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RELATING PROFESSIONAL IN-SCHOOL NETWORKS, SCHOOL LEADERSHIP, AND ASSESSMENT DATA TO ACADEMIC PERFORMANCE IN TRINIDAD AND TOBAGO: An Exploration

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In recent years, researchers have turned their attention to the relationship between teacher social interactions and the successful implementation of reforms. The limited research to date has tended to support this relationship, with some research finding significant correlations between teacher collaboration and student achievement. In this study, we use quantitative and qualitative methods to determine the relationship between within-school networks formed around the interpretation and use of the data on the National Tests Report and student achievement, as measured by the proportion of students meeting or exceeding the proficiency standard on the National Tests. The sample comprised 56 teachers from seven schools within an urban school district. Teachers responded to a social network survey and two dimensions on the OCI. Interviews of 15 principals and five focus groups of 31 teachers provided the qualitative data. Findings suggested that a relationship between schools with high collegial trust exhibited deeper collaborative structures and a higher proportion of students performing at standard on the National Tests. These findings have implications for principals and teachers who will need to find ways to maximize the use of within-school skill sets and expertise, especially in a resource-strapped system.

Introduction

In keeping with international trends and the almost universal-wide demand for increased academic achievement levels, especially in the areas of literacy, math, and science, Caribbean governments have been enacting a series of reforms to their education systems with the intent of improving the education outcomes of their student population (Caribbean Education Task Force, 2001; Cassen & Kingdon, 2007; National Center for Education Statistics [NCES], 2011). With this intent in mind, the Government of the Republic of Trinidad and Tobago (GORTT) introduced a number of reform initiatives, among which is the Continuous Assessment Programme (CAP) of which the National Tests

are an integral component (Trinidad and Tobago. Ministry of Education [TTMOE], 1998).

The National Tests are summative assessments taken by all primary level students. Subject areas tested are mathematics and language arts taken in Standard (Std.) 1 (age 7) and Std. 3 (age 9); and science and social studies taken in Stds. 2 and 4. Each school gets a report on each student's performance on the various content strands. From the perspective of the TTMOE, schools are expected to use these data from the assessment to guide their planning, and their curricular and pedagogical decisions in order to positively impact student learning.

Since the introduction of CAP, the GORTT has run a number of professional development workshops for teachers on the interpretation of the data. Yet, the fact that after more than 10 years there is no evidence that schools effectively utilize the data from the report, neither is there evidence that the tests have resulted in increased student achievement (Wayow, 2011), suggests that we should look deeper at what schools actually do with the report. In doing so, we examine the role of the principals and the organizational conditions and structures they put in place to facilitate effective interpretation and use of assessment data. In framing our discussion, we draw on the growing yet limited literature on social networks to examine teachers' professional interactions (Penuel, Riel, Krause, & Frank, 2009); teacher collaboration (Gajda & Koliba, 2008; Goddard, Goddard, & Tschannen-Moran, 2007); teacher learning communities (Stoll & Louis, 2007; Wood, 2007); teachers' social networks (Daly, Moolenaar, Bolivar, & Burke, 2010; Moolenaar, 2012; Moolenaar, Sleegers, Karsten, & Daly, 2012); and communities of practice (Wenger, 1998). These studies all suggest a relationship between teachers closely working together and the effective implementation of reform efforts.

Given the limited research internationally, and the absence of research within the English-speaking Caribbean on teacher in-school social networks, we explore, through the use of mixed methods, the relationship between teacher in-school collaboration, principal leadership, and the adoption and use of innovative educational approaches; in this case, assessment data from the National Tests. Therefore, this study seeks to determine whether:

1. there is an intentional formation of within-school social networks in primary schools around the interpretation and use of the data on the National Tests Report;
2. schools use these collaborative networks to inform curricular decisions and teacher pedagogy;

3. there is a relationship between the principal collegial leadership and teacher professional behaviour and the density of the in-school professional social network;
4. there is a relationship between the within-school networks formed and the proportion of students meeting or exceeding the proficiency standard on the National Tests; and
5. schools/teachers ascribe any importance to the within-school professional relationships.

Our major contention here is that there is a direct or positive correlation between principal collegial leadership, teacher collaboration around assessment data from the National Tests, and school's academic performance as measured by the proportion of students performing at or above proficiency level on the tests.

Summative Assessment Feedback

Implicit in the expectation that schools utilize the information from the National Tests is the assumption that teachers know how to use information derived from assessments. Yet there is little evidence internationally (Heritage, 2007) and locally (Brown, Bristol, De Four-Babb, & Conrad, 2014; De Lisle, 2010) to support that claim. Actually, an increasing number of researchers, in examining schools' and teachers' use of data from large-scale assessments and the "conditions that support their ability to use the data to improve instruction" (Nabors-Oláh, Lawrence, & Riggan, 2010, p. 227), have concluded that there is a need for "structured occasions to turn assessment information into actionable knowledge" (Halverson, 2010, p. 133). Additionally, they argue that there must be in place a robust feedback system (Blanc et al., 2010) which would facilitate the flow of information that supports the curricular decision making by the school administration.

Nabors-Oláh et al. (2010) found that teachers made limited use of the data in making instructional decisions. The teachers used the "assessments to identify areas of emphasis (both content and students), but overall, did not use the assessments to make sense of students' conceptual understanding of the content" (p. 244). However, in fairness to the teachers, they also noted that the data were not suitable for "diagnosing errors in anything beyond a procedural way" (p. 244), as they did not provide the "detailed information needed to diagnose the specific sources of student difficulty" (Looney, 2011, p. 15) and therefore is of limited value in meeting the specific learning needs of individual students. Yet, Brookhart's (2001) reminder that summative

assessments can be used for formative purposes must be given equal consideration. It would be necessary for teachers to recognize the alerts from the assessment as an indication of the need for them to assess their own teaching and, as a result, examine their instructional strategies as they move forward in meeting the learning needs of the students.

Indeed, when summative assessments are used for formative purposes, the focus is on the teacher. Sadler (1989), and Parr, Glasswell, and Aikman (2007) distinguished between students' use of feedback to monitor their own learning and teachers' use of feedback as a means of monitoring their teaching effectiveness. Thus, despite the lack of specificity, the data allow teachers to "look backwards to reflect on the effectiveness of their own practice and forward to work out what needs to be taught or re-taught" (Parr et al., 2007, p. 69). Broadly speaking, the feedback from the assessment alerts the "teacher about current levels of student understanding … [and] informs what the next steps in learning should be" (Heritage, 2007, p. 142). Teachers in Trinidad and Tobago are expected to use the data from the National Tests Report to identify current levels of student performance, and so determine the next steps in learning.

Teacher Collaboration Networks

Yet, ineffective implementation of reforms is neither a unique phenomenon nor unique to Caribbean governments. Worldwide, many reform efforts have failed to realize the expected results. As such, a growing number of researchers are now investigating the relationship between teacher social interactions and the successful implementation of reforms (Coburn & Russell, 2008; Fullan, 2007; Goddard et al., 2007; Mohrman, Tenkasi, & Mohrman, 2003). This is an important development, and the limited research to date has tended to support this relationship (Goddard et al., 2007). As a matter of fact, Daly et al. (2010) found statistically significant correlations between the density of collaboration among teachers in the same grade level and student achievement scores in literacy, thus corroborating findings by Goddard et al. of the link between teacher collaboration and student achievement.

