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The Impact of Teacher Collaboration on School Management in Canada

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This study examined the level of collaboration between Francophone and Anglophone language teachers of 13- and 16- year-old Canadian students (N = 4,494) using data from the 2002 SAIP (School Achievement Indicators Program) of the Council of Ministers of Education of Canada. Among 32 factors, logistic regression identified six predictors of teacher collaboration, five of which were related to the school and one to the teacher. Results were discussed in light of a theoretical model designed to assess teacher collaboration.

Keywords: collegiality, teacher collaboration, academic achievement, writing achievement, interpersonal competence

Introduction

Socio-constructivist approaches have led teachers to explore new concepts that take the social dimension of learning into consideration (Tschannen-Moran, Uline, Woolfolk, & Mackley, 2000). This aspect is no longer limited to students, but also concerns others, such as teachers, who are increasingly encouraged to collaborate with their colleagues. In order to implement successful education programs, school reforms are now addressing this collaboration which occurs on many levels (Howden & Kopiec, 2002; Inger, 1993a). Which factors determine collaboration between teachers in Canada? This study addressed this question using the 2002 SAIP (School Achievement Indicators Program, Writing III) of the Council of Ministers of Education of Canada.

The Context

Less effective school reforms have been shown to be those limited only to the system's structure without considering the human and social elements, such as culture, school climate and human relations (Kruse, Seashore, & Bryk, 1994; Newmann & Welhage, 1995). Today, school reform most often includes the aspect of in-school collaboration (Howden & Kopiec, 2002; Inger, 1993a) by promoting professional learning communities. In this regard, school principals are increasingly encouraged to facilitate collaboration among their staff (Bouchamma, 2006), as it constitutes the basis of these communities (Eaker, Richard Dufour, & Rebecca Dufour, 2004).

Teacher collaboration is often linked to effective schools and academic achievement (Cook & Friend, 1993; Eaker et al., 2004; Howden & Kopiec, 2002; Maguire, 1993; McTier, 1999; Reed, 2003; Reyes & Fuller, 1995; Williams, 1995) as well as teacher morale (Bouchamma, 2006), although this collaboration remains

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virtually unnoticed (Inger, 1993a) or is limited to its most basic existence (Bouchamma, 2006). To fully understand the issue of collaboration among teachers and better implement and sustain it in the school setting, we must closely examine its determinant factors.

THE Theoretical Framework

The general theoretical construct used here is based on Canadian research. The SAIP was inspired by the school learning model of Wang, Haertel, and Walberg (1993) which examined the various school, psychological and social factors that influence how students learn.

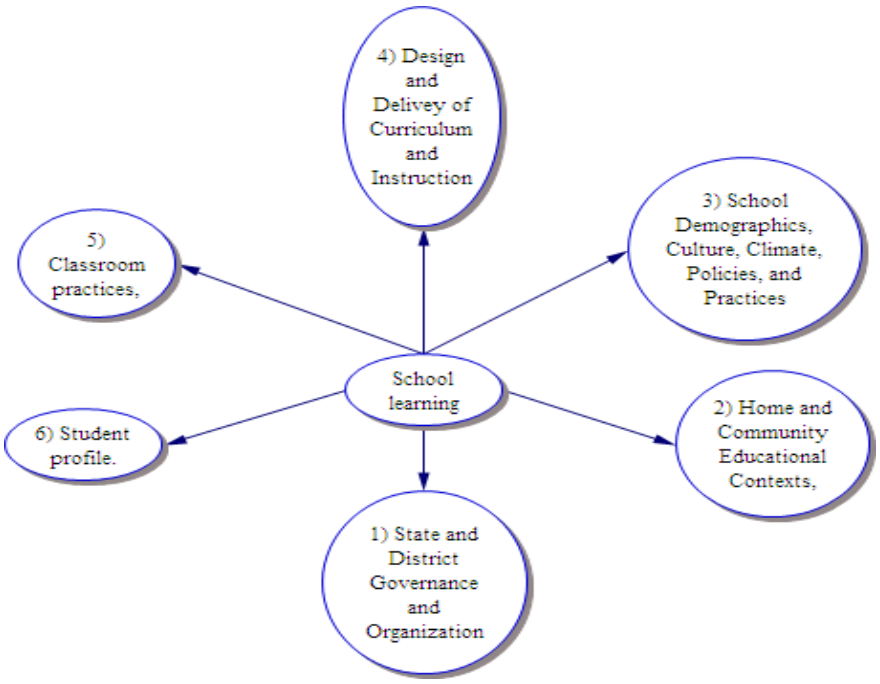

Figure 1. Theoretical framework inspired by the school learning model of Wang et al. (1993).

