the analysis of data on stakeholders' perspectives on the in-service Dip.Ed. programme. Preliminary findings are based on the analysis of data gleaned from officials of the MOE, principals, and HODs. These themes are organized according to the following broad headings: expectations, benefits, and constraints/limitations.

The findings indicate that there was some variability in expectations among stakeholders, which seemed related to their roles in the education system—as Central Administration official, principal, or HOD—and the philosophies and beliefs that they held about the role and value of teacher professional development and its contribution to the education system. There was general consensus among stakeholders that the programme should impact on (a) pedagogy/classroom practice, (b) relationships among members of staff by facilitating collaboration and collegiality, and (c) the school as an organization. Stakeholders also indicated that there were benefits from participation in the Dip.Ed.; however, the limitations sometimes overshadowed these benefits. The themes are addressed below.

Expectations

Participants expressed the expectations that the programme would impact on teachers' personal and professional development, and would give rise to the ideal teacher in the education sector. While principals (P) and HODs focused more on the former as they related to the classroom setting, the officials from the MOE articulated a holistic view of the role of the trained teacher within the wider education system.

General pedagogical skills. The HODs had expectations for themselves as professionals as well as for the teachers they supervise. The data revealed that they expected that the programme would help teachers to develop content-specific skills and knowledge, as well as general pedagogical skills and classroom management techniques. The HODs, the majority of whom would themselves have been teachers during the programme, expected to become effective teachers who could deliver the curriculum by linking theory with practice. Some participants explained:

> *"…when I went in I thought when I come out I would be a really good teacher. I would deliver the curriculum effectively and, you know, do what you supposed to do."* (P 2)
>
> *"I actually expected to get exposure to new teaching methods, styles and also some management techniques in the classroom."* (HP)

Officials of the MOE also referred to pedagogical knowledge as an expected outcome of the training programme. One official indicated, for example, that:

> *"The trained teacher is one who operates with a great amount of flexibility in terms of the pedagogical knowledge that the person would have gained."* (MOE 3)

Subject specific strategies. Some of the participants anticipated a focus on subject-specific skills and strategies, as is demonstrated in the following comment:

> *"Because I was doing English, there are certain strategies I was looking forward to doing, especially where essay writing is concerned."* (VD)

One participant, although referring to subject-specific skills, focused on what was perceived to be a lack in the programme and said:

> *"There should be a module to show you, okay, teaching reading in science is not that you are going to teach them the sounds of the letters, the mechanics, but teachers have difficulty in bringing across their content because of children's failing in understanding … and there are strategies in every area and I think that should be included in the programme."* (A)

Classroom performance. In sum, principals and HODs shared similar beliefs about graduates of the programme; for example, they generally expected that there would be a difference in pedagogy which should lead to improvement both in teacher competence and student performance. Some principals explained:

> *"I expect to see a change in behaviour and practice that you can differentiate between the teacher who is not trained and the teacher who is trained."* (P 2)
>
> *"I expect to see better performance, new ideas, new strategies, new ways to deal with the students …."* (R)

Other expectations expressed by the principals included the view that participation in the programme should lead to the development of

leadership skills, collegiality, teamwork, and an overall commitment to the school and the students.

Education as moral purpose. It was striking that the Ministry officials, unlike the other stakeholders, expressed their expectations of the trained graduate who would be committed to attaining the "lofty goals" (MOE 1) of the education system; a broader vision of the teacher than might be held by school personnel. They felt that the graduates of the programme should be moral agents, able to work as a team, and excited and energetic about teaching and learning. In addition, they felt that the teachers should acquire big ideas about the purpose of education and become aware of their significant role in shaping the minds and attitudes of children in the classroom, thus helping them to achieve their highest potential, and facilitating and nurturing student empowerment:

> *"…to understand the issues, to understand the stage of development that the student is at, to understand that they have to play a role not only in delivering the content, but in shaping the students and the school as well. For student empowerment and development. Those lofty goals."* (MOE 1)

> *"We are talking about the teacher who is aware of that moral obligation to their charges. We are talking about the teacher who is willing to do whatever is necessary within reason to engage that child, to provide that child with the experiences necessary to come to understand not only the knowledge that you are giving them but whatever is aligned to that knowledge, like the dispositions, the understandings, the relationship between things so we have moved just beyond content."* (MOE 2)

Benefits

The data revealed that there were pedagogical, professional, and personal benefits to be derived from the programme. For the purposes of this paper, *personal* refers to individual or intrapersonal awareness of change of attitudes and dispositions within self, gleaned through introspection, as articulated by the participants. *Professional* is used to refer to any effect that directly impacts one's career or job-related behaviours.

Some HODs and principals indicated that teachers, for the most part, returned to the classroom better able to deliver the curriculum and manage their classrooms. One principal also noted that the graduates demonstrated a better understanding of how decisions were made, and exhibited an increased willingness to accept administrative decisions.

*Pedagogical benefits***.** Most of the benefits derived from the programme were with respect to pedagogical practices. Participants highlighted their developing competencies in managing classroom dynamics, content area delivery, clinical supervision and mentoring, and changes in attitudes and outlook. Understanding classroom dynamics with respect to delivery and engagement of students was summed up by participants in the following statements:

> *"And it is because of the Dip.Ed., we know what to expect in a lesson, we know the different types of lessons, questioning skills, things like that we know what to look for, how to get the children involved."* (DN)
>
> *"So, for me going through the Dip.Ed. programme helped with my self-development, umm, changing my teaching practice in a way that the kids were more comfortable with and more engaged in the lesson than me standing there and lecturing."* (P 1)

Heads of departments, charged with the responsibility of mentoring teachers, noted that teachers could be observed applying what they learnt from the programme:

> *"I have seen more effort in getting student oriented."* (MM)

Participants also revealed that they improved their questioning techniques:

> *"I must say that one of the things I learnt much about …was the idea of questioning. How to question students and things."* (CA)

The programme exposed teachers to multimodal delivery aimed at engaging students in the learning process:

> *"It made you think that there must be a way that you can reach these students and you are willing to try different approaches. That was really helpful to me."* (DN)

Participants valued the exposure to sessions in which attention was paid to exploring strategies that could be used for infusing technology into teaching. These strategies were later introduced into their classroom practice:

> *"For me it was all covered. Because we had sessions we do photography … we did a lot of work in terms of technology and so on."* (T)
>
> *"During the Dip.Ed. programme we learn to use music software ….We use that at my school."* (RP)

Professional benefits. The interviewees felt that teachers attained a broader and deeper professional outlook upon completion of the programme. Generally, HODs and principals attested to a change in knowledge and attitude of the participants, similar to what they themselves had experienced when they participated in the programme. Developing competencies through exposure to the programme gave the participants confidence and validated the teaching practice component of the programme:

> *"Training gives you confidence. Any training gives you confidence, the Dip.Ed. gives you confidence as a teacher. Is nice feeling to know for sure that what you are doing makes sense."* (P 3)

> *"When I did it, we did the sociology and the psychology and thing and that helped in my understanding of the students, the society, the background they would have come from and know all about Bernstein and all these people you learn about and things like that. I felt that it was useful."* (P 2)

> *"We were quite excited with the philosophy and the sociology, etc, and the practical part of it…"* (GR)

For participants, one of the challenges was the translation of the theory of education into the practice of education, as there is often a perceived gap between the two. They felt that the programme successfully delivered on this aspect, as expressed by HODs when they were teachers on the programme:

> *"I really enjoyed the practical part of the Dip.Ed. Going to different schools …it met my needs in terms of meshing the practical with the theory."* (WL)

> *"I have been trying a lot of the things they have taught me. I have been trying to get my students to create portfolios; how they arrange their study time. I am trying to work on attitudes."* (WB)

> *"So I was able to put together practice with the theories that we had to enable me to do a better job in terms of delivery and things like that."* (CA)

One of the most salient benefits of the programme was in the area of development of instructional competencies. Participants referred to their shift in focus from teacher-centredness to learner-centredness—a practice they were engaged in before entering the programme—and their developing ability to design lessons that were aligned with this principle:

> *"But what I liked and I enjoyed about the programme, we were given so many different opportunities to do lesson planning and so on.*

> *Something I used to do before but I was not doing it well. Because most of the times as my lesson plans would be so teacher-centred but after doing the programme and I realized you know what 'it is not about me.'"* (VD)
>
> *"When you encounter a problem, you realize, okay, something is not working here, you are not reaching the student the way you should, it makes you reflect and look for means of interventions to see if this would work, if that would work."* (DN)

They were also more appreciative of how the shift in focus also affected changes in their approaches to assessment:

> *"And in terms of lesson planning skills, writing objectives, …using your assessment or tying your assessment to your objective."* (AM)

Exposure to content area delivery was seen as valuable to the participants in the programme:

> *"We dealt with the language within the subject area (maths) and it has to be taught."* (WA)

The HODs also highlighted the gains that accrued to entire departments within their schools, both during and subsequent to teachers' participation in the programme:

> *"I have seen great effort made by persons in my department while they are on the training or finished the training."* (MM)

Personal benefits. On a personal level, participants in the Dip.Ed. programme acknowledged a change in their personhood. They themselves appeared to enjoy the way in which elements of the learning process were structured:

> *"…the field day was like a holiday and excursion. It was really very interesting, very informative, very exciting…."* (GR)

They saw themselves becoming more understanding of their students, more willing to listen to them than they were previously inclined to:

> *"I guess you feel that there is always room for improvement. I try to listen to the students."* (DN)
>
> *"Now I understand that these children are facing so many different things in their personal lives that sometimes, I just have to make allowances. So Dip.Ed. changed me for that. And I must say, it is a good change."* (WBH)

Upon further reflection, participants realized that there was so much more to learn that would redound to the benefit of their students and to themselves as a result in participating in the programme:

> *"I thought I was a life-long learner. I thought I was open to learning as much as I could, but during the Dip.Ed. programme …. I realized, wait a minute, I have been reading text books, so had been limiting myself and by extension, my students."* (RP)

It is evident that the principals and the HODs from all educational districts felt that there were aspects of the programme that were beneficial to participants personally and professionally and, hence, by extension the students, the school, and society. However, there were also limitations/constraints associated with the programme.

Constraints and Limitations

In spite of expressions of the benefits described above, the data indicated a mixed reaction to the overall programme. While some expectations were met as indicated by the benefits identified, others were not. For example, the participants mentioned some constraints and limitations of the programme that they felt could be adjusted to improve the programme.