Indeed, Achinstein (2002) has argued that teachers in collaborative units are more likely to share common values and work interdependently for the purpose of improving student achievement. Extending the argument, Daly et al. (2010) noted that "teachers working in collaboration tend to have a wider skill variety, be more informed about their colleagues' work and student performance, [and] report increased instructional efficacy" (p. 363). These "communities of practice"

(Wenger, 1998) facilitate the interchange and cross-fertilization of ideas and knowledge, and sharing and development of best practices (Stoll & Louis, 2007); facilitate improved teacher pedagogical practices (Ehrenberg, Brewer, Gamoran, & Willms, 2001); and, as a result, enhance overall teacher knowledge and skills (Black, Harrison, Lee, Marshall, & Wiliam, 2004). The development of professional learning communities (Stoll & Louis, 2007) acknowledges the fact that individual human capital, while critically important to the effectiveness level of the education product, does not operate within a vacuum. The school is also a social organization and teachers interact within the organization, forming networks that could and should be intentionally developed and utilized for advancing student learning. The development and fostering of these within-school social networks bring together the existing social capital of teachers to the benefit of the school.

It is the quality of the interaction, the theoretical perspectives that underpin these relationship networks (Muijs, West, & Ainscow, 2010), and the potential to positively effect reform implementation and teacher effectiveness (Daly et al., 2010; Moolenaar, 2012; Moolenaar et al., 2012) that have been the subject of current research. As postulated by Penuel et al. (2009), embedded within the social network structure is social capital—"the resources and expertise that individuals can access through their ties with others" in the network (p. 129). Therefore, there is the increased probability for the sharing of information, knowledge, and skills and, thus, the potential for improved teacher effectiveness. In the context of Trinidad and Tobago where there is limited external human resources available to schools (e.g., school psychologists, counsellors, qualified special educators, assessment specialists, and other paraprofessionals), the importance of capitalizing on the embedded within-school resources and expertise cannot be overstated.

The evidence that there is a positive relationship between teacher collaboration within communities of practice (Wenger, 1998) and the successful implementation of innovation (Coburn & Russell, 2008), and increased school effectiveness (Penuel et al., 2009) has gained traction. While within the complexity that is schooling it defies logic to select any one thing as the sole or major driver of student outcomes, increased teacher cooperation, collaboration, and collegial support on issues related to teaching and learning (McLaughlin & Talbert, 2006), increased opportunities for assuming leadership on educational issues, the sharing of ideas, and contributing to the decision-making process (Leithwood et al., 2007) are all salient to increased school effectiveness and student outcomes. As Goddard et al. (2007) have shown, teacher collaboration

has a positive impact on school climate and results in a collective sense of efficacy, which is an important component in effective schooling.

The Role of the Principal

Davis (2013) cites the work of Louis, Leithwood, Wahlstrom, and Anderson (2010), in asserting that "we know that quality principal leadership makes a significant contribution to the organizational conditions and teaching practices that can advance student learning" (p. 1). Hollingworth (2012) makes a similar claim with regard to the implementation of formative assessment in schools. Extrapolating from these assertions, it stands to reason that the principal plays a pivotal role in the extent and, more importantly, the quality of the faculty interaction in the school. Through the position and authority ascribed to the office, it is the principal who is the designated leader and sets the tone that facilitates the climate which fosters collaboration and collegiality. Such a climate is most often supported through the principal collegial relational leadership style that values faculty input and leadership on educational issues important to the school's effectiveness.

The Context

Trinidad and Tobago (T&T) is a multi-ethnic society, with the predominant ethnicities being of East Indian (35.4%) and African (34.2%) descent (Trinidad and Tobago. Central Statistical Office, 2011). The country is divided into eight educational districts, each headed by the School Supervisor III (SSIII), assisted by SSIIs responsible for secondary schools and SSIs responsible for primary schools. The Ministry of Education (TTMOE) is the central authority which runs the public education system. In this study we focus on the primary school, within which there are seven levels: First and Second year infants (ages 5-6); the junior department which comprises three grade levels called Standards (Std.) Stds. 1–3, ages 7 to 9 plus; and an upper junior or senior department comprising Stds. 4 and 5, ages 10 to 11 plus years.

In 2001 the government introduced the Continuous Assessment Programme (CAP) and administered the first of the national assessments. There are four performance levels on the assessment: Level 1: below proficient; Level 2: partially proficient; Level 3: proficient; and Level 4: advanced proficiency (TTMOE, 2009). Schools in which more than 30% of students score at Level 1 are identified as in need of Performance Enhancement Programmes (PEP), which are initiatives designed to address the identified areas of weakness.

However, in examining differences between PEP and non-PEP schools, Brown et al. (2014) found non-PEP schools to have significantly higher mean scores on teacher collaboration and on collective decision making within their department. These findings provide the impetus for the conduct of this study. As such, we seek to ascertain the extent to which primary schools utilize collaborative networks within their schools as they plan to meet the academic needs of their students. We recognize that networks can be formal—highly structured—or informal. In this study we focus on the networks that are intentionally formed, with special reference to the use and interpretation of data from the National Tests. Additionally, in recognizing the role of the principal in fostering a climate conducive to teacher collaboration (Hollingworth, 2012), we examine the principal's leadership style and teacher professional behaviours (Hoy, 2003).

Methodology

Methods

This study utilizes both quantitative and qualitative data at different stages of the research process. In the initial stage of the research, we employed the use of purposive sampling approaches to conduct qualitative interviews on intentional in-school collaboration on the interpretation and use of assessment data from the National Tests, and on teacher collaboration on curricular and pedagogical issues. In the second stage, we asked teachers to respond to two questionnaires; one that examined their in-school interactions and another that examined the Principal Leadership and professional Teacher Behaviours dimensions of school climate

Sample

The sample comprised principals and teachers from seven of a cluster of nine primary schools in an urban school district in Trinidad and Tobago. The cluster was selected because the nine schools were representative of the schools in the educational district with regard to student socio-economic background, other student demographics, teacher qualification, and because one of the researchers had worked with some of the schools on a previous occasion.

Schools varied by sizes, ranging from $n < 200$ – one school to $n > 600$ – two schools. The sample comprised only teachers who taught or were currently teaching Stds. 2–4; the classes in which teachers most likely would have been making adjustments to their instructional methods

based on National Tests data. Four of the schools were designated PEP schools and three were non-PEP schools. Teachers responded to statements on the Social Network Questionnaire and two dimensions on the Organizational Climate Index (OCI) (Hoy, 2003), providing a response rate that ranged from 60% to 87.5%. The final sample comprised 56 teachers (female = 47, male = 9); mean age = 39.6 years; mean years in teaching = 13.73. With the exception of two teachers, all teachers had at least the Teachers Diploma, with 28 (52%) having at least a B.Ed. or BA. Schools C and D are single-sex girls' schools and schools B and G are single-sex boys' schools. There are no male teachers in the single-sex girls' schools and also in School A, which is the smallest school in the sample. Additionally, there were no responses from male teachers in School F. The ratio of female to male teachers reflects the ratio in the profession.