As illustrated in Figure 1, six factors predict student learning: (1) administration and organization of school and state; (2) educational context of family and community; (3) school demographics, culture, climate, policies and practices; (4) structure and implementation of curriculum and instruction; (5) classroom practices; and (6) student profile. One of these variables is the focus of this study, namely, “demographics”, “culture”, “school climate”, “policies” and “practices”, under which we find collaborative instruction planning.

In the absence of a theoretical construct that specifically addressed the collaboration among teachers, we designed a model based on literature that provides a global view of the elements linked to the collaboration between teachers and its contributing factors.

Definitions

Several authors have demonstrated that various levels of collaboration exist among teachers. Some have perceived these levels in an isolation-to-collaboration continuum by way of social interactions, consultation with peers, professional cooperation, mentoring and finally collaboration (Riordan & Da Costa, 1996), while others have categorized the levels in a hierarchy: conversation, assistance, idea sharing, and lastly, co-teaching, group planning, observation, action plan development, peer support and mentoring. Collaboration is, therefore,

characterized by its regularity and frequency (Riordan & Da Costa, 1998; Little, 1990; as cited in Howden & Kopiec, 2002) and is found at the highest point of collegiality, which suggests frequent meetings and learning from colleagues through shared tasks and responsibilities (Riordan & Da Costa, 1998).