Trainees revert to old practices. Principals and HODs expressed the concern that, at times, teachers did not display the degree of professionalism or commitment that had been evident during their participation in the programme. One principal lamented:

> *"I am seeing teachers have gone on Dip.Ed. and they come back to school and they return to the old way of doing things. They don't try and experiment with new things."* (P 1)

Other principals and HODs agreed:

> *"You find that happening, yes, the teacher has been trained but when they come back to the classroom, it's like business as usual."* (D)
>
> *"To me you are not seeing that transfer taking place."* (P 2)

MOE 1 agreed with the observations described above. However, while the practitioners' statements seemed to imply individual choice and personal responsibility for the transfer or lack of transfer of knowledge and skills, the MOE 1 participant proffered an explanation that targeted the underlying societal values. She reflects on the underlying competitive nature of the education system, which does not encourage cooperation, collaboration, and collegiality:

> *"We just out to compete against each other and maybe that is the fault of the whole system. It is not a matter of if I could work with you, I have to be better than you ….But I think that is why it is difficult when they get back to the school to implement anything, because they think they have to do it by themselves or alone."*

Inadequate content and delivery. In terms of the actual content and delivery of the Dip.Ed. programme, HODs felt that some areas were inadequate. In terms of the content of the programme, the participants' responses revealed that some of the key modules of the programme were too limited. Some of the specific areas of concern were problem solving and critical thinking, technology skills, lesson planning, and assessment. For example, HODs pointed out:

> *"I am at a point now in my career where everything that you are reading and hearing about education is to have the children get the higher order skills. Teach them about problem solving, teach them about critical thinking even analyzing and to me the Dip.Ed. programme did not do that for me."* (P 1)

> *"What I found is that the Dip. Ed. itself did not prepare me for HOD. It is just as how you are saying in Educational Administration you all did not do anything about curriculum per se…. In other words, if you do Dip.Ed. in Educational Administration, you do not learn about the curriculum part of it. If you do your Dip.Ed. in the curriculum part of it, then you do not learn anything about Educational Administration."* (G)

The officials of the MOE also referred to "inadequate delivery." However, the reference was not in relation to specific modules, but rather in terms of the philosophical underpinnings guiding delivery of the programme. For example, based on her own training experiences, MOE 1 spoke about her expectations for experiential learning and for an environment of experimentation and research that would provide a certain excitement and energy that would be contagious:

> *"Everyday there would be busloads of children either doing dance classes, classes, music classes. We did remedial work with the children from the environment. We had lots of practical spaces… and the entire place was devoted to experiments so it was like a lab. And it was exciting for me …. And I look at UWI, we don't have that kind of interaction in the same way. I know that we have the school practicals but somehow you know to do the actual work in the lab-type setting, in terms of the children coming in, the students working…. It makes for a very rich kind of experience that makes it*

> *memorable and makes you want to say yes, I read this and this is how you do it and I feel that I can do it too."* (MOE 1)

Inadequate communication. Principals felt that there was inadequate communication between the SOE and the schools concerning the teachers' progress, and Ministry officials felt that there should be greater collaboration between the MOE and the SOE:

> *"There is a disconnect between Dip.Ed. and the school so that a teacher might be doing quantitative or qualitative analysis studies and we don't know. We don't know what their findings are and of course there are many times when we could benefit from what they did…. All we know is that on Friday they are not there…because they doing Dip.Ed. and we don't even get feedback."* (P 2)

> *"What we don't get from the tutors is what can I do; what is happening with this teacher that I can assist or that I can improve… it's just between the students and the tutor and it ends there."* (P 1)

> *"But I would really like to see us work a little bit more closely in terms of providing that support for the University."* (MOE 1)

Time management and workload. The impact of the programme on teachers' ability to manage time and their workload seemed to be a challenge for some of the participants. One HOD commented:

> *"Another thing is that the in-service, although it is good, quite often the schools are not able to release people and give them the timetable that would allow them to handle both the stress of Dip.Ed. and teaching at the same time. So I had that problem, where I had a full workload plus I had to do Dip.Ed. and it was really, really stressful."* (P 2)

Discussion and Implications

In general, there was consensus between and among the stakeholders interviewed that the Dip.Ed. programme should improve teachers' pedagogy and classroom performance. Programme Objective 1 (UWI, 2004) indicates that SOE staff members have similar expectations.

There was also consensus that some teachers do improve, in keeping with some of the benefits identified by Darling-Hammond et al. (2010). These benefits relate to lesson planning, collaboration with colleagues, and understanding the theoretical foundations of education. There was also consensus that some teachers revert to past practices upon completion of the programme (limitations). This latter finding raises the issue of the limited transfer of knowledge and skills from the educational

context—in which the intended outcomes of a continuing professional education programme are outlined—to the practice context where the outcomes are actually realized (Ottoson, 2000). There was also agreement that the actions of those who revert to past practices are significant enough to shape the overall perception that the programme does not have the expected impact on classroom practice, especially among teachers who have not yet had the opportunity to participate in the programme.

Rampersad and Herbert (1999) found that change in classroom practice is not sustained as widely as expected, and this research confirms that, to some extent, this trend continues. Further research on stakeholders' perspectives on what practice after training looks like, along with the development of theories and explanations of trained teachers' practice, are important issues to be pursued. Such research can elucidate the conditions required for use of knowledge and skills introduced in the educational context, and this can lead to a more informed evaluation of the programme and subsequent programme reform.

All categories of stakeholders, namely, principals, HODs, and officers of the MOE, focused on the teachers' work within the classroom context. However, officers from the MOE and some principals also expected outcomes such as "teacher as moral agent," with an understanding of the broad purposes of education and of their role in the society; an outcome that they felt was not being achieved. It was also revealed that there were expectations that there would be regular and meaningful communication between institutions—the MOE and the SOE, and the SOE and schools—and expectations in relation to specific technical issues, such as training for HODs. The implication is that the next step in the research process is negotiation between and among stakeholder groups, including SOE staff, to arrive at consensus regarding the programme goals and objectives.

Any discussion of programme goals will lead to discussions about attainment of goals. It is likely that such discussions could lead to further investigation into stakeholders' perspectives on the *Foundations of Education* course and its role in the programme. Some of the broader perspectives articulated by stakeholders at the levels of Central Administration of the MOE and the principalship reinforce the need for the inclusion of this course, which addresses issues of philosophy, psychology, sociology, and language. There was, however, no explicit reference to the inclusion and value of the course by HODs. Therefore, further investigation into their perspectives on this issue is necessary.

Conclusion

In summary, we have engaged in the discovery phase of fourth generation evaluation and some aspects of assimilation, in which we have described what was evaluated and its context, and we have arrived at shared expectations with respect to some aspects of the programme. However, there are many issues that have not been fully explored and critiqued by stakeholders, including staff at the SOE, who are themselves actually involved in delivering the programme. Some of these issues have been identified by Mathison (1992) as characteristics of good in-service teacher education programmes, for example, content to be delivered, and relevance and practicability, given that teachers revert to past practices. Other issues that require further exploration include programme goals; philosophies underpinning delivery; the more active participation of external stakeholders during the delivery of the programme; communication between the MOE and the SOE, and the SOE and the principalship of the schools from which the teachers come; and issues related to time management and workload of the teachers. The writing and distribution of this paper was therefore a crucial first step in gathering and analysing claims, and for determining the areas of consensus and the opportunities for negotiation within and among groups of stakeholders.

In keeping with the fourth generation evaluation methodology, and given the evolving nature of this kind of research, we have begun Step 3, in which we are gathering and critiquing the claims, concerns, and issues expressed by the other stakeholders. Steps 4–9, leading to the process of negotiation and reviewing unresolved claims, concerns, and issues among stakeholders, will be undertaken, with the aim of providing the best experience for the incoming participants of the programme, and for the education sector as a whole.

The fourth generation methodology requires time and commitment of all parties—who have very demanding work schedules—and a high degree of organizational and communication skills for effective implementation. However, it is only through the involvement of stakeholders in all phases of the process of evaluating the Dip.Ed. programme that the staff at the SOE can build a stronger relationship with stakeholders. Their input, in turn, can help the SOE to more meaningfully understand and address stakeholders' perspectives, as it strives to continually improve its programme offerings.

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A CARIBBEAN-BASED MODEL OF LITERACY LEADERSHIP

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The study sought to evaluate the extent to which an online course in literacy leadership appropriately trained prospective literacy coaches, already situated in Caribbean schools, to assume roles as literacy leaders in their respective contexts. A secondary aim of the study was to evolve a research-driven model of literacy leadership suited for guiding the training and school-based practice of literacy coaches across the islands of the Caribbean. Having exposed the 60 graduate-level literacy leadership candidates—spanning 10 Caribbean islands—to four research-driven learning modules centred on key attributes and processes of effective literacy-focused schools, the researchers sought to immerse teams of candidates in activities cited in the research as crucial in instituting these attributes and processes in schools. A combination of qualitative and quantitative analysis of problem-based text interactions surrounding these activities, as well as candidates' own post-course ratings of course content was used to answer key research questions. Did candidates gain an overt understanding of what is involved in establishing an effective literacy infrastructure in schools? Was a viable training model used? The research affirms the efficacy of innovations geared at training literacy practitioners online across the islands of the Caribbean.

Introduction

The study sought to evaluate the extent to which 60 literacy leadership candidates in an online literacy leadership course exhibited awareness of core principles and processes involved in implementing a research-based literacy leadership infrastructure in Caribbean schools, and whether they—after being exposed to the research on exemplary literacy leadership—perceived the course as having addressed necessary principles and processes. In so doing, the course developer and researchers opened up their practice as text, while assessing candidates' level of preparedness to assume roles as literacy leaders in their respective contexts. A secondary aim of the study was to evolve a tentative model of leadership operations suited for guiding the training

and school-based practice of literacy coaches across the islands of the Caribbean, based on observation of candidates' interaction in school-based problem-solving situations.

Leadership of Literacy Instruction, a course offered through the Open Campus of The University of the West Indies (UWIOC), aimed at guiding strategically positioned practitioners in transforming literacy practices in the schools in which they worked. Participants learned to apply principles and procedures for (a) selecting teams of competent professionals to guide a school's literacy and academic programme; (b) conditioning the school environment so that the necessary supports are available for literacy improvement; (c) establishing a core set of beliefs on which schools can build a vision of successful literacy instruction; (d) establishing an affordable and sustainable professional development system to undergird and support a school's literacy programme; (e) building and sustaining a comprehensive, data-based literacy instructional and assessment system; and (f) monitoring and assessing the programme in order to strengthen advocacy for improvement.

A key assumption undergirding the course and central to the study is that instructional leaders in schools experiencing sustained literacy learning success create literacy-focused climates in which improved literacy outcomes, toward which all parties work, are perceived as prerequisites for attaining academic improvement goals in general (McAnuff-Gumbs & Verbeck, in press; Murphy, 2004, 2007). Research indicates that schools experiencing sustained student literacy improvement and continuous academic growth are typically organized with educators working together in collaborative problem-solving teams—often referred to as professional learning communities (PLCs)—in seeking solutions to institutional dilemmas as they arise. Such schools feature an infrastructure built on specific attributes that account for their success. Attributes include a system of shared, supportive leadership surrounding literacy teaching and learning; shared visions, missions, policies, and goals regarding what literacy instruction should look like and what key student outcomes should be; sustained continuous inquiry into practice to determine teaching-learning strengths and needs; an unwavering focus on student learning; context-embedded, collective professional learning and application of learning targeted at those who must deliver literacy instruction; supportive social, political, and technical conditions (Alberta In Praxis Group, 2006; Annenberg Institute for School Reform [AISR], 2004; Fullan, 2006; Hord, 1997; Kruse, Louis & Bryk, 1994; Talbert 2010).

Since attributes do not emerge in a vacuum, successful schools tend to institute specific key processes that lead to the emergence of such

attributes. Processes involve establishing structures for changing the way people think and act in seeking to bring about transformation. Practitioners working toward school improvement, especially in schools tied in dysfunctional cycles of failure, must examine and perhaps rethink, among other things, the way they perceive students and the context from which they come. The schools must also undertake in-depth scrutiny of the context in which they operate, their perspective on teaching-learning possibilities, and what they view as viable means of achieving success (Servage, 2008).

Traditionally, school leaders and policymakers have relied on teacher training institutions to prepare practitioners capable of moving schools forward, especially in the area of literacy—reading and writing improvement, with attention to oral, visual, and technological communication. This has been quite evident in the last decade or so; in mandates from the Summit of the Americas in Quebec, Canada in 2000; in resultant literacy-centred initiatives such as the Caribbean Centre of Excellence for Teacher Training (CCETT), instituted in the early 2000s and continued by various governments for eight years; and in position statements from professional organizations such as the International Reading Association. CCETT represents the most visible, the most highly funded, and the most wide-reaching effort on the part of policymakers and teacher educators Caribbean-wide (working in partnership with schools) to train both in-service and pre-service teachers for changing literacy outcomes in schools. The project focused primarily on changing instruction and the classroom environment, and adopted a model based on "clinical supervision provided by the team of 'multi-faceted' education specialists" external to school contexts (Dye, Helwig, Lambert, & Marshall, 2008, p. 63). While principals and teachers made largely unsupported claims regarding the project's impact on student performance, the final project evaluation report revealed issues such as "significant disconnect between the teachers' perception of the project and the principals' description," teacher inability "to identify with [the] school improvement plan" developed by principals also trained in the project, teacher non-attendance at workshops, teacher difficulties in "interacting with peers for training purposes," and "counter-forces within the community" (p. 63). There were requests at the end of the project for "future teacher training to include the social dimension" as well as training in school management and in "how to change behavior" (p. 63). There were also speculations as to whether removal of clinical supervisors would "affect teacher/educator and general school performance" (p. 63). Thus, sustainability of efforts was also an issue.