Qualitative Methods

The qualitative methods used for collecting data comprised individual semi-structured interviews. The data reported here are from hour-long interviews with the seven principals to determine the organizational structures in place to facilitate effective use of the National Test report data. Similar questions were asked of 31 teachers in five focus groups, with regard to their classroom and pedagogical decisions. One of the authors conducted both the interviews and focus groups, which were audio-recorded and transcribed. The transcribed data were independently analysed for emerging themes and categories by two of the researchers with expertise in qualitative research. Draft copies of the focus group findings and the interview findings were emailed to respective participants for their comments. Comments received via this process were also incorporated as data in the final analysis.

Four broad questions were asked of the principals during their interviews. These questions were also posed to the 31 teachers in the focus groups. These questions were:

- *To what extent is there collaboration among teachers in addressing the findings of the National Tests Report?*
- *What structure do you have in place to facilitate teacher collaboration on curricular and teaching issues?*
- *Is there an educational plan at the department and/or school level to address the findings of the report? If yes, what does the plan entail?*

- *To what extent if any did teachers/the school use the findings in the National Tests Report in making curricular and instructional decisions?*

Quantitative Methods

In the quantitative element of the research, teachers responded to two surveys. One survey was a networks questionnaire that comprised questions adapted from examples by Moolenaar (2012). Specifically, the Social Network Questionnaire (SNQ) consisted of 10 statements in response to the prompt: "name up to 4 colleagues, including the principal, in your school" with whom within the past year you have discussed the National Tests following the release of the report. The names of teachers for each school were placed across the top and down one side on a chart. A teacher selected by another teacher was connected by an arrow. Double-headed arrows indicate teachers who selected each other. Teachers were also asked to indicate on a scale of 1 (*once*) to 7 (*once a week*) how often they had met; and on a scale of 1 (*not important*) to 4 (*very important*) to rate the importance of the meetings (see Appendix A). We examined the frequency of the interactions as representing the stability of the structural patterns, as respondents are more accurate at identifying ongoing patterns than determining occasional interactions (Carley & Krackhardt, 1999 cited in Daly et al., 2010). Interactions twice a term or more were considered frequent.

The second questionnaire comprised the 14 items measuring the Principal Collegial Leadership (CL) and Professional Teacher Behaviour (PTB) dimensions on the Organizational Climate Index (OCI) (Hoy, 2003). The OCI is a 30-item descriptive measure for schools. The index has four dimensions—principal collegial leadership; teacher professionalism; achievement press for students to perform academically, that is, the emphasis placed on academic achievement by teachers, parents, and students; and vulnerability to the community. Collegial Leadership (CL) comprises seven items that measure principal behaviour with regard to the social needs of the faculty within the context of the school, for example, the principal treats teachers as professional colleagues; is open, egalitarian, and friendly, but at the same time sets clear teacher expectations and standards of performance (Hoy, Smith, & Sweetland, 2002). PTB addresses respect and trust in colleagues' competence, mutual cooperation, and commitment to students (Hoy et al., 2002) (see Appendix B). Hoy et al. (2002) report reliability coefficients of .94 for CL and .88 for PTB. On this sample, we report Cronbach's alphas of .83 for CL and .89 for PTB. School scores are

calculated and converted to standard scores with a mean of 500 and standard deviation of 100 (see Hoy, 2003).

Teacher surveys were anonymous. While we could identify the school, teachers were not asked to indicate their class level. Also, to prevent possible school identification, an exact number of students enrolled in the schools is not reported. The school's performance on the National Tests and designation as PEP or non-PEP were retrieved from 2009–2011 school performance data received from the TTMOE. It is accepted that language and mathematics proficiency are the core elements for success in a knowledge-based and technologically driven society, therefore of interest was student performance on the mathematics and Language Arts assessment in Std. 3.

Data Collection and Procedures

After receiving approval from the TTMOE, one of the researchers contacted the nine schools that comprised the cluster. Principals were given copies of the Permission Letter and the Confidentiality Statement, a short principal's questionnaire on school demographics, and copies of the survey instruments. The instruments for the teachers, including a letter requesting their participation, were distributed by one of the researchers to be collected in two weeks. After several attempts we retrieved sufficient useable data from seven of the nine schools. These schools provided the final sample for the study.

Results

Use of Assessment Data, Networks, and Pedagogical Strategies

The interview questions address research questions 1 and 2. In response to the interview questions, all the principals, in expressing concern for their school's performance on the National Tests, stated that they had taken intentional actions to address the identified areas of weakness identified in the National Test Report. They formed faculty teams, which they charged with the responsibility of studying the report and reporting back to the faculty. Based on the teams' report they put in place mechanisms to facilitate teacher collaboration on curricular and pedagogical strategies. In response to the question about whether there was an educational plan at the department and or school level to address the findings of the report, all the principals stated that they had such plans. Additionally, six of the seven principals could discuss the plans in detail, specifically relating them to the school's approach to addressing

areas of weakness highlighted by the report. For example one principal stated that:

> *the head of department or teacher in charge is responsible for developing and implementing a plan. She has assured me that she has met with the staff and they have come up with a working plan to address the areas of weakness highlighted in the report*.

It should be noted that the teams reflected the hierarchical organizational structure of the school, that is, the principal and heads of departments (HODs) or teacher in charge.

Teachers' responses to the four questions varied. While all teachers discussed the National Tests report, they varied on the extent and effectiveness of the collaboration on curricular and pedagogical strategies and the effectiveness. The following two examples reflect the marked differences across schools in approaches to treating with the assessment data in the National Tests report. For example, Ms. Thomas from School F, with voiced agreement from others, stated:

> *We talk about the test results and we discuss especially the math and the comprehension. We recognize that these are problem areas that we have to work on, but that is as far as it goes. We share ideas giving reasons why we think the scores are what they are and agree that we have to do something about it.* [However], *each person goes back and tries to remediate the problem on their own. I try my best. I think we all try our best*.

However, School A adopted a more collaborative approach in addressing the findings in the report, as evidenced by the following statement from Ms. Lopez:

> *We meet as a staff and discuss the report. Most times the principal leads the discussion but we all say our bit and together come up with strategies to address the problems identified in the report*.

Social Network, Climate, and Performance

Analysis of the social networks data indicated that the frequency with which teachers met to discuss the report and made decisions based on the report differed among schools. However, the importance ascribed to the meetings did not differ significantly. The mean scores indicated that the meetings, if not deemed very important, were considered important (Table 1). Most of the respondents met at least once a term to discuss the data from the report and address related curricular issues, and more than twice a term to discuss their overall teaching approaches and strategies (Table 1).

In terms of school climate, five of the seven schools had principal collegial scores above the mean of 500; the exceptions were School E, which had a score of 444.91 placing it at the 30th percentile, and school G with a score of 461.03 placing it at the 35th percentile. With regard to teacher professional behaviour, only schools A, D, and F had standard scores above the mean (Table 1).

However, there is a strong correlation between principal collegial scores and teacher professional behaviours (r = .83, p = .02); the schools with the highest principal collegial scores also had the highest teacher professional behaviour scores. With regard to teachers' selection of colleagues with whom they had specific work-related interactions, patterns varied across schools. From the responses, four patterns of the within-school interactions emerged. Figure 1 reflects the pattern for School A; Figure 2 for Schools B and C; Figure 3 for Schools E and F; and Figure 4 for Schools D and G.