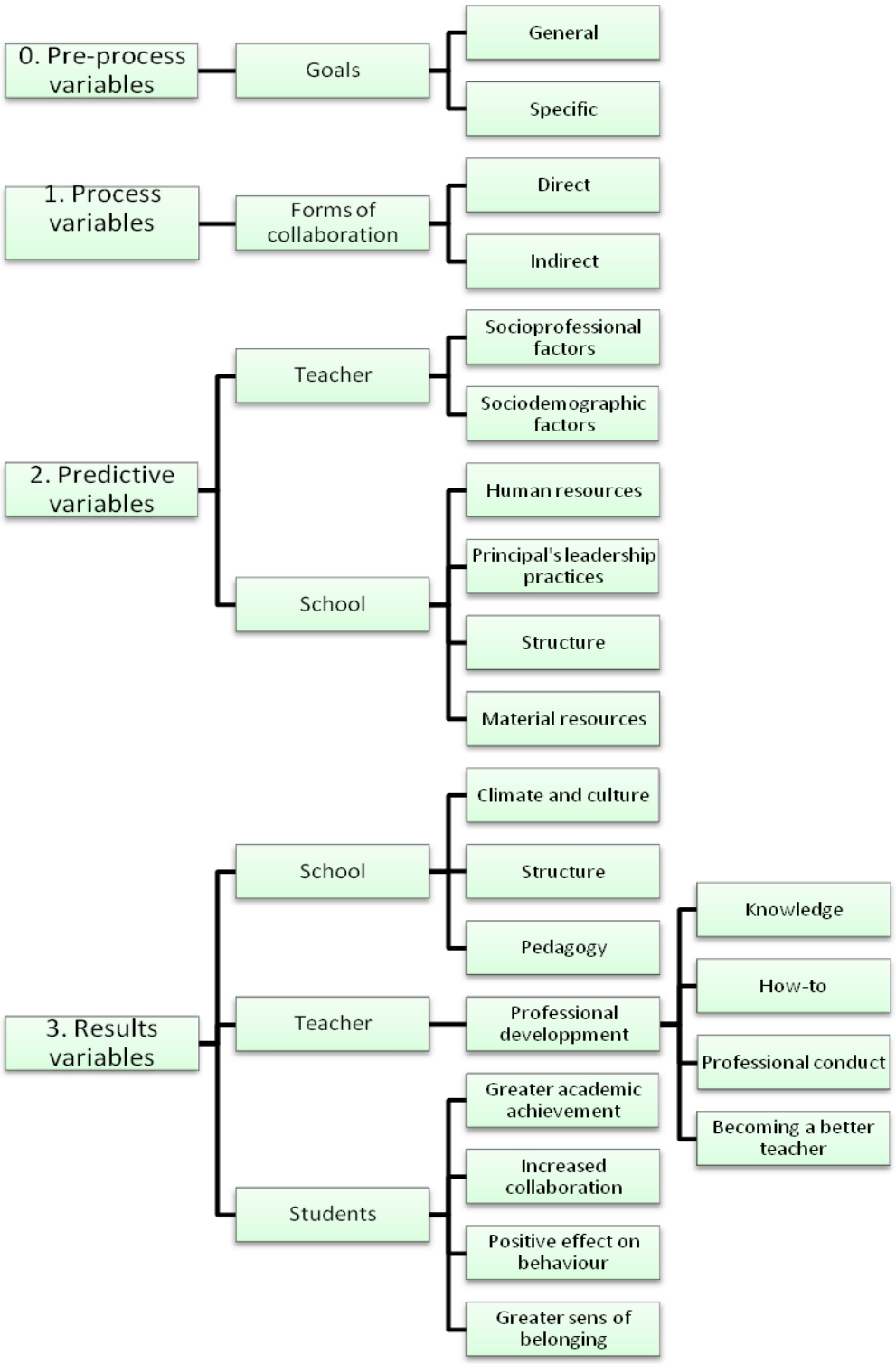

Figure 2. Theoretical framework specific to the level of collaboration.

The variables in our theoretical model were divided into four categories: pre-process, process, predictive, and results (see Figure 2).

Pre-process Variables: The Goals of the Collaboration

The pre-process variables referred to the goals of the collaboration. The works of Da Costa (1995b), Riordan and Da Costa (1996), Roberts and Pruitt (2003), Smith and Scott (1990), Spraker (2003), and Sullivan and Glanz (2006) enabled us to formulate a general goal, while the specific goals were inspired by the research of Riordan and Da Costa (1996).

Process Variables: How Collaboration Occurs

Collaboration took on different forms: direct (co-teaching or classroom observations) or indirect (group preparation, action plan development, etc.) (Gable & Manning, 1997). Indirect collaboration was determined as either horizontal (same-level or same-subject teachers) or vertical (teachers from different levels or subjects) (Bergman, Calzada, LaPointe, Lee, & Sullivan, 1998).

Predictive Variables: Required Elements in Collaboration

These predictors enabled us to identify the essential components of collaboration. Some are related to the teacher and others of the school.

Two types of variables were linked to the teacher: (1) socio-professional variables: (a) the choice to participate or not in a collaborative effort (Cook & Friend, 1993; Howden & Kopiec, 2002; Riordan & Da Costa, 1998); (b) the existence of a shared vision and common values and objectives (Cook & Friend, 1993; Gable & Manning, 1997; Howden & Kopiec, 2002; Kinkead, 2006; Newmann, 1994; Reed, 2003; St-Germain, 2002) as a part of a collective responsibility for the students' personal and academic well-being; (c) the importance of mutual respect and reliance (Da Costa, 1995b; Howden & Kopiec, 2002; Inger, 1993a; Riordan & Da Costa, 1996; Shank, 2006; Tschannen-Moran et al., 2000) through effective communication (Myers & Myers, 1990; Pugach & Johnson, 1995); (d) the will to participate in a group practice (Shank, 2006) by means of shared responsibilities (Cook & Friend, 1993; Riordan & Da Costa, 1996), interdependence (Riordan & Da Costa, 1996; Inger, 1993a), equitable contribution (Cook & Friend, 1993), and social knowledge and skills (Coombs-Richardson & Rivers, 1998; Newmann, 1994); (e) being open to improvement (Da Costa, 1995a; Newmann, 1994; Riordan & Da Costa, 1996; Smith & Scott, 1990); (f) the recognition of teamwork (Fleming, 1999; Newmann, 1994; Sergiovanni, 2001; Smith & Scott, 1990); and (g) the need for equal status (Cook & Friend, 1993; Da Costa, 1995b) to be able to collaborate on a basis unrelated to assessment; and (2) The socio-demographic variable referred to gender (Kruse et al., 1994).