It is little wonder then that DuFour (DuFour & Jolly, 2007) expresses frustration with the implementation of literacy leadership structures in schools, as well as deep pessimism regarding the role that teacher education institutions can truly play in producing leaders with the appropriate mindset and the propensity for instituting and sustaining comprehensive, research-driven literacy instructional improvement initiatives. As DuFour, a leading voice in school-based literacy leadership maintains, "I don't think we can wait for higher education to foster PLC concepts" and "teachers are unlikely to find it" in their training (DuFour & Jolly, 2007). Kwakman (2003), as well as Murphy (2007), support DuFour in this, demanding research attention to the quality of teacher training in literacy leadership. Powell and Rightmyer (2011) maintain, however, that even when teachers are appropriately trained (and the writers claim that they are), they enter schools that refuse to do so and, ultimately, lose their verve as change agents. Researchers maintain that leaders should be trained, not just as agents of instructional behaviour change, but also as changers of practitioner thinking. Owen (2005), as well as Costa and Garmston (2002), maintains that an understanding of teacher thinking, perspectives, and action is needed if teacher and school transformation are to be realized.

Given recent controversy as to where problems of implementation truly lie, Feger and Arruda (2008) underscore the need for research scrutinizing the "pre-service participation [of] both teachers and instructional leaders" in PLCs, and an examination of the "design of online professional development courses," especially those that report on observation of teachers as they engage in school transformation processes (that is, in operations implemented to change the way educational work is conducted in schools), so as to ensure that literacy professionals are being inducted into key PLC processes in schools and training institutions (p. 18).

A somewhat unique characteristic of the UWIOC's Masters in Literacy Education is that candidates fulfil both criteria, that is, as school-situated professionals at the leadership and instructional level, and as candidates working on improving their own expertise in literacy. As a response then to demands for scrutiny, the study examined practices in this online literacy leadership course to ascertain whether the course appropriately inducts candidates into key leadership concepts and processes in a comprehensive manner, whether there is appropriate uptake of principles and practices by candidates, and whether a tentative training model could be derived, were it found that candidates were in fact sufficiently exposed to the requirements.

In an era where universities and colleges seek to position themselves as both teacher education institutions and preferred professional learning providers, such scrutiny is essential. Additionally, evolving models that can work for both training and school action is an effective way to ensure relevance of training for the context of work.

The Setting of the Study

Leadership in Literacy Instruction was delivered over a 15-week period via *The Learning Exchange*, UWIOC's rebranding of *Moodle*. Primary learning content comprised four online learning modules spanning a 12-week period. Three additional weeks were allotted, so that there was an initial one-week orientation and two weeks for completion of a final project. Each module centred on at least one key attribute of PLCs and comprised three units—one on the attribute and related concepts, one on research-based procedures for establishing that attribute, and the last on practical tasks related to instituting the attribute. A learning forum was attached to each of the three units in a module, but only the last of the three—the one featuring cased-based problem solving—was graded.

The first module addressed the context of literacy leadership, detailing the history of literacy instructional leadership in the Caribbean, and the realities of resistance to the new roles that relatively young literacy professionals must play; much of which can appear on the surface to go against the norms of autonomy and seniority that have characterized schools. Candidates explored principles of effective change leadership, and were guided in means of using the collective commitment statements and other techniques to establish a culture of literacy in schools, and to prepare school personnel for changes in outlook on literacy teaching and learning. Students learned approaches for "reculturing" a school so that a culture of literacy emerges, and so that a healthy, collaborative climate is facilitated. One major assignment required candidates to develop commitment statements for their context, using research-based procedures.

The second module addressed shared leadership, and guided candidates in developing and sustaining a literacy leadership team to lead a school toward instructional improvement. Candidates learned the key characteristics of effective schools and how such characteristics are linked to a specific type of leadership and to specific approaches to instructional change. They explored the roles of the leadership team, including its data scrutiny, planning, and training function, and learned to gather a plethora of data on teacher and student performance, perceptions and values, and to use insights as the basis for taking and evaluating

action. Students then engaged in leadership problem-solving conversations in the forums and, subsequently, in an online data retreat and follow-up activity. They perused school data and developed comprehensive strategic action plans that addressed the needs of all learners and which took school structures and conditions into consideration.

The third module addressed continuous professional learning as grounded in the research on effective adult learning and effective professional development practices. Students learned to design a continuum of supports for teachers and, in the learning forum, problem solved teacher resistance issues. Candidates then developed a comprehensive professional development plan (PDP) that took a collective and insider perspective on coaching, giving due consideration to contextual issues that may arise.

The fourth and final module addressed programme evaluation and revitalization, showing how attention to the notion of the total literacy system from the outset can ensure that all variables are considered in planning for improvement and in evaluation outcomes.

Video vignettes dispersed throughout the modules presented authentic situations in which schools facing specific dilemmas linked to literacy leadership, teacher resistance, and student literacy performance overcame such challenges. Candidates could draw on both module and multimedia content for insights as they problem-solved in the learning forums. Generally, either the group facilitators or course coordinator provided the prompts to trigger discussions, but for graded discussions, cases were collectively developed by instructors. Still, only the group facilitators (not involved in this research project) graded these four forums. As is typical in graded discussion, a Question-and-Answer Forum was used so that students had to post an initial comprehensive response (which would be the focus of grading), before they could view and respond to the posting of their peers.

No research-related manipulation of course activities took place before or during delivery, and the study was done as a reflective exercise. The study was driven by the following research questions:

1. *To what extent did candidates believe the course addressed core leadership attributes and processes?*
2. *To what extent is awareness of attributes and processes evident in problem-based conversations in key learning forums?*
3. *What model of literacy leadership interaction can observation of candidates' problem-based conversations reveal?*

Review of Literature

Approaches to school literacy leadership in the Caribbean have typically adopted a top-down, outside-in approach, although in recent times, a train-the-trainers approach has been more common (Dye, Helwig, Lambert, & Marshall, 2008). In the latter approach, individuals, usually lecturers situated in teacher training colleges and external to school contexts, are designated trainers who work to increase the instructional competence of both pre-service and in-service teachers, especially in the use of evidence-based, literacy instructional practices (those practices grounded in large-scale empirical research as well as in knowledge of a school's clientele). Having being trained, candidates and classroom teachers would then train other teachers, and even students, to implement selected instructional and assessment practices (Hillard, Davies, & Griffith, 2009). This model—one that drove the CCETT initiative for approximately eight years—adopted a training strategy much like the Teaching Learning Instrument (TLI) approach advocated by Rosemary, Roskos, and Landreth (2007), which involves both workshop and embedded support in selected classrooms.

Current literacy instructional leadership practice, with its emphasis on instructional coaching and vision leadership, has taken a somewhat different approach to school literacy improvement. PLCs, implemented in a context featuring shared leadership, are currently favoured as the most viable context for strengthening school leadership structures, fostering teacher professional growth, and improving student learning outcomes, especially in literacy (DuFour & Jolly, 2007; Fullan, 2006; Richardson, 2005). PLCs (also known as communities of continuous inquiry and improvement) are seen as potent structures for addressing student literacy learning challenges, while simultaneously augmenting teacher knowledge of the requirements of evidence-based practice.

Advocates of the PLC model of literacy leadership and school improvement reference a significant evidence base linking PLCs to enhanced school professional climate and governance (AISR, 2003; Berry, Johnson, & Montgomery, 2005; Hollins, McIntyre, DeBose, Hollins, & Tanner, 2004; Hord, 1997; Phillips, 2003); improved teacher expertise (Andrews & Lewis, 2002; Dunne, Nave, & Lewis, 2000; Englert & Tarrant, 1995; Hollins et al., 2004; Louis & Marks, 1998; Strahan, 2003); and increased student achievement (Berry et al, 2005; Hollins et al., 2004; Strahan, 2003). Notably, a focused collection of studies has proven that PLCs, when properly implemented, account for up to 85% of the variance in student achievement after variables such as grade level and student background are accounted for (Louis & Marks,

1998; Supovitz & Christman, 2003). DuFour (DuFour & Jolly, 2007) provides a catalogue of studies demonstrating positive impact, and which provide essential attributes of PLCs believed to cut across sociocultural boundaries to promote student literacy learning success. Educators are admonished to shake off the culture of isolation that has traditionally characterized their profession, and to form teams in which they can more effectively scrutinize their practice, ferret out the root causes of challenges experienced by schools, derive collective solutions that more closely align their practices with the research, and, ultimately, achieve school, programme, and student success.

The idea seems logical enough; if school principals shake off their traditional "knight in shining armour" conception of literacy leadership and, instead, focus on pooling the intellect and expertise of all in effecting school instructional change, then teaching-learning transformation is possible. A key assumption behind the PLCs movement, derived from current adult learning and professional development research, is that initiatives which adopt an emic (insider) perspective; which are collaborative in nature; and which involve ongoing inquiry, problem solving, and thoughtful, supervised action embedded within the context of authentic educational practice, have a greater likelihood of success than do fly-by training initiatives delivered by those external to the school context (Darling-Hammond & Loewenberg-Ball, 1998; DuFour & Jolly, 2007; Hurd, & Licciardo-Muso, 2005; Kern, 2009; Robinson, Hohepa, & Lloyd, 2009; Senge, 1990).

What though are the essential features of PLCs, and what operation should be instituted to ensure their establishment? Are core elements embedded in the course? What is the extent of student uptake of the attributes and processes? Can student uptake and use of PLC processes be diagrammed?

A Framework for Exploring Key Attributes of Literacy-Focused Schools

In successful schools, PLCs involve more than groups of teachers and coaches or master teachers working to change classroom practice (a frequently-used definition). Stoll, Bolam, McMahon, Wallace, and Thomas (2006) provide a more expansive definition of a PLC, describing it as "a group of people sharing and critically interrogating their practice in an ongoing, reflective, collaborative, inclusive, learner-oriented, growth-promoting way" (p. 223). A body of evidence indicates that PLCs feature more than teacher teams and that, in fact, successful

schools are organized as PLCs at both the macro and micro levels (Birenbaum, Kimron, Shilton, & Shahaf-Barzilay, 2009). Talbert (2010) maintains that schools themselves are PLCs, and that more effective schools feature specific attributes which explain their success in developing student literacy abilities. Table 1 presents the crucial attributes of effective literacy-focused schools, and the research supporting their impact. This outline lends credence to the elements used to guide student rating of course content.