Table 1. Mean Response for Faculty on the Social Network Questionnaire and School Climate Scores

Source	School						
	A n=7	**B** n=8	**C** n=9	**D** n=10	**E** n=7	**F** n=8	**G** n=7
School Classification	PEP	PEP	non-PEP	non-PEP	PEP	PEP	non-PEP
Met to discuss National Tests report	2.43	4.50	2.56	3.70	3.71	3.50	2.43
Importance of the meeting	3.43	3.50	3.22	3.60	3.14	2.63	3.14
Met to discuss teaching	5.0	5.13	4.67	5.10	5.00	4.75	5.0
Meeting importance	3.43	3.50	3.67	3.90	3.43	3.75	3.71
Met to make curricular decisions	3.14	4.0	2.56	4.44	4.0	3.88	4.14
Meeting importance	3.71	3.50	3.33	3.78	3.40	3.75	4.0

Met to make pedagogical decisions	2.86	4.13	3.0	4.33	3.86	4.0	5.0
Meeting importance	3.14	3.38	3.67	3.89	3.43	4.0	4.0
Collegial leadership score	729.78	584.65	594.06	651.94	444.91	538.67	461.03
Professional teacher behaviour score	829.32	317.12	399.34	662.22	274.81	510.82	396.99

School A

School A is a small school (n < 200) with a tightly knit faculty. The teachers interact with each other; however, much of the interaction is centred around the principal—the triangle (see Figure 1). This is not surprising in this case. As stated by the principal, the school was at the bottom of the achievement ladder. She came to the position with a passion, a vision, and a plan. Her focus was on building teacher capacity and relationship with the community.

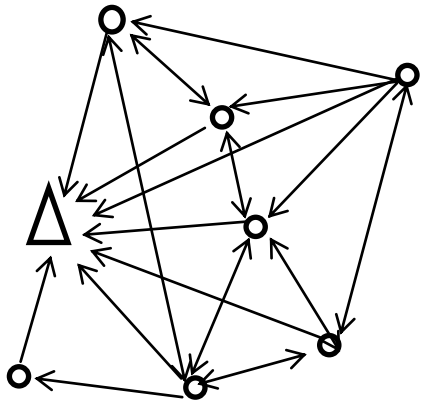

Figure 1. School A -- principal teacher.

As she explained:

> *I wanted to get certain things in place, get the school moving. I started professional development workshops because we never used to have that. We needed to build the teachers' capacity in order to build the children's capacity. … Professional Development, I said it must become the culture in the school; that professional development must be done every term on a regular basis, not just targeting the children's needs but also the teachers' needs, personal as well as professional.*

Principal A further explained that:

> *Everything to me is relationship, if you don't have good relationships with teachers or parents or children … nothing happens. The relationships make them go the extra mile.* [Do] *things they normally would not do*.

With specific reference to the National Tests reports she also stated that:

> *We meet in school, sometimes out of school and we discuss students' performance on the tests and we plan. We recognize and use each other knowledge and skills to help each other. We identify children who had struggled, did really badly on the tests and we discuss those students, share ideas.*

With regard to the National Tests report, the teachers in School A corroborated her statements. According to one teacher, with full agreement from the others, "*we study the report and adjust and adapt and make the relevant changes. We share ideas and books;* [we] *use the internet …. We really support each other*."

Data obtained from the school climate questionnaire support the strength of Principal A's approach. Both the CL score of 729.78 and PTB score of 829.32 evidence the success of her approach to leadership. Additionally, a review of the school's performance on the mathematics assessment on the National Tests 2009 to 2011 indicates a steady, if small, increase in the number of students meeting the standard. In 2009, the percentage of students meeting performance standards (NCE scores < 50 >71) in Std. 3 = 18%. In 2010, the percentage increased to 46%, and the results for 2011 remained steady at 46%, with two students exceeding the standard. In 2005, no student in Std. 3 met the standard.

The performance on the Language Arts assessments evidenced a similar trend. There was a consistent increase in the percentage of students performing at standard, from 16% in 2009 to 31% in 2010 and 36% in 2011. As explained by the principal, the improvement in the number of students meeting the standard, though small, is not by

accident. It is the result of hard work by all the teachers working together, "*putting their hands to the wheel*."

Schools B and C

The network pattern for School B—a medium size school (n ≈ 300) can also be applied to School C (see Figure 2). The teachers in School B all relate to the principal but, as can be seen, with the exception of a small group of teachers at the same grade level working collaboratively, the between-faculty interaction is not dense. Teachers' professional interactions were more or less limited to the HODs and principal.

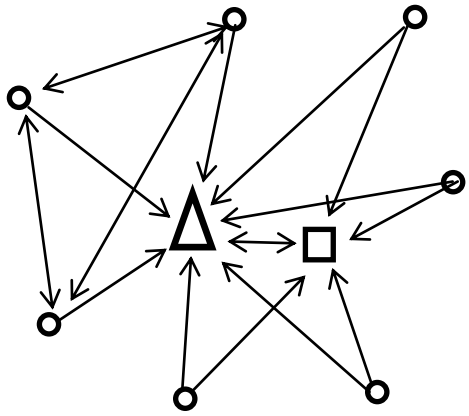

Figure 2. Schools B and C -- principal -- heads of department -- teacher.

They met to discuss the assessment data and discussed next steps, but these meetings were all called by either the principal or HOD. They found the meetings important but there was no indication as to the extent to which they engaged in the process. The principal for School B explained:

> *The school is now coming out of a very challenging period and as the new principal I am in the process of refocusing the school on student achievement, building school morale and building teacher capacity. The teachers still have to understand that we have to work together, that they have to be committed to the students and the school.*

On the issue of student achievement he stated:

> *We were classified as a PEP school and that did nothing for teacher morale. We are still waiting for the resources and facilitators that the Ministry promised. I have told the teachers that we are in this together. We have to share our expertise to improve our performance. I have put a team in place and encourage teachers teaching the same level to plan together and share with those in the higher classes into which the students would be going*.

With regard to teachers working together, he admitted that there was not a culture of collaboration in the school, which was not helped by the physical conditions under which the teachers worked.

Teachers in School B applauded the principal's efforts. They agreed that he is paying particular attention to student achievement and uses the feedback from the National Tests to inform the conversation as to where the school needs to go. As stated by Mr. Bell, a senior male teacher:

> *The principal is dealing with many things at the same time and we have to step up and start to seriously work on the* [national] *tests reports. Some of us are ready, but not everyone. A few of us have come together and plan how we are going to teach certain topics. We also go on the internet and get ideas.*

This sentiment was echoed by another teacher who stated that the Std. 3 teachers work very well together. They shared ideas and as a matter of fact, she stated, "*I am good at math and have been teaching certain math concepts to all the Std. 3 classes*."

The CL score suggests that the principal is seen as relational and supportive of faculty. However, the PTB score of 317.12 indicates that there is still a lot of work to be done with regard to faculty trust and support for each other. The principal is trying to arrest a decline in student performance on the National Tests. A review of the National Tests mathematics scores from 2009 to 2011 shows that the Std. 3 performance has been inconsistent, increasing to 25% in 2010, but decreasing to 17% in 2011. The performance on the Language Arts assessment, while much better than in 2009 (15%), also has been inconsistent, increasing to 29% in 2010 but decreasing to 23% in 2011.