Four variables were related to the school: (1) the principal's leadership practices (shared (Holland, 2002) and adapted (Liontos, 1992), transformational (Kinkead, 2006; Liontos, 1992; Lucas & Valentine, 2002; Lynn, 1994; Marks & Printy, 2003), socio-constructivist (St-Germain, 2002), through collaboration (Howden & Kopiec, 2002), and pedagogical (Howden & Kopiec, 2002; Langlois & Lapointe, 2002; Bouchamma, 2006)); (2) human resources (staff selection (Riordan & Da Costa, 1998), principal's involvement (Cook & Friend, 1993), recognition of teamwork (Inger, 1993a), presented benefits (Ogolla, 2003; Tschannen-Moran et al., 2000) and available training (Inger, 1993a; Newmann, 1994)); (3) school structure (temporal organization (Al-Bataineh & Nur-Awaleh, 2000; Cook & Friend, 1993; Da Costa, 1995b; Eaker et al., 2004; Fleming, 1999; Inger, 1993a; Kruse et al., 1994; Lynn, 1994; Newmann, 1994; Riordan & Da Costa, 1998; Tschannen-Moran et al., 2000; Van Wessum, 1999), physical environment (Fleming, 1999, Holland, 2002; Inger, 1993a; Klonsky,

2002; Kruse et al., 1994, Newmann, 1994; Reed, 2003; Reyes & Fuller, 1995; Wasley et al., 2000), and school policy (Inger, 1993b; Wang et al., 1993)); and (4) material resources (Inger, 1993a).

Results Variables: The Effect of Collaboration

Collaboration has an impact not only on students and teachers, but also on the school as a whole. In regards to the general objective expressed by the pre-process variables, collaboration between teachers enables them to achieve academic goals (Beeken, Shmidt, & Beaver, 1992; Boss, 2002; Brown & Thomas, 1999; Holland, 2002; Howden & Kopiec, 2002; Inger, 1993a; Linik, 2002; Louis & Marks, 1996; Newmann & Wehlage, 1995; Pardini, 2001; Reed, 2003; Reyes & Fuller, 1995; Riordan & Da Costa, 1998; Shank, 2006; Smith & Scott, 1990; Tschannen-Moran et al., 2000), helps them collaborate better among themselves (Holland, 2002; Howden & Kopiec, 2002; Inger, 1993a; Reyes & Fuller, 1995; Smith & Scott, 1990), affects both their behaviour and their attitude (Da Costa, 1993, 1995a; Inger, 1993a) and enables them to experience a greater sense of belonging to the school (Reyes & Fuller, 1995).

Teachers themselves are constantly learning and developing professionally (Riordan & Da Costa, 1996; Smith & Scott, 1990; Spraker, 2003; Van Wessum, 1999) in terms of: (1) knowledge generated through common discussion, enabling them to pass from “what” to “why” (Riordan & Da Costa, 1996); (2) how-to school practices (pedagogical innovations and reforms (Al-Bataineh & Nur-Awaleh, 2000; Da Costa, 1993; Da Costa, 1995a; Riordan & Da Costa, 1996; Shank, 2006; Stevens, 1997)); (3) professional conduct (less isolation (Beeken et al., 1992; Da Costa, 1993; Inger, 1993a; Reyes & Fuller, 1995; Smith & Scott, 1990), lasting professional relationships based on respect and reliance (Gable & Manning, 1997), enthusiasm, gratification and satisfaction experienced on a daily basis (Inger, 1993a), healthy interdependence (Riordan & Da Costa, 1996; Inger, 1993a), and preaching by example (Tschannen-Moran et al., 2000); and (4) personal growth (with the constant support and feedback of colleagues (Inger, 1993a; Roberts & Pruitt, 2003) and non-hierarchical supervision (Da Costa, 1995a; Smith & Scott, 1990)).