Table 1. Framework for Surveying Core Attributes of Effective Literacy-Focused Schools

Supporting Research on the Attributes of Effective Literacy-Focused Schools		
Key Attributes	**Description**	**Supporting Empirical Research**
Shared Leadership	Successful schools sustain a system of shared, supportive leadership to guide the schools toward desired literacy targets. Leadership is typically rooted in a shared social philosophy (e.g., democratic participation so that principals as well as faculty can assume leadership of teams).	Hallinger & Heck, 2010; Knapp, Copland, Honig, Plecki, & Portin, 2010; Louis, Leithwood, Wahlstrom, & Anderson, 2010
Shared Commitments	Successful schools generate and are guided by shared visions, mission, and policies regarding what instruction should look like and what key literacy outcomes should be. Such commitments ensure an undeviating focus on set targets.	Bottoms & Schmidt-Davis, 2010; Helm, 2007; Wallace Foundation, 2012
Continuous Collective Inquiry	Successful schools maintain a focus on student learning and undertake continuous cycles of inquiry into educational practices. Both data-driven scrutiny and reflective dialogue are valued.	Honig, Copland, Rainey, Lorton, & Newton, 2010; Little, Gearhart, Curry, & Kafka, 2003; Marsh, Sloan McCombs, & Martorell, 2010
Continuous Professional Learning	Successful schools facilitate continuous professional learning and application of learning by both administration and faculty. De-privatization of practice and interdependence are considered essential.	Antoniou & Kyriakides, 2011; Biancarosa, Bryk, & Dexter, 2010; Castle, Arends, & Rockwood, 2008; Vernon-Dotson & Floyd, 2012
Supportive Conditions	Successful schools ensure that supportive social, political, and technical conditions surround improvement attempts. Physical and human capacities are built and sustained.	Leithwood, Steinbach, & Ryan, 1997; Muijs & Harris, 2006

Both the existence of and strength of PLCs in the school setting are important. Several longitudinal studies demonstrate that student achievement tends to vary according to the strength of a school's PLCs, and according to whether the focus of PLC efforts is on all or only some of the above-mentioned attributes. In addition, work on the evolution (life cycles) of PLCs show that while strong, mature, and effective PLCs tend to feature all five attributes, those in the initiation phase tend to focus on vision, values, and norms; and those at the implementation phase focus on student achievement and high expectations (Huffman & Hipp, 2003). Institutionalized PLCs are more likely to ensure that the social philosophy (vision and focus) of a school guides both teaching and learning. It would be interesting to determine whether this evolution is as clear-cut in schools with PLCs operating at different levels simultaneously or in schools with only one core team moving through a sequence of steps. Such exploration must await evolution of a workable multilevel framework of PLC operations suited for guiding empirical research, a key focus of the current study.

A Framework for Exploring Core Leadership Processes

Several models that present key instructional leadership processes exist, each varying in the extent of attention given to the five key attributes as outcomes. The Annenberg Institute for School Reform (ASIR, 2003) PLC model, derived from research in 18 challenging schools, stresses *result-oriented or instrumental processes*, and presents the literacy leadership structure as primarily a tool of accountability put in place to measure and improve learning outcomes by changing teacher practice. Servage (2008) rejects this narrow conceptualization of PLCs, indicating that a focus on "patching up" instruction (*re-formation)* does not facilitate transformation, and that teacher change under this perspective is merely cosmetic. *Transformative thinking* (a focus on changing what educational practice *is*) should form the crux of literacy leadership action so that more than surface changes occur. *Transformation* involves deep, system-wide scrutiny and in-depth critical reflection targeted at the entire school infrastructure as well as wide socio-political realities. Servage claims that because it encourages scrutiny of ambient variables that impact educational practice, and because it welcomes open dialogue and embraces diverse perspectives, transformative thinking is far more rigorous and more likely to foster lasting changes. While the AISR (2004) expressed a later recognition that leadership work is in fact "bolstered by cultural and structural conditions in a school or district;" that change initiatives in which teams of teachers "work outside of

school-wide reform efforts to effect instructional change" do not work; and that various teams functioning at different levels may be necessary (p. 2), Servage still finds the model limited since it ignores societal conditions.

Servage (2008) maintains that effective schools operate within a wider context and, as such, do not keep teachers in a mindset where they scrutinize assessment data independently of social context so as to draw narrow conclusions about the quality of teaching. Through expansion of the discussion of observable outcomes to include conversations on the social and political context in which instruction occurs, teams foster transformation of both the individual teacher and the larger educational environment. Data and practices are never scrutinized independently of context, and emphasis goes beyond mastery of technical skills involved in needs assessment, goal setting, and priority planning, and even beyond attempts to change instructional practice. According to Servage, exclusive focus on shaping pedagogical skills to match assessment results is not transformative and does not promote a "re-visioning" of educational possibilities. What sole reliance on instrumental processes does is reduce PLCs and schools from "complex social and political entities" into mere instruments for controlling people and manipulating environments (p. 65). Servage claims that educators involved in authentic literacy transformation "reflect critically upon both their own actions and the social and policy context in which these actions are framed" (p. 66).

Walker (2008) had addressed the nature of interactions in effective PLCs, stating that, rather than being routine and task-oriented, "discussions are powerful as they involve teachers sharing their perspectives on what and why literacy instruction works" (p. 1). Spanneut (2010) indicates, in addition, that a key ingredient in PLCs' operations is reflective rather than restrictive dialogue (p. 101). Apolitical reflection that focuses only on perceived teaching gaps can in no way be adequate, since thinking is limited to what the data seem to show and to implementation of only a narrow set of tasks geared at achieving short-term gains. In effective PLCs, thinking goes beyond routine activities as teams explore deeper issues. Servage (2008), whose sequence of operations form part of our analysis framework, as does that of the AISR, maintains that placing a ceiling on what can be targeted for reform by literacy leaders may foster "egregiously short-sighted" and "strategic blindness" that results in schools being locked into "dysfunctional patterns that actively work against change" (p. 70). Servage's sentiments mirror those of Friere (cited in Friere & Macedo, 1987). Friere indicates that one really "cannot conduct literacy work outside the world of culture" since "every time that education questions itself, in response it finds itself in the

larger body of culture" (pp. 34–35). Where practitioners converge to address the dilemmas of literacy education, talk must explore more than just instructional variables that are easily observed. Contextual variables, as well as social and political realities, must also be explored.

Transformative practice can contribute much to fostering a collegial atmosphere built on openness and candour, even as it ensures that practitioners appropriately consider the wider societal context in problem solving. Still, it is only when the two models (*instrumental or result-oriented* and *transformative thinking*) are considered along with Bhola's (2006) model of *systems thinking* that we come close to achieving a comprehensive model of leadership processes capable of fully accounting for key attributes of effective *literacy-focused schools* (herein used to denote those schools that acknowledge literacy as the foundation of the curriculum and the basis of all student learning).

Bhola (2006) maintains that the literacy infrastructure in a school comprises many subsystems that must work in tandem if the total system is to work well. Weaknesses in one subsystem can undermine the whole structure, and maintaining focus on only one or a few subsystems can result in blind spots that may render initiatives ineffective. The model forces us to look at literacy problem solving in a more expansive way. As Giles and Hargreaves (2006) maintain, when engaged in systems thinking, leaders are "able to see the 'big picture' of their organization and understand how parts and whole [are] interrelated and how actions in one domain create consequences in another" (p. 126). Research studies by Birenbaum et al. (2009) support the need to undertake inquiry at the student, organizational, and programme level, not just as the instructional level (p. 131). It is for this reason that we combine understandings from the three frameworks—AISR's (2003) instrumental processes; Bhola's (2006) systems thinking processes; and Servage's (2008) transformative thinking processes—in framing the multifaceted conception of core PLC processes that we use to analyse forum problem-solving data in this study. To do this, descriptors of procedural steps from each model were extracted and used to create the framework presented in Table 2. Codes to drive deductive analysis of forum data are included in the framework, and steps for generating these are discussed in the methodology section.

As can be seen from Table 2, the models seem complementary rather than at odds, and we combine all in our exploration of interaction in the forums and look at the data from multiple angles. Hamersley and Atkinson (1995) refer to the process of examining data through multiple lenses as "theoretical triangulation," in which a researcher subjects the data to analysis using "multiple perspectives" (p. 181).

Table 2. Framework for Examining Leadership Processes

The AISR's (2004) Model of Instrumental Processes (PLCs as Management and Accountability Tools)		
Element and Codes	**Thinking Process Driving Action**	**Attributes as Outcomes**
Need/Goal Assessment (GA)	What achievement-based issues and dilemmas does the school face?	Focus on Learning
Priority Setting (SAP)	What key priorities can we identify given all the learning problems students face?	Focus on Learning
Teacher Self Study and Strategy Discussion (RS)	What can we learn from the literature to ensure that we fill key gaps in teaching and learning?	Continuous Professional Learning (from reading the research)
Collective Professional Learning (CPL)	What should be the focus of teacher learning if achievement issues in key focus areas are to be addressed?	Continuous Professional Learning (in teacher teams)
Classroom Observation and Further Need Identification (CCA)	What do outcome data reveal about the impact of teacher learning on student literacy outcomes?	Focus on Learning
Bhola's (2006) Model of Systems Thinking (PLCs as Instruments of Scrutiny and Evaluation)		
Element and Codes	**Thinking Process Driving Action**	**Attributes as Outcomes**
Ideological (IS)	What philosophies, beliefs, values, and attitudes pervade the context? How might these have influenced teaching-learning efforts?	Shared Commitments: Social/Leadership Philosophy; Focus on Learning
Policy and Planning (PPS)	Have stakeholders collectively generated commitment statements (visions, missions, and literacy policies) that convey the organization's mental image of effective practice? Do these need to be put in place?	Shared Commitments: Mental Model of Effective Instruction
Mobilization (MS)	How successful has leadership been in garnering stakeholder involvement? What can be done to improve this?	Shared Commitments: Key Stakeholders

Institutional and Organizational (IOS)	What administrative structures are in place to support reform initiatives? Do these need to be augmented?	Supportive School Conditions
Professional Support (PSS)	What training and support apparatus are available for honing teacher expertise within classrooms? Are they adequate?	Continuous Professional Learning; Supportive School Conditions
Programme and Curriculum Development (CDS)	Do instructional frameworks and curriculum match with the school's mental image of effective practice? How can we improve this match?	Focus on Learning; Shared Commitments
Material and Media (MMS)	Do teaching-learning resources match our mental model of effective instruction? How can we improve this match?	Focus on Learning; Supportive School Conditions; Shared Commitments
Evaluation System (ES)	Do evaluation procedures fit with our mental model of effective instruction? How can we improve this match (in tools used, their focus, and how results are used)?	Focus on Learning/Collective Inquiry into Practice
Teaching-Learning (TLS)	Does what happen in the classroom match with our vision and mental model of instruction? How can the connection be strengthened?	Focus on Learning; Continuous Professional Learning
Servage's (2008) Model of Transformative Thinking (PLCs as Contexts for Critical Thinking)		
Element and Codes	**Thinking Process Driving Action**	**Attributes as Outcomes**
Articulate Need for Transformation (FT/SPC)	What variables in the environment external to the school impact our practice?	Supportive Conditions; Shared Commitments; Collective Inquiry
Variant Perspective on Ambient Variables (VCP)	Is there democratic participation of supporters as well as naysayers? Are all stakeholders' views and positions represented?	Supportive School Conditions; Shared Commitments
Respectful, Active Listening	Do members listen respectfully to all, including those with different views on causes, actions, and outcomes?	Supportive School Conditions; Shared Commitments
Critical Reflection – Expose Gaps in Thinking (BST	Do members evaluate and expose blind spots in each other's and their own thinking in respectful ways?	Supportive School Conditions; Collective Inquiry into Practice
Reasoned, Collective Solutions/Insights (RCS)	Whose ideas form the basis of final conclusions? Are biases in whose perspectives are used evident? What well-founded conclusions can be reached regarding viable actions?	Supportive School Conditions; Shared Commitments

Methodology

In answering key questions regarding whether the 15-week graduate-level literacy leadership course addressed key attributes and processes, a group of 60 leadership candidates were surveyed and their text-based interactions in online forums analysed. The researchers, while viewing the study as rooted primarily in grounded theorizing, resisted the urge to pigeonhole the research into a specific typology (especially given its multifaceted nature), viewing it instead as a living entity that evolved as the study proceeded. Maxwell (2008), in discussing qualitative research design, warns that "typologies are usually based on a limited number of features of the study, and by themselves do little to clarify the actual functioning and interrelationships of the component parts of a design" (p. 214). Further, Maxwell perceives "analysis as a part of design" and as something that also needs to be designed (p. 214). Thus, a mixed method design drove data analysis, and involved use of: (1) survey data, including both descriptive and inferential statistics, to gather insights into course design and delivery, and to understand levels of connectedness among key attributes; and (2) classical content analysis, with combined inductive and deductive analysis (using semi-structured componential or conditional matrix), to generate a model of PLC interaction.