There are special circumstances affecting School C ($n \approx 350$). The school has had to double the size of some of its classes because of sorely needed building repairs and teacher retirement. To alleviate some of the pressures on teachers, the principal sometimes teaches. Principal C is determined to get the school back on track. She explained that she

communicates regularly with staff and is focused on rebuilding a sense of family in the school. She noted:

> *Our performance is unacceptable. It is not fair to the children and their parents. We as a staff have to do better. We have to work together more. We don't do that enough. We have to use the results to see what we have to teach better and which children need our special attention. … We have the skills but we don't take advantage of what each can offer enough. That is what I am working on. We can't depend on the Ministry.*

Comments from the teachers indicated an awareness of the challenges they faced and the need to collaborate. The following statement encapsulates the sentiments expressed by the teachers:

> *Listen! We know we have a problem and we are concerned. The children are not performing as they should. It is not that we do not work and cooperate with each other. We talk … discuss strategies and so forth. But, the issue is more than just the* [National] *Test report. It is bigger than that. We appreciate what the principal is doing, but the working conditions can frustrate anybody. Honestly, by the end of the day you just want to get out of this building.*

The CL score of 594.06 suggests that the teachers hold the principal in high regard. Based on the PTB score it would appear that the trust level among teachers has declined. The school's 2011 performance data are a harsh reflection of what has transpired in the school. The percentage of students meeting or exceeding the standard is as follows: 2009 – mathematics = 18%, Language Arts = 41.2%; 2010 – Mathematics = 26.5%, Language Arts = 45%; 2011 – Mathematics = 10% and Language Arts = 21%. This school is rapidly changing its designation from non-PEP to PEP school.

Schools E and F

School E is a fairly large single-sex boys' school ($n \leq 400$) (see Figure 3). The school is in a tough neighbourhood and, as stated by the principal, is experiencing rapid turnover of staff.

The arrows indicate that most teachers interact with either the principal or the HODs. A few have formed their own clique. Principal E explained that her challenge is to bring teachers on-board. Her statements capture her frustration. As she lamented:

> *When I came to this school I met a fractured staff. It was almost like there were two schools, the upstairs and the downstairs. While some teachers had their friendship groups, as a staff they did not*

> *come together. Individual teachers worked with their class and beyond that didn't really pay much attention to what was going on in the school*.

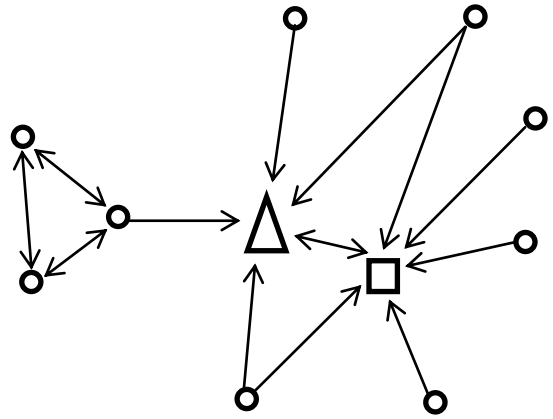

Figure 3. Schools E and F △ -- principal □ -- heads of department ○ -- teacher.

Recognizing that there was a long history behind the poor relationship among the teachers, she has implemented a new system and has created teacher teams for each class level headed by the HOD or senior teacher. She further explained:

> *With the new system I have put in place, we have started to pay closer attention to the National Tests report. Every year when we get the results I call the teachers together to discuss the report and let the teams come up with strategies for their class level.*

While the responses of the teachers in School E did not contradict those of the principal, many of their comments focused on the quality of the students and reflected a lack of enthusiasm about the assessment. For example, Ms. Singh spoke about the parents' "*lack of interest in their children's education*." The teachers did confirm that at the behest of the principal they met by departments to discuss the report and identify areas where they needed to focus their attention. However, no one referred to any plans or strategies emerging from the meetings. The CL score is just below the mean but the PTB score is troubling. The school's performance on the national assessment reflects the less than ideal school climate. On the mathematics assessment in 2009, 43% of students met or exceeded the standard. This percentage decreased to 10% in 2010 and

was at 27% in 2011. The trend is the same for Language Arts: 46% in 2009, 12% in 2010, and 26% in 2011.

School F is a small to medium-size school with a history of academic under-performance. The proportion of students meeting the standard in mathematics has been increasing, but only slightly (14% to 17%), and has been very inconsistent for Language Arts – 25% in 2009 to 1% in 2010 to 10% in 2011.

In discussing the school's performance on the National Tests and how they utilize the data, the principal explained that there are senior teachers who act as HODs for each class level. They are supposed to meet with the teachers and plan together to address the findings in the report. She is aware that they meet but could not give details of the discussions.

The teachers in School F did not give any detailed information about using the data to make curricular and pedagogical decisions. They spoke about meeting and talking about the results. The following statement captures this idea of talking to each other but not working together:

> *Some of us meet and discuss the results;* [we] *look at the strands on which the students did not perform. We talk about having to do better but we don't have a comprehensive department wide strategy. But we share ideas etc. with each other. All the teachers work hard.*

The CL and PTB scores suggest that the school climate is positive. However, the network diagram indicates that while there is interaction with the principal and HOD, the teachers do not capitalize on each other's talents and skills. They may like each other but do not come together professionally to address student performance on the tests.

Schools D and G

The network pattern for School D—a large school—also applies to School G (see Figure 4). School D has a highly structured teacher support system that predates the principal, who, incidentally, was a teacher at the school. Teachers interact with the principal and with their colleagues; however, as indicated by the lines of interaction and the larger size of the rectangle, the density of the relationship with regard to curriculum and pedagogical issues is with the HODs. The HODs meet regularly with their teachers and, as stated by the principal, the feedback from the National Tests is central to their discussions and planning. Each class level meets to plan the teaching curriculum. They know each other strengths and utilize this in-house expertise to arrive at strategies to address areas of weakness identified in the assessment report.

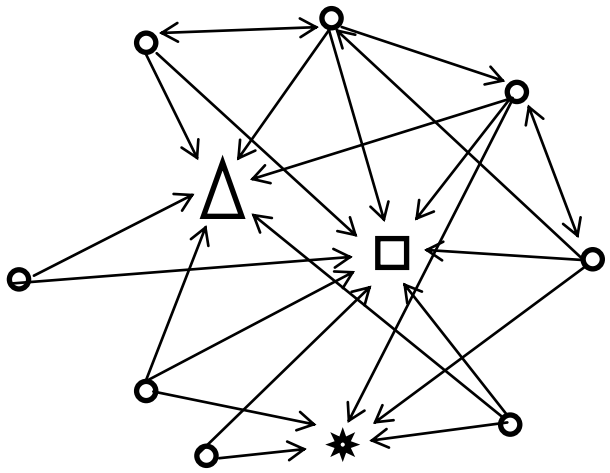

Figure 4. Schools D and G -- principal -- head of dep't -- Sp. Ed -- teacher.