As a result, the element of collaboration helps schools become more effective and efficient (Éthier, 1989), as it influences: (1) climate and culture (Holland, 2002; Tschannen-Moran et al., 2000); (2) structure (adapted leadership (Liontos, 1992), and shared leadership (Holland, 2002), shared supervision (Da Costa, 1995b), greater retention of personnel (Cook & Friend, 1993; Recommendations to the Virginia Community College System Concerning the Role of Virginia’s Community Colleges in PK-12 Teacher Preparation, 2000), and greater transparency with the public (Cook & Friend, 1993)); and (3) pedagogy (better quality teaching in general (Inger, 1993a), a rightful place for pedagogy (Howden & Kopiec, 2002; Inger, 1993a), reforms in this area (Al-Bataineh & Nur-Awaleh, 2000; Da Costa, 1993; Howden & Kopiec, 2002; Shank, 2006; Stevens, 1997), and content continuity (Van Wessum, 1999)).

Methodology

Data Collection

The CMEC teacher questionnaire (SAIP, Writing III, 2002) was used to address our research question, namely, identifying the factors that determine teacher collaboration during their planning and preparation. The variables retained for this study focused on one of the six categories defined in the theoretical construct of Wang et al. (1993), namely, school demographics, culture, climate, policies and practices. They also partially related to the four sections of our theoretical model by touching on the pre-process and process variables, the

predictive variables related to both teacher and school, and the results variables related to teacher practices and the student.

Sample

Our sample consisted of language teachers of 13- and 16- year-old students taken from a total of 17 different populations (N = 4,494) found in Canada's 10 provinces (five of these provinces represent both Francophones and Anglophones: Nova Scotia, New Brunswick, Québec, Ontario and Manitoba) and two of the three territories, with the exception of Nunavut.

Data Analysis Techniques

To determine the effect of collaboration, we used the binary logistic regression model with a dichotomous nominal dependent variable, as defined by Hosmer and Lemeshow (1987):

$$\pi(x) = \frac{e^{g(x)}}{1 + e^{g(x)}}$$

where $g(x) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + + \beta_p x_p$ and where β_1, β_2 and β_p are regression coefficients; and x_1 and x_p are independent variables. In this study, p = 32.

Logistic regression enabled us to identify and retain, among a series of independent variables, those having the greatest significant influence on the dependent variable. The force of association was determined between a dichotomous dependent variable (in this case, the collaboration between teachers during planning and preparation) and the independent variables linked here to the teacher (socio-demographic and socio-professional factors related to school practices and perceptions) and the school (factors related to school structure and material resources). We, therefore, estimated the probability of an experience (dependent variable) from various independent and explainable variables that were either categorical or continuous (Tabachnick & Fidell, 2000).

In logistic regression, a dependent variable signifies that an event has or has not occurred (Aminot & Damon, 2002); question 11 of the teacher questionnaire, namely, "collaborative lesson planning", was, therefore, recoded to render it dichotomous, as it was presented on a 7-point Likert scale showing the frequency of meetings involving staff members. Thus, the value 0 (absence) was attributed to the answers indicating that the collaborative lesson planning occurred once a month or less, while value 1 (presence) represented those indicating once a week or more. Logistic regression, therefore, predicted the probability that an independent variable correlated with the group represented by the 0 rating, and predicted another separate probability that this variable correlated with the group represented by the 1 rating; this independent variable was, therefore, attributed to the group displaying the highest probability (Grimm & Yarnold, 1995).

Dividing the dependent variable was justified by the fact that to be considered as collaboration, it had to be not only regular, but also separated from sporadic sharing.

Results

Among the 4,494 respondents, 54.3% (N = 2,440) stated having collaborated with their colleagues once a month or less (0 rating—absence), while 43.1% (N = 1,938) reported having collaborated once a week or more (1 rating—presence).

Independent Variables

The independent variables that were likely to influence collaboration were questions 3, 4(a), 6(a-j), 12(b),

13(aegij), 14(dm), 19(ghijkm), 23(d), 25(m), 27, 28, 32 and 33 of the teacher questionnaire, for a total of 32 items. These variables were either continuous or categorical (ordinal or dichotomous). Table 1 presents the six variables retained among these 32 items.