Sample Selection and Data Reduction

A nested sampling design was utilized, which involved targeting all students in soliciting survey data, followed by selective sampling (bolstered by UWIOC's random assignment of students to forum groups) in determining the unit of analysis (the learning forum); the depth of analysis (only graded forums); the breadth of analysis (Forums 1, 2, and 3 only); and in selecting forum informants (one group per forum). Finally, highly selective sampling (sampling within cases) was used during microanalysis of the data, so that the researchers could zero in on specific cases for further deeper scrutiny when patterns of frequency in the data prompted this. Hammerlsey and Atkinson (1995) support the use of selective (as well as highly selective) sampling, but state that there should be "adequate representation of the people involved in a particular case" (p. 49). Thus, initial random assignment of students to forum groups was essential. This is because, even though generalizability to the wider population (statistical generalizability) was not a goal, the researchers had to ensure that, if a tentative model of interaction was derived, understandings from that model could be extended to cases in the other forum groups that were not included in the analysis for a specific forum (analytical generalizability or transferability). For

information on this distinction see Maxwell (2008). For further support for discriminant or highly selective sampling in coding and theorizing in qualitative studies, see Straus and Corbin (1998, p. 211). The random sampling in the nested design was essential for reducing the data while offsetting key informant bias (Leech & Onwuegbuzie, 2008).

To select forum informants, the researchers placed group/instructor labels in one box and the forum labels (1 – leadership; 2 – data; 3 – professional learning) in another. Forum type and group selected together were matched and a number assigned based on the forum label. Thus, all groups are represented. It seemed fitting to use graded forums as the *unit of analysis* since (a) participation in these forums was extremely high, (b) the coordinator (one of the researchers) did not participate in or grade these forums, and (c) the forums coincided with units in which candidates across groups problem-solved similar real-life issues. UWIOC directives are specific regarding course coordinators refraining from engagement in group forum discussions, thus researcher bias was not deemed a real issue (Onwuegbuzie & Leech, 2007). Forums attached to Modules 1, 2, and 3 were deemed adequate selections for the purpose of the study, since the action dimension of Module 4 had already been covered in the first three forums as a natural part of addressing school conditions each time problem solving surrounding leadership, learning, and instruction took place. This is a prerequisite established in the research and in the process models used to drive inquiry.

The researchers aimed to address threats to validity through initial theoretical triangulation; the garnering of use of "rich data;" comparison of qualitative outcomes with quantitative outcomes; comparison of statistical modelling (Factor Analysis with Varimax rotation) and qualitative modelling (macro- and micro-analysis); use of feedback from the survey as a form of indirect member check (*respondent validation*); and comparison of data from this group with data from a subsequent group as part of follow-up reliability scrutiny.

Instrumentation

A brief questionnaire (based on attributes of literacy-focused schools) and a semi-structured matrix (based on key processes) were used to analyse the data. The questionnaire, devised to facilitate the surveying of course participants, had three sets of items. Items 1 and 2 collected demographic data, while Items 3 to 7 collected data on the extent of course attention to the five core PLC attributes. A final open-ended question sought additional comments. Participants used the questionnaire

to rate the course according to whether its content and assignments met the Gold, Silver, Bronze, or Copper Standard for each attribute:

- To meet the Bronze Standard, the course had to at least have conveyed concepts linked to the specific PLC attribute (e.g., shared leadership).
- To meet the Silver Standard, the course had to have also provided guidelines for implementing PLCs' operations to institute that attribute (e.g., establishing a literacy leadership team).
- To achieve the Gold Standard, the course had to have, through its assignments, required students to apply concepts, procedures, and guidelines to action (e.g., propose a research-based team for a specific school or critique an established one; propose a training plan for the literacy leadership team; develop protocols to guide a team's action).
- For the Copper Standard, the course would have neglected to teach key principles, to outline related procedures, and to engage students in concrete tasks related to instituting the specific attribute.

There is a solid rationale for focusing on candidates' ability to display knowledge of research-based practices, engage in such practices themselves, and guide others in implementing them. The International Reading Association's *Standards for Reading Professionals* (2010) establishes a need to focus not only on what literacy instructional leaders know, but also on whether they "can do, can support, and can lead." Thus, candidates must show that they understand effective practice, can implement them in the schools in which they are based, and can distinguish effective from ineffective practice in the work of others. These requirements match the rating scheme used in the survey, and item categories are mirror images of research-based attributes of PLCs into which key processes are then embedded.

The matrix (devised using levels of processes in Table 3) was considered semi-structured since levels and categories were not deemed a finite list, but could be augmented during data analysis. The matrix initially contained three major levels (macro conditions) matched with the three models of PLC processes initially used. Each level contained subsidiary elements (micro conditions) matching the sub-processes (steps in undertaking the process) or elements of scrutiny as described by the proponent of each model. Strauss and Corbin (1998) maintain that in grounded theorizing, that is, in "building a systematic, logical and integrated account" of a phenomenon, the researcher's quest to "understand as much as possible" about that phenomenon—"its

properties and dimensions, its structure, or its processes"—must involve "locating [the] phenomenon contextually within the range of macro and micro conditions in which it is embedded and tracing out the relationships of subsequent actions/interactions through to their consequences" (pp. 181–183). The writers promote the matrix as a practical means for "tracking" components and for tracing "paths of connectivity" (p. 182). Thus, the matrix seemed a logical tool to monitor engagement in key processes.

Data Collection

An email invitation, with a unique link for each candidate, was sent via *surveymonkey.com* (an online survey development, distribution, and collation tool). The researcher recognized that course outcomes and the grade students received for the course could potentially influence their ratings, as could their level of engagement in the course. Still, participation levels were high, as noted in forum participation grades assigned by group facilitators (an average score of 21 out of 30 points) and in demographic data collected. Students were also reminded of the value of their ratings for improving the quality of literacy leadership training in the Caribbean, and were, as part of the survey instructions, directed to use only knowledge of course content to inform their ratings. Students' anonymity was ensured by their being sent the web link to the survey, and by their being alerted within the email itself (a requirement of the tool without which the message cannot be sent) that they had only to click a specific link provided to opt out of the study. In cases where students clicked the link to opt out (and some did), the system automatically removed them from the participant list.

In processing the data for the content analysis, the researchers downloaded text-based conversations from the forums, after which dates and other identifiers (including hyperlinks) were manually removed to ensure anonymity and confidentiality. Other than this, no further structuring of data was required. Both macro and micro analyses were then conducted on the data.

Data Analysis

Data analysis was done in two main stages. While percentages (derived by the web tool used) based on student ratings were downloaded, and results for Items 3 to 7 used as the basis for determining the level to which candidates perceived the course to have addressed key attributes, classical content analysis with elements of componential and taxonomic analysis was used to process the conversational data. Leech and

Onwuegbuzie (2008) cite classical content analysis (CCA) as an "objective, systematic and quantitative description of manifest content of communication" indicating that this method is appropriate for processing "talk data" (p. 596). The writers state additionally that CCA can be combined with other analytical and statistical techniques, and that both inductive and deductive coding can be used, although the latter is more common (see also Elo & Kyngas, 2007).

Combined deductive and inductive coding allowed for generation of frequency data for each of the categories and subcategories in the semi-structured matrix. Deductive or closed coding, on the one hand, allowed for use of predetermined categories (components) in the matrix to process the data and to determine the extent of match between research-based processes and those reflected in the conversations. Inductive or open coding, on the other hand, allowed for extraction of emerging insights from the data. Pursuing both data methods simultaneously raised the possibility that a tentative model which confirms, extends, or refutes those presented in the research could emerge.

Precedence exists in the work of Elo and Kyngas (2007) for using classical content analysis—involving a combination of deductive and inductive coding—in "analysing written, verbal or visual communication messages" (p. 107). The researchers provide specific procedures for conducting such an analysis, stating that its use is ideal when the ultimate goal is theory or model generation (p. 110). The procedure they outline and deem useful for researchers aiming "to identify critical processes" (p. 108) comprises three phases: preparation, organizing, and reporting.

In the **preparation phase**, the researchers selected the unit of analysis (the graded learning forum) and decided what to analyse, in what depth, with what breadth, and with whom.

In the **analytical phase**, inductive and deductive coding processes were initiated simultaneously. Codes had been derived for the matrix categories so that manifest content of forums could be analysed, even though latent content (implied meanings) was duly noted. Using the semi-structured matrix, the researchers independently read and coded the data to determine the extent of connect between processes from the literature and those engaged in or referenced by students. The structured nature of the matrix allowed for linkages to be made between authentic forum data and the coding components, and for codes to be grouped into thematic categories. The matrix's open-endedness allowed the researchers to remain receptive to the possibility that new categories could emerge as analysis progressed.

Using the *Review* function in *Microsoft Word*, the researchers then added annotations to the data using these codes, deriving new codes for

emerging concepts. The researchers looked for instances during problem solving in which participants referenced specific evidence-based PLC attributes or processes as essential, engaged in such processes, or cited a process as having been neglected in a case. Codes had to be generated for new categories and the matrix continually modified as analysis progressed. Modifications were appropriately tracked. As such, one new level of processes accounting for instructional coaching was added, and a subsidiary element (cross-context comparisons) was added to transformative thinking.

Once the data were coded, the researchers compared notes and used cross-comparisons to question, eliminate, re-label, or confirm notations until consensus was reached. Since a very streamlined framework was used, there was much consensus in terms of categories. The next step involved deriving count data from categories and subcategories, and generating conclusions regarding the extent of match between research-based categories and the data. A tentative model was generated from the findings, follow-up reliability and factor analyses conducted to affirm findings, and a final search of the literature conducted to see whether models exist that adequately account for processes and connections observed.

Once this process was completed, the researchers proceeded to present findings and to propose a tentative model of leadership that emerged out of interaction among Caribbean literacy professionals under expert guidance—one that matched the data and could be the focus of later confirmatory research.

To garner peer feedback and critique, and to ensure methodological rigour, the researchers undertook the **reporting phase** by presenting the paper at various conferences. In this way, the researchers got feedback from practitioners, teacher educators, and policymakers in refining the paper for publication.

Findings and Discussion

Reliability Analysis, as well as Factor Analysis with Varimax Rotation using SPSS Version 20, was conducted to determine the internal consistency and dimensionality of student response on the survey tool. Reliability analysis using Cronbach's Alpha for the 5-item scale revealed a reliability level of $\alpha = .74$. This level is considered respectable (DeVellis, 1991) or acceptable (George & Mallery, 2012, p. 251). Results further indicated that if Collaborative Inquiry, the only item showing an inter-item, inter-scale correlation below .3 were removed, the scale reliability could be considered good ($\alpha = .8$). Factor analysis was

conducted, therefore, to determine whether the scale was uni-dimensional or, as in most education-oriented scales, multi-dimensional.

Prior to the factor analysis, non-parametric tests were conducted to determine the normality of the data. Both the One-Sample Kolmogorov-Smirnov Test and the One-Sample Chi-Square nonparametric tests were automatically selected by PASW Statistics in undertaking these tests on the five items. Results revealed that the null hypothesis regarding non-normality could be rejected for Items 4 and 5 (p = .000), and the hypothesis regarding non-equal probabilities in occurrence could be rejected for Items 1, 2, and 3 (p = .000).

Factor Analysis with Varimax Rotation (using a .4 extraction criteria) revealed the following factor loadings: Shared Leadership (SL = .50); Shared Commitments (SC = .75); Continuous Professional Learning (CPL = .50); and school conditions (SC = .72). All these formed one component, accounting for 61% of the variance in student ratings. Collaborative/Collective Inquiry (CI = .35) was revealed to form a potentially separate but closely related construct, after rotation. The results for collaborative inquiry seem logical since, while the other attributes focus on creating conditions conducive to teaching and learning improvement, collective inquiry seems evaluative in nature.