Teachers in School D also have special education support available to them; a resource that is not available to the other schools. Also, the principal was very clear in stating that she leaves "*no stone unturned*" in finding resources for her school and does not hesitate to bring in outside expertise when necessary. The teachers noted that they were accustomed to working in teams. In the words of Ms. Britto:

> *We meet regularly to discuss how the students are doing. We have curriculum teams and we share teaching strategies, especially in math. We sometimes team-teach or Ms. K, who is really good in science, would teach a topic in my class or hold a lunchtime workshop. …When I came here I met the system in place and I have learned a lot from the other teachers*.

Both the CL and PTB scores are more than one standard deviation above the mean for School D, suggesting that the principal respects and treats fairly with the teachers and the teachers trust each other's professional judgment.

School G also is a large school, whose students have always performed well on the national exams. However, while the school is still performing much better than many of the other schools, in recent years

there has been a steady decline in the percentage of Std. 3 students performing at standard; from 57% in 2009, to 52% in 2010, to 47% in 2011. Student performance on the Language Arts component has also declined from 67% in 2009, to 52% in 2010, to 59% in 2011. Principal G explained that the retirement of senior faculty has resulted in a rapid change in both the teaching faculty and administration. However, he assured that there is a system in place to address the National Tests:

> *The HODs meet with their teachers and systematically go through the report. They meet immediately on the release of the report and then they schedule meetings during the academic year. The HODs keep me* (the principal) *informed about their progress and challenges*.

He further emphasized:

> *This school takes pride in the academic achievement of its students and therefore we pay particular attention to student performance on the CAP*.

Similarly, the teachers in School G also expressed concern with the declining performance and have vowed to rectify the situation. As one male teacher observed:

> *This* (the decline) *is new to us. We have lost some of our best teachers and obviously we are not filling the vacuum. Right now we are meeting by class* (level) *and looking at what … how we are teaching certain concepts; what we need to do differently. Obviously we have to do a better job. We also have to acculturate the new teachers*.

The indicators on Table 1 suggest that the teachers in School G do meet regularly on issues related to student performance on the National Tests. The network graph indicates collegial interaction, which may be a reflection of the tradition as the school continues to build collaborative networks with new faculty. It is possible that the steady decline and the CL and PTB scores may be a reflection of the current transition.

Discussion and Conclusion

In this study we attempt to determine whether: (1) there is an intentional formation of within-school social networks in primary schools around the interpretation and use of the data on the National Tests Report; (2) schools use these collaborative networks to inform curricular decisions and teacher pedagogy; (3) there is a relationship between the principal collegial leadership and teacher professional behaviour and the density of

the in-school professional social network; (4) there is a relationship between the within-school networks formed and the proportion of students meeting or exceeding the proficiency standard on the National Tests; and (5) schools/teachers ascribe any importance to the within-school professional relationships.

There is consensus in the literature that within the school, the most important element is the teacher, and one of the most effective strategies that a teacher can adopt is that of classroom formative assessment (Moss & Brookhart, 2009). But, as De Lisle (2010) has shown, in Trinidad and Tobago, even in schools where teachers have been trained to conduct formative assessment, there is wide variation in the effectiveness of the implementation. In his evaluation of the CAP, De Lisle makes a number of critical observations, among which is the existence of good instructional practices that were isolated and not collaborative and, consequently, may not be sustainable, especially in a school culture that is high-stakes and competitive. But, more importantly, he looked at contextual factors that influenced the implementation of the innovation by schools and the level of intensity and degree of fidelity. As he observed at one site:

> The common factors were collegiality and collaboration, which had added importance in the context because there were no formal training programmes to support CAP at the building site. Collaboration in the form of sharing and modelling was a primary tool in the spread of the innovation at the site. … Leadership proved a critical factor in ensuring such collaboration, both of which created a climate of support that allowed the innovation to scale-up. (p. 158)

Research questions 1, 2, and 3 asked whether there is an intentional formation of within-school social networks; whether schools use these collaborative networks to inform curricular decisions and teacher pedagogy, and whether there is a relationship between principal collegial leadership and teacher professional behaviour and the density of the in-school professional social network. While some were more effective than others, all principals spoke of intentionally forming networks to address the findings of the National Tests reports, and teachers either spoke directly to, or alluded to, some level of collaborative effort around curricular decisions and pedagogy. With the exception of School G, the schools with the highest CL and PTB scores also displayed the densest network formations.

Thus, the results of our study to some extent support De Lisle's claim with regard to collaboration and the role of leadership in fostering a

climate in which teachers feel free to share and model, and, in this case, turn the feedback from the National Tests into actionable knowledge (Halverson, 2010). Without doubt, and as seen especially with Schools A and D, the role of the principal is pivotal to the success of any innovation, for she or he is the "primary conduit through which the reform is initially diffused" (Daly et al., p. 372). The principal sets the tone and creates the climate that fosters teacher collaboration and willingness to share knowledge and expertise and learn from each other. This is the sentiment captured by the teacher from School D when she said she learned so much from her colleagues, and is also reflected in the assertion made by the teachers in school G of the need to "*acculturate the new teachers,*" which we understood to mean to make them a part of the community of practice.

Limited as this study may be to teachers who are currently teaching or have taught Stds. 2–4, the climate data suggest that the schools with the higher climate scores also demonstrated greater professional interaction between and among teachers. Also, in answer to research question 4, whether "there is a relationship between the within-school networks formed and the proportion of students meeting or exceeding the proficiency standard on the National Tests," there appears to be a relationship between the more structured and deeper interaction, higher scores of principal collegiality, and teachers' trust and commitment behaviours and improvement in student performance on both the mathematics and Language Arts components of the National Tests. This is made explicit in Schools A, D, and G. However, it is an area in need of further research.

These findings do not claim that the schools are making effective use of the National Tests report. De Lisle (2010) does an excellent job of addressing the issue of fidelity and the need for training and support. What this study suggests is that within-school professional social networks allow for the reciprocal sharing of ideas and expertise and, as a result, could have a positive impact on student learning. In all the schools the principals have created formal networks formed around the hierarchical structure and official positions of school faculty. Even though the teacher in School B taught math concepts to all the Std. 3 classes, with the exception of School A and School D, no principal organized the within-school network structure around teacher expertise and skill sets, even as they planned to address the National Tests reports. School A brought in outside experts to conduct workshops. School D ensured that all HODs accessed whatever professional development opportunities were available.

There are multiple actors that impact what transpires for education in the school. However, we also acknowledge that there is much hidden expertise among school faculty (as noted in Schools A, D, B, and G) that is lost to the school because opportunities and conditions for cross sharing are not factored into the organizational structure of the school (Achinstein, 2002; Daly et al., 2010). The fact is, and as De Lisle (2010) discovered, that despite the lack of within-school expertise in formative assessment, the schools that made most effective use of the assessment data did so through teacher collaboration; that is, they formed networks that allowed them to capitalize on their human capital. Our findings also suggest that the schools with the more densely and highly structured networks showed yearly progress or maintained acceptable performance standards on the National Tests. We suspect that the same would apply to school G after they settle from this period of transition. In a collective sense, these suggest the need for continuing exploration of the potential benefits of within-school expertise and networks especially in the context of working within a resource-strapped system. These have implications for how principals are prepared to lead their schools, plans for successful implementation of CAP, and for the overall enhancement of the academic performance of students.