Table 1

Independent Variables Retained by Logistic Regression

Variable	*N*	*β*	*SD*	Wald	Odds ratio Exp (B)	95% C.I. Exp (B)
Q3: Time allocated to planning and preparation during regular school hours	3,324	0.09	0.04	5.05*	1.09	1.01-1.18
Q4a: Class size in the English/French language arts classes	2,974	0.03	0.01	4.27*	1.03	1.00-1.06
Q6a: Time spent on planning and preparing activities outside of school hours	4,413	0.14	0.06	5.15*	1.15	1.02-1.23
Q6g: Time spent on working with students (e.g., coaching, clubs, tutoring), activities outside of school hours.	4,372	-0.11	0.05	4.81*	0.90	0.82-0.99
Q12b: Use of materials prepared by other teachers or specialists as resources for planning lessons in English/French language arts	4,334	0.33	0.08	18.47***	1.40	1.20-1.62
Q13e: Belief that writing should be taught in all school subjects, not just in English/French language arts	4,425	0.31	0.10	9.76**	1.36	1.12-1.65

Notes. $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

The resulting model explained 9.9% of variance of teacher collaboration during lesson planning and this model held true for 62.1% of cases. Odds ratio analysis (Exp B) revealed that none of the variables were over-correlated among themselves, which signified the absence of possibility of multi-collinearity of the independent variables.

The Synthesis of the Independent Variables in Order of Importance

The more the teachers referred to materials prepared by colleagues or specialists in their lesson planning, the more they collaborated when planning (Q12b, $\beta = 0.33$);

The more the teachers agreed that writing should be taught in every subject, the more they collaborated when lesson planning (Q13e, $\beta = 0.31$);

The more time the teachers spent on lesson planning and preparing outside of school hours, the more they collaborated when planning (Q6a, $\beta = 0.14$);

The more preparation time the teachers had each week during school hours, the more they collaborated in lesson planning (Q3, $\beta = 0.09$);

The higher the average number of students per class, the greater the level of teacher collaboration during lesson planning (Q4a, $\beta = 0.03$);

The more time the teachers spent outside of school hours working with students (supervision, clubs and mentoring), the less they collaborated during lesson planning (Q6g, $\beta = -0.11$).

Discussion

Logistic regression enabled us to retain from the 32 independent variables those considered to predict the dependent variable, namely, “collaboration between teachers”. In this section, we discuss the level of correlation of the resulting model and the predictors retained according to our theoretical model.

Factors Related to School

Five of the six predictors retained by logistic regression were related to either the school's structure or its material resources.

Factors Related to Structure

Research has shown the importance of the principal's support in encouraging collaboration, which does not often occur (Inger, 1993a; Riordan & Da Costa, 1994) due to existing structures that normally do not enable such practices (Shank, 2006). The general theoretical model also states that school leaders not only have a definite influence on the amount of collaboration, but also play a key role in helping their schools to be more effective.

Factors Related to Time

Three of the factors retained for analysis were related to time: Q3: "Time allocated to planning and preparation during regular school" (the more time allocated in school, the greater the level of collaboration); Q6a: "Time spent on planning and preparing activities outside of formal school hours" (the more time teachers spent on lesson planning outside of school, the more they collaborated in lesson planning); Q6g: "Time spent working with students (e.g., coaching, clubs and tutoring) in activities outside of formal school hours" (the more time teachers spent helping students outside of school, the less they collaborated when lesson planning). According to our analysis, these factors ranked 3, 4 and 6, respectively, in terms of importance.

Unsurprisingly, theoretical studies on teacher collaboration have often reported time as being a significant determinant. The temporal organization of a school (regular and extracurricular hours) greatly affects the opportunities and potential for collaboration between members of the teaching staff, as is confirmed by extensive research on the impact of time at level of collaboration. The lack of time is cited as being an important—if not the most important challenge for teachers in terms of their collaboration with colleagues (Cook & Friend, 1993; Da Costa, 1995b; Kruse et al., 1994; Newmann, 1994; Riordan & Da Costa, 1998). If we are to encourage collaboration among staff members, and by the same token, give pedagogy its rightful place at the heart of this process, it is imperative that sufficient time be set aside within regular school hours for this exact purpose (Al-Bataineh & Nur-Awaleh, 2000; Eaker et al., 2004; Fleming, 1999; Inger, 1993a; Lynn, 1994; Newmann, 1994; Riordan & Da Costa, 1998; Tschannen-Moran et al., 2000; Van Wessum, 1999). The presence of factor Q3 confirms its relevance.