To verify that the same results would be obtained using the scale with a subsequent group, the researchers sent out the unadjusted survey to the current (2012) group enrolled in the same course. Forty of 61 students responded to the survey after three promptings. Results for the two were comparable (α = .722; factor loadings: SL = .67; SC = .92; CPL = .46; SC = .71. Collaborative Inquiry (CI = .60) loaded onto a separate component).

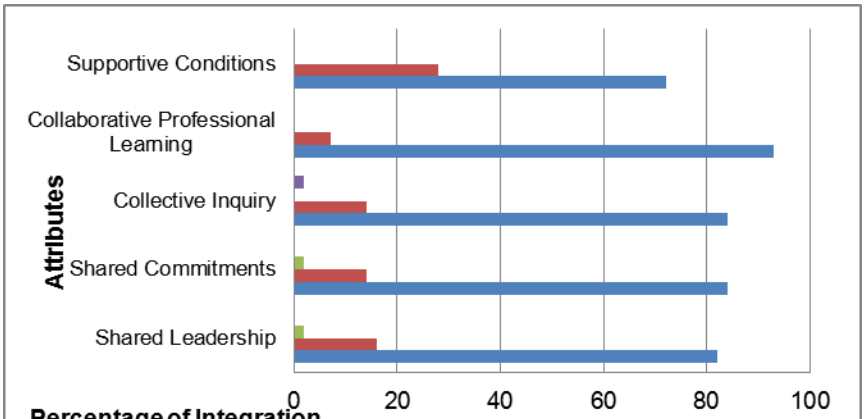
An Independent Samples T-test run using both groups revealed equal variances between the groups (p = .30; .77; .09; .14; .30, respectively) on all five items, and no significant differences in ratings (p = .48; .80; .40; .47; .48, respectively). Findings will have implications for the model derived using qualitative data, and will serve to provide what Hammersley and Atkinson (1995) refer to as *respondent validation* for the qualitative data, that is, for an indirect member check in which the researchers compare "inferences drawn from one set of data forces" using "data from others" (p. 198).

Research Question 1

To what extent did candidates believe the course addressed core leadership attributes and processes?

Results from the survey and analysis of conversations indicate that the course did, in the eyes of candidates, address key PLC attributes and processes to a large extent. A total of 40 candidates (67%) and three instructors completed the rubric. Only student ratings were used. Items 1 and 2, which collected demographic and participation data, showed that, of the 40 candidates that participated in the survey in the first course offering, 84% had read all materials and 86% had participated in all forums. All students (100%) participated in the graded forums. Additionally, 86% had viewed all video resources. On Attribute A (Shared Leadership), measured by Item 3, 82% of students rated the level of exploration of the attribute at the Gold Standard, indicating that the course taught principles and procedures as well as engaged them in school-based problem solving involving the attribute. For Attribute B (Shared Commitments), 84% of students rated the course at the Gold Standard. On Attributes C (Collaborative/Collective Inquiry); D (Collaborative Professional Learning); and E (Supportive Conditions), rating at the Gold Standard was at 84%, 93%, and 72%, respectively. Only two respondents completed the open response question soliciting additional comments and both lauded the course as exemplary, though rigorous. Figure 1 shows ratings at the Silver, Bronze, and Copper levels for each attribute.

Overall, between 72% and 93% of participants felt that the course had conveyed key attributes at the Gold Standard. The majority of students believed that the course prepared them to understand and apply knowledge of PLC attributes, even though greater adherence to principles of collective action and greater attention to school material conditions (Attribute E) were needed. In terms of calls for better conditions, it appears that students felt that more than school conditions should be addressed during inquiry and strategic planning.



	Shared Leadership	Shared Commitments	Collective Inquiry	Collaborative Professional Learning	Supportive Conditions
Copper	0	0	2	0	0
Bronze	2	2	0	0	0
Silver	16	14	14	7	28
Gold	82	84	84	93	72

Figure 1. Extent of integration of core leadership attributes into the leadership course.

Research Question 2

To what extent is awareness of attributes and processes evident in problem-based conversations in key learning forums?

Analysis of the conversations indicates that candidates did display knowledge of, and in fact continually invoked or engaged in, key leadership processes, including the newly emerging process (*Teacher-Oriented Coaching Processes*). Candidates referenced a broad spectrum of PLC processes as they problem-solved and interacted in the selected forums. The findings from all three forums are presented in Figure 2. Note that Forums 1 and 2 have similar data patterns, which prompted further scrutiny.

Forum 1 examined interaction among the 19 candidates in Group 1. The group was presented with a case in which a school district attempted to establish a literacy leadership team, termed the *literacy faculty*. Participation of specific members of the school community was mandated and the staff resisted. While the initiative varied in effectiveness across contexts, the initiative itself teetered on the brink of failure. The case is quite reminiscent of a similar effort in the CCETT project, with which candidates were quite familiar. They could therefore draw on knowledge of the project's realization in their context. They

could also reference research-based principles and procedures for establishing teams as presented in Modules 1 and 2, as well as on available video vignettes. Since students had only been exposed to the modules on framing the instructional context and shared leadership, it was expected that focus would be on these. What was not clear was whether elements from other models of leadership processes would be evident.

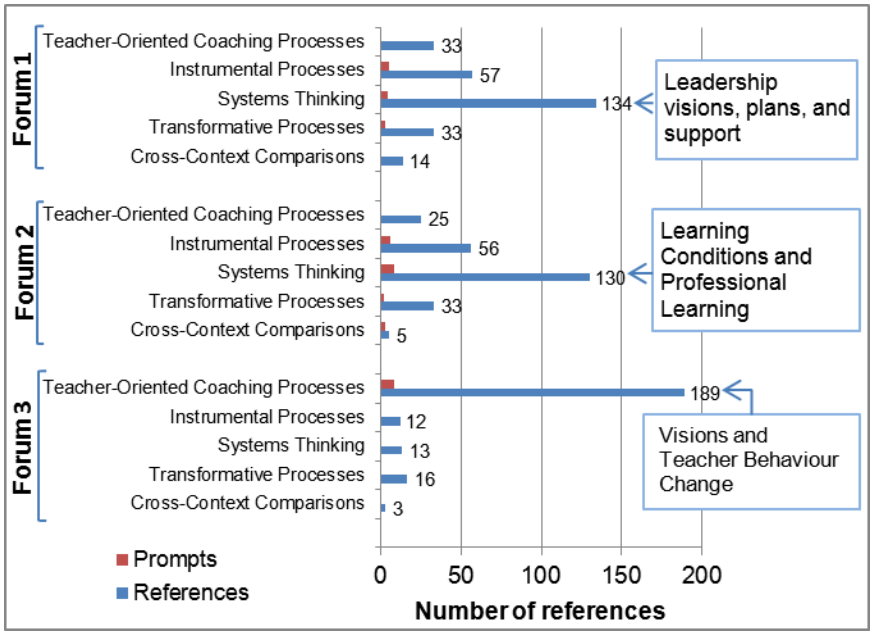


Figure 2. Number of reference to key processes in problem-based conversations.

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modules on framing the instructional context and shared leadership, it was expected that focus would be on these. What was not clear was whether elements from other models of leadership processes would be evident.

Based on frequency counts from Forum 1, candidates made 130 references to *systems thinking*, 56 references to *instrumental processes*, and 33 references to *transformative thinking*, indicating that references were spread across the three areas but rested more with failure to adequately engage in system thinking. An additional element (cross-context matching) appeared to emerge, as candidates, who were spread across six different countries and nine different sites, sought to identify whether issues were spread across the different locales and were fundamentally the same. This element was later treated as a sub-process of transformative thinking since it involved examining the wider context beyond the school.

Since the majority of references involved *systems thinking*, the researcher wanted to find out what specific elements of the school infrastructure (the subsystems as described by Bhola, 2006) candidates identified as problematic. By far, problems with the institutional and organizational system (core leadership), ideology, stakeholder mobilization, and professional support were the most cited problems. A breakdown of references is provided in Table 3. Categories are ranked based on extent of reference, and sample quotes are provided to demonstrate the focus of thinking.

As can be noted from Table 3, comments seemed weighted toward lack of a common mental model of effective instruction, failure to mobilize parties to the vision, and limited supports as orchestrated by school leadership. References plummeted for classroom-related categories, suggesting that candidates perceived these as less crucial for this issue. All in all, processes outlined in all PLC models were represented in conversations quite early in the course, though focus was consistent with that of a team in the initiation phase of the PLC life cycle. While facilitators prompted for all processes, the majority of comments centred on the ideology, visions, and supports.

Forum 2 took the form of an online data retreat. In subgroups, the 23 candidates in Group 2 (spanning 8 countries and 11 sites) examined literacy performance data for a 3rd grade class. Candidates worked on student performance data to identify learning need areas or priorities that would drive strategic action plans they would later create. Protocols made it clear that teams had to derive priorities linked to the needs of all learners, had to isolate related professional development needs, and should pinpoint needed training provision, resources, and supports.

Results from the analysis revealed that systems thinking retained its primacy (134 references), although emphasis had shifted from leadership ideology, vision, and supports toward categories more aligned with teaching and learning. As soon as need areas were determined, teachers tended to shift attention toward scrutiny of testing tools and procedures, curriculum and teaching-learning framework, the nature of the population served, and the quality of resources available. This was evident in the order of numberings used in entering count data into the matrix, in which 1 was the first element referenced and higher numbers being subsequent references. Table 4 depicts the shift in emphasis of systems thinking in Forum 2 toward instructional rather than school leadership variables.

It seems apparent that, in Forum 2, priorities in systems thinking shifted so that there is intense focus on supportive conditions (resources) and continuous professional learning, with some attention to the impact of school vision and social variables on teaching-learning outcomes. Focus seems consistent with that of a team in the implementation phase in the PLC life cycle.

Forum 3 addressed teacher professional affect and response to instructional change. Candidates were given the case of an ineffective though confident novice teacher who resisted the specialists' effort to provide guidance in effective comprehension instruction. Candidates were required to suggest ways of applying understanding of change leadership in guiding the teacher toward closing gaps between current instructional delivery and evidence-based practices.

Once coding began for the forum, which featured the 18 candidates in Group 3 (spanning 7 countries and 11 sites), the researchers recognized that further categories, or perhaps a new level of PLC processes, were needed to adequately account for the data. It appeared that processes involved in working with teachers and in moving them toward autonomous instructional change were too complex to be simply lumped under the continuous professional learning subcategory under instrumental processes. No model used up to that point adequately accounted for comprehensive coaching, cited by the International Reading Association (2010) as being the crux of the literacy leader's role.

Since much of what students mentioned in the forum centred on teacher thinking and behaviour during coaching attempts, the researcher delved more deeply into the notion of cognitive coaching (Costa & Garmston, 2002). The model cites two key assumptions that should drive coaching action, five states of mind that affect a teacher's response to impending instructional change, three communication tools that are vital

if coaches are to work well with teachers, and three coaching goals that should guide action. Coaches must assume that "invisible thought processes drive the overt skills of teaching" and that as "enlightened, skilled colleagues" they can [mediate] a teacher's cognitive processes as well as their behaviour (Costa & Garmston, 2002). The first assumption raises coaches' awareness of the crucial need, before implementing change, to understand what teachers think about their practice. Coaches must understand teacher thinking in five areas: efficacy, flexibility, perception of craftsmanship (quality of work), consciousness of evidence-based practice, and propensity for interdependence with colleagues (the five states of mind). Coaches must be able to communicate well with teachers so that they can ultimately achieve the three main behaviour change goals (promote trust and reduce resistance, guide collective professional learning, and facilitate autonomous change in practice).