There are limitations to this study. The sample is small and limited to one cluster of schools in an urban district. Additionally, the sample does not include all teachers in a particular school. Yet, the findings point to the relationship between teacher within-school networks that are focused on the use of assessment data in making curricular and instructional decisions and an increase in the percentage of students meeting or exceeding the standard on the National Tests. Additionally, the CL and PTB scores for Schools A, D, and G lend support to the literature that principal leadership style which is relational and teacher professional collegial behaviours facilitate teachers working together and the sharing of ideas and expertise.

References

Achinstein, B. (2002), Conflict amid community: The micropolitics of teacher collaboration. *Teachers College Record*, *104*(3), 421–455. doi:10.1111/1467-9620.00168

Black, P., Harrison C., Lee, C., Marshall, B., & Wiliam, D. (2004). Working inside the black box: Assessment for learning in the classroom. *Phi Delta Kappan*, *86*(1), 9–21.

Blanc, S., Christman, J. B., Liu, R., Mitchell, C., Travers, E. & Bulkley, K. E. (2010). Learning to learn from data: Benchmarks and instructional

communities. *Peabody Journal of Education 85*(2), 205–225. doi:10.1080/01619561003685379

Brookhart, S.M. (2001). Successful students' formative and summative uses of assessment information. *Assessment in Education, 8*(2), 153–169. doi:10.1080/09695940123775

Brown, L. I., Bristol, L., DeFour-Babb, J., & Conrad, D. (2014). National tests and diagnostic feedback: What say teachers in Trinidad and Tobago? *Journal of Educational Research, 107*(3), 241–251. doi:10.1080/00220671.2013.788993

Caribbean Education Task Force. (2001*). A Caribbean education strategy*. Washington, DC: World Bank.

Cassen, R., & Kingdon, G. (2007). *Tackling low educational achievement.* York, UK: Joseph Rowntree Foundation. Retrieved from http://www.jrf.org.uk/sites/files/jrf/2063-education-schools-achievement.pdf

Coburn, C. E., & Russell, J. L. (2008). District policy and teachers' social networks. *Educational Evaluation and Policy Analysis, 30*(3), 203–235. doi:10.3102/0162373708321829

Daly, A. J., Moolenaar, N. M., Bolivar, J. M., & Burke, P. (2010). Relationships in reform: The role of teachers' social networks, *Journal of Educational Administration, 48*(3), 359–391. doi:10.1108/09578231011041062

Davis, S. H. (2013). Linking administrative preparation programs to student outcomes: A quixotic quest? *Learning and Teaching in Educational Leadership*, *21*(1), 1–5. [Newsletter of the Special Interest Group of the American Educational Research Association (AERA)]

De Lisle, J. (2010). *Final report for the consultancy to determine the status of the Continuous Assessment Programme (CAP) in the sixty (60) full treatment schools under the SES project.* Port of Spain, Trinidad: Ministry of Education.

Ehrenberg, R. G., Brewer, D. J., Gamoran, A., & Willms, J. D. (2001). Class size and student achievement. *Psychological Science in the Public Interest, 2*(1), 1–30. doi:10.1111/1529-1006.003

Fullan, M. G. (2007). *The new meaning of educational change* (4th ed). New York, NY: Teachers College Press.

Gajda, R., & Koliba, C. J. (2008). Evaluating and improving the quality of teacher collaboration: A field-tested framework for secondary school leaders. *NASSP Bulletin*, *92*(2), 133–153. doi:10.1177/0192636508320990

Goddard, Y. L., Goddard, R. D., & Tschannen-Moran, M. (2007). A theoretical and empirical investigation of teacher collaboration for school improvement and student achievement in public elementary schools. *Teachers College Record*, *109*(4), 877–896.

Halverson, R. (2010). School formative feedback systems. *Peabody Journal of Education*. *85*(2), 130–146. doi:10.1080/01619561003685270

Heritage, M. (2007, October 2). Formative assessment: What do teachers need to know and do? *Phi Delta Kappan, 89*(2), 140–145.

Hollingworth, L. (2012). Why leadership matters: Empowering teachers to implement formative assessment. *Journal of Educational Administration, 50*(3), 365–379. doi:10.1108/09578231211223356

Hoy, W. K. (2003). Organizational Climate Index (OCI). Retrieved from http://www.waynekhoy.com/oci.html

Hoy, W. K., Smith, P. A., & Sweetland, S. R. (2002). The development of the Organizational Climate Index for high schools: Its measure and relationship to faculty trust. *The High School Journal*, *86*(2), 38–49. doi:10.1353/hsj.2002.0023

Leithwood, K., Mascall, B., Strauss, T., Sacks, R., Memon, N., & Yashkina, A. (2007). Distributing leadership to make schools smarter: Taking the ego out of the system. *Leadership and Policy in Schools*, *6*(1), 37–67. doi:10.1080/15700760601091267

Looney, J. W. (2011). *Integrating formative and summative assessment: Progress toward a seamless system*? (OECD Education Working Papers, No. 58). Paris, France: OECD Publishing. doi:10.1787/5kghx3kbl734-en

Louis, K. S., Leithwood, K., Wahlstrom, K. L., & Anderson, S. E. (2010). *Learning from leadership: Investigating the links to improved student learning. Final report of research to the Wallace Foundation*. St. Paul, MN: Center for Applied Research and Educational Improvement (CAREI), University of Minnesota.

McLaughlin, M. W., & Talbert, J. E. (2006). *Building school-based teacher learning communities: Professional strategies to improve student achievement*. New York, NY: Teachers College Press.

Mohrman, S., Tenkasi, R., & Mohrman, A. (2003). The role of networks in fundamental organizational change: A grounded analysis. *Journal of Applied Behavioural Science*, *39*(3), 301–323. doi:10.1177/0021886303258072

Moolenaar, N. M. (2012). A social network perspective on teacher collaboration in schools: Theory, methodology, and applications. *American Journal of Education*, *119*(1), 7–39. doi:10.1086/667715

Moolenaar, N. M., Sleegers, P. J., Karsten S. C., & Daly, A. (2012). The social fabric of elementary schools: A network typology of social interaction among teachers. *Educational Studies*, *38*(4), 355–371. doi:10.1080/03055698.2011.643101

Moss, C. M., & Brookhart, S. M. (2009). *Advancing formative assessment in every classroom: A guide for instructional leaders.* Alexandria, VA: ASCD.

Muijs, D., West, M., & Ainscow, M. (2010): Why network? Theoretical perspectives on networking. *School Effectiveness and School Improvement: An International Journal of Research, Policy and Practice*, *21*(1), 5–26. doi:10.1080/09243450903569692

Nabors Oláh, L., Lawrence, N. R., & Riggan, M. (2010). Learning to learn from benchmark assessment data: How teachers analyze results. *Peabody Journal of Education*, *85*, 226–245. doi:10.1080/01619561003688688

National Center for Education Statistics. (2011). *National Assessment of Educational Progress (NAEP)*. Washington, DC: Author. Retrieved from http://nces.ed.gov/nationsreportcard

Parr, J. M., Glasswell, K., & Aikman, M. (2007). Supporting teacher learning and informed practice in writing through assessment tools for teaching and

learning. *Asia-Pacific Journal of Teacher Education, 35*(1), 69–87. doi:10.1080/13598660601111281

Penuel, W., Riel, M., Krause, A., & Frank, K. (2009). Analyzing teachers' professional interactions in a school as social capital: A social network approach. *Teachers College Record, 111*(1), 124–163.