It is interesting to note factor Q6a, which revealed that language teachers who spent more time preparing their instruction outside regular school hours were shown to collaborate more when lesson planning. This may appear contradictory in light of the literature because of the fact that these teachers have less time to meet and collaborate with other staff members and were thus expected to collaborate less.

It would, therefore, have been interesting to determine whether the teachers who collaborated during lesson planning benefited from a work schedule that facilitated collaboration between staff members during school hours or whether they willingly collaborated during these hours. Unfortunately, this information was unavailable. If the teachers had a schedule that enabled them to collaborate with other teachers during school hours, it would been of interest to know the reason why the teachers who took time to collaborate with colleagues were also those who devoted more time to planning and preparation outside of regular school hours. On the contrary, if they did not have sufficient time to collaborate during school hours, we should be looking at the reason why most of them collaborated with colleagues during lesson planning. Did they team up with

colleagues to lessen their increasingly heavy workload and save time by sharing tasks or was it rather a desire to enrich their teaching skills through this collaboration (Da Costa, 1995b; Roberts & Pruitt, 2003; Smith & Scott, 1990)? Separating the personal goal from the educational goal should have been addressed. Although this may appear contradictory, maintaining an isolated practice within a group is possible, if the task of the group is not undertaken with a pedagogical objective through the contact of others, but rather for the purpose of sharing a major task that is normally accomplished by one person.

The question as to the purpose involved in engaging in collaborative activities, therefore, remains unanswered. If the goal is to see teachers collaborating to ensure greater collaboration among students as well as greater achievement, they should be given more time to collaborate during the day, so that improving their teaching to help their students becomes the primary reason behind this collaboration.

Numerous authors have shown the connection between the level of collaboration between teachers and student achievement (Beeken et al., 1992; Boss, 2002; Brown & Thomas, 1999; Holland, 2002; Howden & Kopiec, 2002; Inger, 1993a; Linik, 2002; Louis & Marks, 1996; Newmann & Wehlage, 1995; Pardini, 2001; Reed, 2003; Reyes & Fuller, 1995; Riordan & Da Costa, 1998; Shank, 2006; Smith & Scott, 1990; Tschannen-Moran et al, 2000), as well as between the collaboration among teachers and that among students (Holland, 2002; Howden & Kopiec, 2002; Inger, 1993a; Reyes & Fuller, 1995; Smith & Scott, 1990). Furthermore, providing teachers with sufficient time to meet with colleagues during school hours can be achieved in different ways, such as re-arranging their work schedule (Al-Bataineh & Nur-Awaleh, 2000; Riordan & Da Costa, 1998; Van Wessum, 1999), ensuring that tasks which could be performed by others are not given to teachers (Tschannen-Moran et al., 2000), and using this time for professional development (Riordan & Da Costa, 1998).

The presence of factor Q6g was more predictable in that it indicated that teachers who spent more time working with students outside of school hours collaborated less. As this task requires a considerable amount of time, teachers who have already spent a significant portion on other activities have less chance of having time for collaborative activities outside of school hours.

Class Size

The fifth predictor retained by logistic regression was factor Q4a: “Class size in the English/French language arts classes taught in the school year”. We found that the higher the average number of students per class, the greater the level of collaboration by the teachers in lesson planning. This determinant, therefore, correlates with school structure.

Despite of the fact that, to our knowledge, no other study has examined this element, its presence in our model brings us once again to question the reason why teachers collaborate with colleagues. If teachers who have a greater number of students in their class also have a heavier workload, the fact that they collaborate more may appear to be contradictory. Understanding the goal of this collaboration should be studied further.