Owen (2005) supports Costa and Garmston (2002), indicating that attempts to improve teacher collective practice (and ultimately student learning) must focus on changing the way teachers think, as well as the way they teach (two key foci of action). Research by Green and Etheridge (2001) and by Hanley, Maringe, and Ratcliffe (2008) support this; the latter researchers indicating that "changing teachers' beliefs and changing their classroom practice is more of a cycle, where each reinforces and provides impetus for the other" (p. 712). Hanley et al. do not therefore assign primacy to one or the other. The researchers decided to add a new level of processes, coded "Teacher-Focused Coaching Processes" (TCP), and to place under this two subcategories: Understanding States of Mind (USM) to capture thinking and communication tools, and the Continuous Professional Learning (CPL) label from instrumental processes so as to capture efforts to change practice and affect. This new category would combine well with instrumental action, and with transformative as well as systems thinking, and allow researchers to retain a unified, multidimensional framework.

When the case involved problem-solving teacher response to change efforts, attention centred on teacher-focused coaching processes (189 references), which essentially overshadowed the other processes. As such, only limited attention was given to instrumental processes (12 references) and to systems thinking (13 references). Emphasis in this case was on the impact of failure to change on the teaching-learning system ("*The students' ability to attend to comprehension skills will be adversely affected if changes are not made"*). Some consideration was given to wider societal forces in dealing with teacher resistance. Since this was a male teacher, candidates were concerned that using the wrong

approach might negatively affect the retention of male role models *("…it is very important that the teacher is not offended. Young vibrant male teachers are desperately needed …")*.

When the teacher-oriented coaching comments were disaggregated, as done with dominant processes in the other forums, scores were almost equally distributed between understanding what teachers think about their practice and influencing how they teach (USM, 97; CPL, 92). Under CPL, much emphasis was on building teacher knowledge through exposure to the research on evidence-based practices, first in workshop settings then through collaborative, classroom-embedded coaching. Candidates did indicate that differentiated coaching was often necessary (and could complement collaborative coaching). Importantly, candidates recognized that understanding and changing teachers' thinking was essential in getting them to exercise volition in changing practice. Two of the five states of mind (efficacy and perception of craftsmanship) were cited as more potent, or perhaps more primary, than the other three.

The level of discussion in the forum reflected the working of a team in the institutionalization phase of PLC, as focus was on the fit between the school's teaching visions and instructional practice. Samples from the problem-solving conversation are presented in Table 5, and matched to themes and key attributes.

Some reverse coding had to be done to account for this new coaching category in Forums 1 and 2. Maxwell (2008) indicates that qualitative research should be reflexive with "later steps connecting back to earlier ones" (p. 214). Hammersley and Atkinson (1995) maintain also that "analysis of data is not a distinct stage," and support what they refer to as *iteration* (moving back and forth between data generation and analysis) and *reflexivity* in processing qualitative data under specific conditions: when data "to check a particular interpretation are missing or the typicality of crucial items of data cannot be checked, or some of the comparative cases necessary for developing and testing the emerging theory have not been investigated" (p. 174).

Table 3. Distribution of Comments in the Dominant Category in Forum 1

Categories, Codes, and Frequency	Sample Quotes	Themes	Related Attributes
Institutional and Organizations System (IOS) – 24	"*…there seemed to be lacking in the necessary skills to function effectively as a team"* *"… the principal, who should be a key member of the group, was left out in the planning"* *"…principals should consider building a literacy team with individuals who represent different perspectives, grade levels and job responsibilities"* *"There were no follow up meeting(s)..."*	Team composition and cohesion; how administration organized its work; material support	Shared Leadership and Supportive Conditions
Mobilization System (MS) – 23	"*...the vision needs to be understood, articulated and owned by the whole school"* *"teachers were not willing …and felt forced to participate"* *"In schools where the program was successful there was also a high level of community and parental involvement"*	Ownership of the vision; stakeholder mobilization	Shared Commitments
Professional Support System (PSS) - 23	*"Most teachers and principals were thrust into it without prior knowledge or training in executing a literacy development plan"* *"Was it enough to ask them to do research on a particular area of literacy instruction that they would then have responsibility for it in the PD sessions?"* *"The members of this team should possess literacy expertise as well as leadership skills"*	Training in leadership and and literacy for faculty and administration	Supportive Conditions

Categories, Codes, and Frequency	**Sample Quotes**	**Themes**	**Related Attributes**
Ideological System (IS) - 22	"*Faculty should not be forced to become the member of the team…principals should not build their teams at gun point"* *"…schools had different problems and as such different literacy goals"* *"A single document was inadequate …"*	Ideology informing leadership team formation; match between initiative and context	Shared Commitments; School Conditions (Extra-Contextual Considerations)
Policy and Planning System (PPS) - 20	*"…the absence of a school literacy policy [meant] there was no central area of focus"*	Policies and plans driving the initiative	Shared Commitments (Visions, Missions and Policies)
Teaching Learning System (TLS) - 8	*"Literacy policies serve as the foundation for literacy efforts to use proven practices and to maintain congruence among and across curriculum, instruction and assessment…"* *"the absence of a school literacy policy meant there was no central area of focus by teachers, therefore teachers taught aspects of the curriculum they were comfortable with"*	Classroom variables; programme coherence	Shared Commitments
Evaluation System (ES) - 3			
Programme and Curriculum Development System (CDS) - 2			
Materials and Media System (MMS) - 0			

Table 4. Distribution of Comments in the Dominant Category in Forum 2

Categories, Codes, and Frequency	Sample Quotes	Themes	Related Attribute/s
Teaching–Learning System (TLS) - 26	*"…content teachers must see literacy as 'their thing' as well rather than the literacy specialist job"* *"They would need a collaborative staff effort - sharing of best practices"* *"students would need an enriched learning environment where a variety of experiences, strategy and media would assist in improving reading, writing and thinking skills"*	Cross-curricular linkages; material support; curriculuum	Focus on Learning; Continuous Professional Learning; Supportive Conditions
Materials and Media System (MMS) - 23	*"…accessibility and availability of print materials such as 'story' books and other types of text would be limited"* *"The school will need to source texts to provide for both parents and students to read"*	Material support	Supportive Conditions
Programme and Curriculum Development System (CDS) – 21	*"Teachers need more activities and materials that will assist students in developing the skills of critical analysis and evaluation, and other higher order skills"* *"…help students use higher order thinking skills as well as various reading strategies during the reading process"*	Material support; curriculuum	Focus on Learning; Continuous; Professional Learning; Supportive Conditions
Professional Support System (PSS) - 18	*"Staff needs to learn how to form a learning community"* *"Professional development should be provided for staff to support and guide them in delivery of instruction and learning within a balanced literacy framework… to collect*	Collegial coaching; human capailities support; curriculum and assessment; material support	Continouus Professional Learning; Focus on Learning; Supportive Conditions

Categories, Codes, and Frequency	**Sample Quotes**	**Themes**	**Related Attribute/s**
	data and analyze it to feed their instruction and assessment…" *"…Extensive training in literacy for staff"* *"Teachers would need space in terms of classrooms, small group configurations, schedules for interviews and conferences"*		
Evaluation System (ES) - 18	*"Why the imbalance in the number of questions in each section? Faculty need to question the constitution of the SR [selected response] items [on the test]? Did their juxtaposition affect the responses on the MCs [multiple choice items] that follow them?"*	Curriculum and assessment	Focus on Learning
Policy and Planning System (PPS) - 11	*"They will develop a literacy policy for the school targetting students' weak areas"*	Policies and plans; remediation	Shared Commitments; Focus on Learning
Institutional and Organizations System (IOS) – 10	*"…whether nutrition is an issue that has to be addressed so that the students can focus on their work"*	Material support; curriculum	Supportive Conditions; Focus on Learning
Mobilization System (MS) - 5	*"Parents and the community need to be brought up to speed on the new vision of the school that would need their support…"*	Stakeholder moilization	Shared Commitments
Ideological System (IS) -2	*"…education must involve the total health and well-being of the child"* *"Your mention of 'our adopted children' is so touching, so real, especially when you meet very poor children who are motivated to learn. The true 'heart' of teaching"*	Practitioner affect; material support; teaching and learning	Supportive Conditions; Shared Commitments; Focus on Learning

Hence, the researchers returned to the first two forums to search for references to coaching processes in those conversations. The results of this process are presented in Figure 3. Together, activities in the three forums covered the different phases of implementation of PLCs, suggesting that initial selection of only three forums was justified.

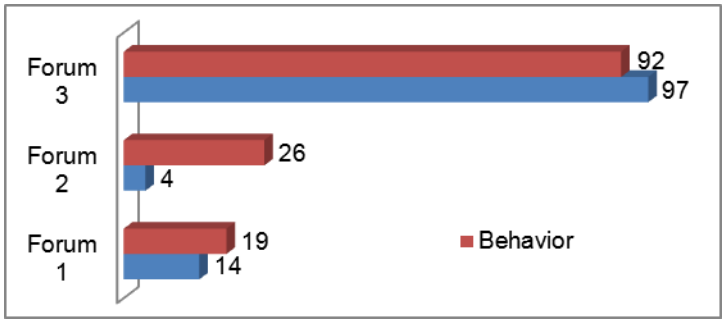

Figure 3. Focus on changing teacher thinking and expertise in the three forums.

Table 5. Distribution of Comments in the Dominant Category in Forum 3

Categories, Codes, and Frequencies	Sample Quotes	Themes	Related Attribute/s
Understanding States of Mind (USM)	*"..adversity inspires creativity and encourages alternative perspectives"* *"Teachers are generally skeptical about others occupying their classroom space"* *"…intrusion on their privacy which can be rather intimidating … reason for the trepidation which is hidden behind the new teachers apparent over confidence"* *"…this depends on the maturity of the teacher and his ability to take constructive criticisms"* *"…it is very important that the teacher is not offended. Young vibrant male teachers are desperately needed in the education system…"* *"… he is confident in his ability and truly feels that he is doing what is needed"* *"Many teachers teach the way they were taught. It may not be the contemporary way or the way that is needed in that situation.*	Specialist's affect and mindset Tradition and isolated practice Teacher affect and reaction Teacher maturity Awareness of practice Effective communication Professional learning climate Taking risks/coaching in groups; group as buffer	Supportive Conditions (Collective) Inquiry – teacher affect/ perceptions Continuous Professional Learning

Categories, Codes, and Frequencies	Sample Quotes	Themes	Related Attribute/s
	However, that is what they know; he doesn't know that he doesn't know" *"reading specialists should be tactful"* *"I would commend him for what he has been doing well, point out obvious strength …and seek engage him in conversations …"* *"using the 'sandwich method'"* *"making him comfortable with having me around; I will then listen to his feedback…"* *"assist members of staff without singling out any one person; encourage him to assess his methods against current research"*		
Collective Professional Learning (CPL)	*"New teachers, like all learners, need different kinds of support at different times in their professional development. As professionals, reading specialists must recognize the novice's changing competence and adjust coaching strategies along a continuum of support"* *"…the teacher thinks that he is doing a good job. There will be a lot of distrust and discontent if the reading specialist should approach him on a one to one basis"* *"the teacher thinks that he is doing a good job. There will be a lot of distrust and discontent if the reading specialist should approach him on a one to one basis"* *"he may feel more comfortable to share ideas and get feedback from his peers"* *"providing content information through literacy content presentations"* *"Study groups will be established…"* *"encourage him to subscribe to a reputable educational journal"* *"provide the teacher with the opportunity to observe a particular teaching method"* *"co-planning in which the teacher will be paired with a teacher at the same grade level"*	Building and maintaining trust Perception of practice – disequilibrium (efficacy, flexibility, craftsmanship, collaboration and interdependence) Continuum of teacher change Group as tool for promoting trust and risk taking Building knowledge/ awareness Peer coaching Awareness; autonomous change in practice	Supportive Conditions Continuous/ Collaborative Professional Learning

Categories, Codes, and Frequencies	Sample Quotes	Themes	Related Attribute/s
	"plan a lesson together and share responsibility; I may also us[e] peer coaching…" *"glean ideas from his peers"* *"teacher gets the opportunity to observe other people doing demonstration lessons that portray good comprehension strategies* *"he will begin to recognize his weakness and be willing to address it"* *"the teacher would learn and develop his craft and appreciate my non-threatening assistance"* *"New ideas, theories and methods are constantly being created as students and the needs of world continue to evolve. Once, my teacher accepts this and opens his mind to a lifetime of learning, he will well be on his way"*		

Research Question 3

What model of literacy leadership interaction can observation of candidates' problem-based conversations reveal?