Sadler, D. R. (1989). Formative assessment and the design of instructional systems. *Instructional Science, 18*(2), 119–144. doi:10.1007/BF00117714

Stoll, L., & Louis, K. S. (Eds.). (2007). *Professional learning communities: Divergence, depth and dilemmas*. Milton Keynes, UK: Open University Press.

Trinidad and Tobago. Central Statistical Office. (2011). *Trinidad and Tobago 2011 population and housing census demographic report.* Port of Spain, Trinidad: Author. Retrieved from https://guardian.co.tt/sites/default/files/story/2011_DemographicReport.pdf

Trinidad and Tobago. Ministry of Education. (1998). *Continuous Assessment Programme (CAP): Operational manual for the pilot*. Port of Spain, Trinidad: Author.

Trinidad and Tobago. Ministry of Education. (2009). *National Tests report*. Port of Spain, Trinidad: Author.

Wayow, S. (2011, June 24). Gopeesingh: Do we need National Tests? *Trinidad Express*. Retrieved from http://www.trinidadexpress.com/news/Gopeesingh__Do_we_need_National_Tests__- 124527668.html

Wenger, E. (1998), *Communities of practice: Learning, meaning, and identity*. Cambridge, UK: Cambridge University Press.

Wood, D. (2007). Teachers learning communities: Catalyst for change or a new infrastructure for the status quo? *Teachers College Record, 109*(3), 699–739.

Appendix A

Social Network Questionnaire

Directions: We would like to know more about the professional relationships in your school. We are interested in communication on work-related matters (pupil behaviour, curriculum, instruction, planning/policy).

Please indicate your status by placing 'X' in the appropriate box

Sex: male ☐ female ☐

Please indicate an age category by placing 'X' in the appropriate box.

< 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	50-54 years	55+ years

Please indicate your status by placing 'X' in the space provided
Qualification: T. Dip _____ B.ED/BA_____ M.ED/MA_____
Other_____

Professional status: AT II_____ T1_____ HOD_____ VP_____
Ag. Prin_____ P1_____

Years in teaching: _____ Years teaching at the school: _____

Name up to 4 colleagues, including the principal, in your school:
1). With whom within the past year you have discussed the National Tests following the release of the report.

1---------- 2---------- 3----------
4----------
How often have you met?

Once	Twice	Once a term	Twice a term	More than twice a term	Several times a term	Once a week

On a scale of 1 (not important) to 4 (very important) rate the importance of the meetings**.**

1 2 3 4

2). From whom you seek advice or information about teaching in general.

1---------- 2---------- 3----------
4----------
How often do you meet?

Once	**Twice**	**Once a term**	**Twice a term**	**More than twice a term**	**Several times a term**	**Once a week**

On a scale of 1 (not important) to 4 (very important) rate the importance of the meetings.

1 2 3 4

3). From whom you seek advice or information about math teaching strategies.

1---------- 2---------- 3----------
4----------
How often do you meet?

Once	**Twice**	**Once a term**	**Twice a term**	**More than twice a term**	**Several times a term**	**Once a week**

On a scale of 1 (not important) to 4 (very important) rate the importance of the meetings.

1 2 3 4

4). From whom you seek advice or information about literacy teaching strategies.

1---------- 2---------- 3----------
4----------

How often do you meet?

Once	**Twice**	**Once a term**	**Twice a term**	**More than twice a term**	**Several times a term**	**Once a week**

On a scale of 1 (not important) to 4 (very important) rate the importance of the meetings.

1 2 3 4

5). From whom you seek advice or information about classroom discipline and strategies.

1---------- 2---------- 3----------
4----------
How often do you meet?

Once	**Twice**	**Once a term**	**Twice a term**	**More than twice a term**	**Several times a term**	**Once a week**

On a scale of 1 (not important) to 4 (very important) rate the importance of the meetings.

1 2 3 4

6). From whom you seek advice or information about course content and lesson planning.

1---------- 2---------- 3----------
4----------
How often do you meet?

Once	**Twice**	**Once a term**	**Twice a term**	**More than twice a term**	**Several times a term**	**Once a week**

On a scale of 1 (not important) to 4 (very important) rate the importance of the meetings.

1 2 3 4

7). From whom you seek advice or information about strategies to assist low-performing students.

1---------- 2---------- 3----------
4----------

How often do you meet?

Once	**Twice**	**Once a term**	**Twice a term**	**More than twice a term**	**Several times a term**	**Once a week**

On a scale of 1 (not important) to 4 (very important) rate the importance of the meetings.

1 2 3 4

8). With whom within the past year you have used the assessment data from the National Tests to make curricular decisions

1---------- 2---------- 3----------
4----------

How often have you met?

Once	**Twice**	**Once a term**	**Twice a term**	**More than twice a term**	**Several times a term**	**Once a week**

On a scale of 1 (not important) to 4 (very important) rate the importance of the meetings.

1 2 3 4

9). With whom within the past year you have used the assessment data from the National Tests to make pedagogical decisions

1---------- 2---------- 3----------
4----------
How often have you met?

Once	**Twice**	**Once a term**	**Twice a term**	**More than twice a term**	**Several times a term**	**Once a week**

On a scale of 1 (not important) to 4 (very important) rate the importance of the meetings.

1 2 3 4

10). With whom within the past year you have used the assessment data from the National Tests to identify specific content and skill areas to address.

1---------- 2---------- 3----------
4----------
How often have you met?

Once	**Twice**	**Once a term**	**Twice a term**	**More than twice a term**	**Several times a term**	**Once a week**

On a scale of 1 (not important) to 4 (very important) rate the importance of the meetings.

1 2 3 4

For the colleagues you chose, in a few lines, please give **reasons** for your selection.

_____
_____
_____
_____
_____
_____

Appendix B: Adapted Climate Index

Directions: The following are statements about your school. Please indicate the extent to which each statement characterizes your school from rarely occurs to very frequently occurs.		**Rarely Occurs**	**Sometimes Occurs**	**Often occurs**	**Very Frequently Occurs**
1	The principal explores all side of the topics and admits that other opinions exist.	①	②	③	④
2	The principal treats all faculty members as his or her equal.	①	②	③	④
3	The principal puts suggestions made by faculty into operation.	①	②	③	④
4	The principal is friendly and approachable.	①	②	③	④
5	The principal is willing to make changes.	①	②	③	④
6	The principal lets faculty know what is expected of them.	①	②	③	④
7	The principal maintains definite standards of performance.	①	②	③	④
8	Teachers help and support each other.	①	②	③	④
9	The interactions between faculty members are cooperative.	①	②	③	④
10	Teachers provide strong social support for colleagues.	①	②	③	④
11	Teachers respect the professional competence of their colleagues.	①	②	③	④
12	Teachers ‘go the extra mile’ with their students.	①	②	③	④
13	Teachers in this school exercise professional judgments.	①	②	③	④
14	Teachers accomplish their jobs with enthusiasm.	①	②	③	④