Factor Related to Material Resources

Factor Q12b: “Use of materials prepared by other teachers or specialists as resources for planning lessons in English/French language arts” (the more the teachers referred to their colleagues or specialists in their lesson planning, the more they collaborated) was determined by logistical regression as being the most important predictor. It is found in the specific theoretical construct through the predictive variables related to

school, namely, the importance of providing the necessary material resources to encourage collaboration. This supports findings by Inger (1993a), regarding the quality and the availability of material (and human) resources which appear to contribute significantly to the capacity and the desire of teachers to work effectively together.

This factor also appears to be determinant in that it refers to material resources between colleagues, which in itself signifies collaboration during lesson planning. Enabling the sharing of material resources is, therefore, recommended to facilitate greater collaboration during lesson planning.

Factor Related to the Teacher

One factor was related to the teacher and deemed the second most important factor. A closer look connects this factor to the literature and the specific theoretical construct.

Perceptions and Beliefs

Regression analysis retained factor Q13e belief that writing should be taught in all school subjects, not just in English language arts, as the more teachers agreed that writing should be taught in every subject, the more they were shown to collaborate in their lesson planning.

Item Q13e related to the theoretical model as part of the process variables where we refer the different forms of collaboration, such as vertical indirect collaboration (Gable & Manning, 1997; Bergman et al., 1998) which includes inter-disciplinarity as well as multi-disciplinarity (teachers of different subjects who plan instruction together in order to include notions from the other subjects into their own lesson planning). Interestingly, language teachers who believed that writing should be taught in other subjects were those who showed a greater level of collaboration with peers.

This factor reveals the impact of beliefs on teachers' actions, thus, the need that positive changes should be introduced gradually, beginning with generating greater awareness of the importance of collaboration through changes within existing values and beliefs. Ogolla (2003) stated that the educational beliefs of teachers changed when they experienced or were witness to positive change brought about by new and effective approaches, which was the reason why it was so important to emphasize their benefits.

Conclusions

This study examined predictors of the collaboration between teachers during their planning and preparation with the help of the 2002 SAIP Writing III Assessment, using part of a theoretical model pertaining specifically to the level of collaboration.

Our results show that the predictors of teacher collaboration during lesson planning and preparation were related to both school and teacher. The discussion addressed the role school principals must play as leaders in the education process. To help their teachers get involved in a more open professional community, principals must facilitate collaborative activities among their teaching staff by generating a gradual awareness of the many goals and benefits involved. These positive actions will effectively shape their teachers' beliefs and perceptions. Principals must also take a hard look at the issue of teacher's workload. Finally, future actions must involve creating more opportunities for discussion, which will lead to greater collaboration, and ensuring time allotments within regular school hours for teachers who wish to increase their level of collaboration.

The challenges of this study are illustrated as the followings. As this study was done using the secondary data, we were unable to verify other relevant questions pertaining to collaboration, such as the reasons why

teachers collaborate, which would have provided a better understanding of how teachers perceive as well as experience this collaboration. Nevertheless, the collaboration referred to in the 2002 SAIP Writing III data regards group lesson planning, which is one form of teacher collaboration.

In addition, these data did not enable us to determine the type of group involved (small group, from a particular department or the school as a whole), whether other forms of collaboration existed within the school, whether this collaboration was voluntary or not, who were the participating members (teachers of the same subject/level or not), whether the time allowed for collaborative activities was during school hours, whether the group had an opportunity for self-evaluation, or the purpose of the collaboration, among others. Needless to say, the 2002 SAIP teacher questionnaire was not designed for this specific purpose. Thus, several points may be of interest for future research:

(1) Leadership practices of school principals, particularly transformational leadership which is closely related to the level of collaboration among teachers;

(2) Incentive factors that help schools encourage and maintain collaborative practices among their teaching staff;

(3) Direct collaboration and the predictors of other forms of collaboration, such as co-teaching methods, mentoring, etc.;

(4) Collaboration among different parties within the system (principals, different schools, schools, and their school board, etc.);

(5) Impact of having a policy that generates awareness of teacher collaboration and its benefits;

(6) Collaboration among teachers of different subjects or those assigned to groups of different ages, as we know that collaboration has been shown to be more challenging among high school teachers (Inger, 1993a; Newmann, 1994; Reyes & Fuller, 1995).

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