Hammersley and Atkinson (1995) see model generation as a logical step evolving from macro- and micro-analysis of qualitative data. The writers believe that the progressive searching and focusing done in analysis of the data tend to naturally evolve "from concerns with describing social events and processes to developing and testing explanations," as features of the phenomenon under study start to collect under larger categories (pp. 175–76). The reflexive/iterative process and focused scrutiny conducted on forum data yielded useful insights, which prompted generation of a tentative model of PLC interaction. Importantly, the semi-structure matrix used to analyse the qualitative data proved vital for producing a clear analytical picture; what Strauss and Corbin (1998) in discussing grounded theorizing refer to as "detecting the interplay between conditions, the responses of actors, and the consequences," an essential step in evolving our tentative model (p. 193).

Bolam et al. (2005) had referred to the PLC as "a complex metaphor, one that is multi-dimensional" and needs to be "unpacked" in terms of its characteristics and processes (p. 154). Some of the breakdown of PLC

models (macro conditions) into subsidiary elements (micro conditions) facilitated researchers in the study in conducting the kind of unpacking of PLC processes that Bolam and colleagues deem essential. On the surface, data patterns for processes in Forums 1 and 2 appeared similar—actually mirror images of each other (see Figure 2). Only an unpacking of constituent elements (sub-conditions under systems thinking) could have exposed the fact that the focus of systems thinking in Forum 1 was on leadership ideology, visions, and supports; while the focus in Forum 2 was on training and supporting teachers to advance student learning. In Forum 3, the unpacking of CPL revealed an emphasis on teacher mental image of his own practice, and how that might conflict with the organization's mental image, suggesting possible reasons for resistance to change and impasses in change effort.

Additionally, only this type of unpacking would have revealed that training was needed at three key levels if a PLC leadership frame is to be sustainable: teacher core leadership training (ideology, visions, and supports); training for instructional and assessment improvement; and training in collegial coaching. Findings from iterations are consistent with initial findings regarding a focus on leadership visions, ideology, and supports in Forum 1 and on student learning in Forum 2 (see Figures 4a and 4b). Much of the consideration of teacher perspectives occurs in Forum 3, as was illustrated earlier. The results of iterative analysis for focus on Forums 1 and 2 are presented in Figures 4a and 4b.

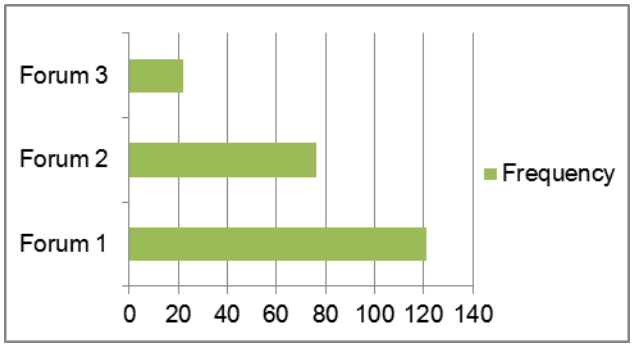

Figure 4a. Focus on 1eadership structures and supports in the three forums.

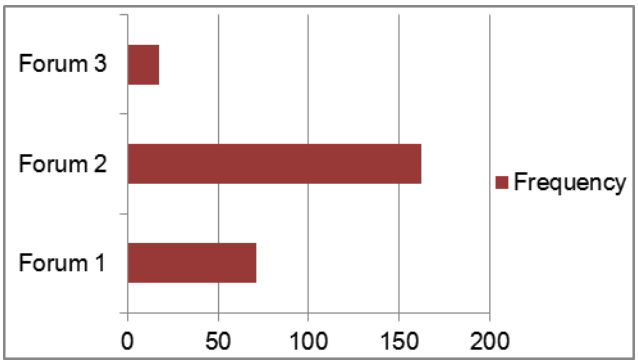

Figure 4b. Focus on learning in the three forums.

No single model of leadership processes explored in the study appeared to adequately account sufficiently for the patterns and connections emerging from forum data, and several models had to be combined in processing the data. An exhaustive review of the research revealed that, although several models exist that cover some elements of the emerging model, no existing model adequately accounted for all elements and connections evident in the data after our systematic unpacking was done. The researchers therefore proceeded to derive a tentative model of leadership processes which, while it contained and reinforced elements of existing models, has its own unique characteristics as arising from interactions among Caribbean literacy professionals. Noteworthy is the fact that although all models of processes used to form the framework for data analysis were represented in each of the forums, some processes took primacy while others were overshadowed. This suggests that no one model could adequately account for all the processes needed in a literacy-focused school preparing for success. Leadership vision, plans, and support is only adequately addressed in Forum 1; teaching-learning and a focus on learning only in Forum 2; and the honing of teacher thinking and practice in Forum 3 only. Clearly, there are connections across the problem-solving contexts as indicated by the fact that all processes were invoked. Still, to cover blind spots in one setting and to ensure due attention to all macro- and micro-conditions influencing school climate and success in promoting student learning, a multilevel model of literacy leadership under the PLC approach must be derived. The model presented in Figure 5 captures this possibility.

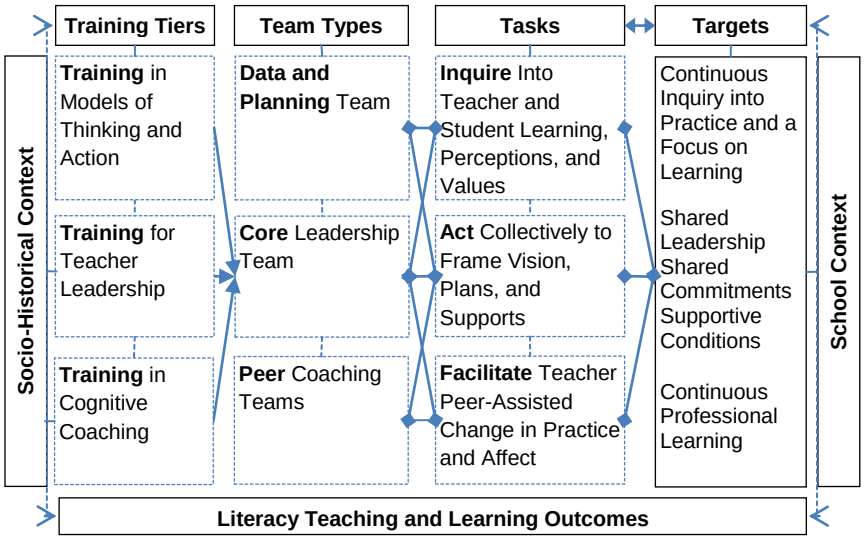

Figure 5. Multi-level (3x3x3) Caribbean Literacy Leadership Model.

Note that evidence from the factor analysis (and from the inter-item correlations for the reliability analysis) done on survey categories (key attributes of PLCs and the processes involved in instituting these, and depicted in Figure 5 as outcomes of multiple processes) does support some level of separation of collaborative/collective inquiry (and, after close scrutiny, continuous professional learning) from the other attributes, even though they all fall within one larger framework of attributes that cohere to create literacy-focused schools that acknowledge their wider settings and work to improve student outcomes.

Conclusion and Recommendations

The following insights and suggestions are directly linked to findings from the analysis and, by inference, to the model presented. The model presents the socio-historical context as buffers for a literacy leadership infrastructure, depicted as a 3x3x3 internal structure that operates to produce the five attributes of effective literacy-focused schools and, ultimately, to improved student outcomes. We link our findings to that 3x3x3 internal structure as we present conclusions from the research as well as recommendations targeted at course designers, teacher educators, school leadership teams, and policymakers.

To achieve the Gold Standard in honing the literacy leadership capacity of Caribbean school-based professionals, a Multi-Level Literacy

Leadership Model that features the following dimensions seems most appropriate:

1. **Training:** Because our findings suggest that training is necessary for successful implementation of a viable leadership structure, we recommend training that:
    a. clarifies the requirements of system, instrumental, and transformative thinking that should inform data and planning teams;
    b. hones leadership visions in a manner that foregrounds democratic participation of practitioners holding different perspectives, and who come from different contexts; and
    c. communicates a need to understand and shape teacher thinking as well as their instructional practice.

    These three training dimensions will then scaffold the interactive processes engaged in by three teams that operate together to influence outcomes.

2. **Teams:** Teams operate on at least three levels in a somewhat funnel (fanned out) structure. There is:
    a. a core leadership team that links what is done in literacy to the overall school mission;
    b. a data and planning team that examines literacy/academic outcomes and sets priorities; and
    c. teacher teams that work on improving classroom practices.

    Presence of administrators (the principal and reading specialist) on all teams prevents the silo effect, where teams work in isolation. Our findings as well as the research indicate that, in ensuring linkages across teams, the principal and reading specialist should be on all three teams, and that there should be a shared vision and mission that binds all teams. Our findings suggest, additionally, that having faculty and administrators from other contexts enriches a team. Also, having different levels of teams operating in tandem may offset sustainability issues and issues related to narrow foci over the life cycle of an initiative. It is clear from our findings that different teams convene for different reasons and tend to focus on different processes, although, together, their actions represent a complete effort at transformation.

3. **Tasks and Targets:** At the outset of a project it is essential to emphasize the end goal—establishment of a supportive context that

features the five core attributes of successful literacy-focused schools and, ultimately, improved student literacy and academic outcomes. Tasks cover levels of thinking and levels of action (presented in other models as phases of PLC implementation). The research and our findings suggest three critical tasks at which teams work as being linked with levels of thinking and team action:

1. Inquiring into outcomes, values, perceptions, and practice
2. Framing and honouring evidence-based statements of commitment regarding improved teaching and learning
3. Assisting teachers (through positive measures) in changing thinking and practice and, ultimately, student outcomes. Our findings indicate that coaching which addresses teacher thinking and action is necessary, and that efforts to change practice must be linked to leadership and student learning by a coherent vision and by the involvement of classroom teachers in literacy leadership

The complex network of interactions between teams and tasks depicted above reflect what Strauss and Corbin (1998) refer to as "multiple and diverse patterns of connectivity and discernible of actions/interactions over time," often evident in pictures emerging from qualitative data. For us, these represent the fact that even though key foci were evident in team interaction, teams engaged in all macro processes at all time, even when specific micro processes were not invoked (p. 188).

The components of PLC emerging from the survey data match well with the findings unearthed from the conversations, suggesting that conversations among Caribbean professionals guided by the research on effective literacy leadership could expose a research-based framework of interaction that matches well with the research, if not with current models.

Final Words

Our exploration of the quality of instruction in the online course Leadership in Literacy Instruction opens up our practice as text, and focused more on what candidates can do. The study was necessary to advance thinking on how we train literacy leaders in the Caribbean. Measuring what we do against what works and linking with what schools need is crucial if universities and colleges are to produce competent literacy leaders. We encourage further exploration of the model we present which, while informed by interaction from trained teachers from

at least 10 countries, could benefit from support from further school-embedded inferential research.

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The Editorial Board of *Caribbean Curriculum* would like to extend sincere thanks to the following persons who served as reviewers for this issue. We truly appreciate their willingness to contribute to the growing corpus of quality educational literature in the Caribbean region through their thorough reviews and cogent comments, despite their heavy work schedules.

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