*The Canadian Journal of Program Evaluation* Vol. 22 No. 3 Pages 121–150
ISSN 0834-1516  

# SCHOOL DETERMINANTS OF ACHIEVEMENT IN WRITING: IMPLICATIONS FOR SCHOOL MANAGEMENT IN MINORITY SETTINGS

Yamina Bouchamma
Claire Lapointe
Université Laval
Québec, Québec

Jean-François Richard
Université de Moncton
Moncton, New Brunswick

**Abstract:** This study identified school factors that determined writing achievement for 13- and 16-year-old Francophone students in minority (Manitoba, Ontario, New Brunswick, and Nova Scotia) and majority settings (Quebec) ($N$ = 5700). Factor analysis retained three factors subjected to binary logistic regression with students' academic performance: Human and Material Resources and School-Community-Family Relations; Principal's Vision and Beliefs; and Rules and Procedures. Logistic regression found two major determinants in writing achievement: Human and Material Resources and School-Community-Family Relations, and Principal's Vision and Beliefs. In minority settings, the $t$-test showed significant deficits affecting the school's ability to provide teaching programs in terms of Human and Material Resources and School-Community-Family Relations. The influence of both principals and teaching staff (individually) on general activities, school programs, and staff morale was weaker in the minority than in the majority contexts, in contrast to community support, school spirit, and students' and teachers' level of pride, which were stronger in minority settings.

**Résumé :** Cette étude a identifié les facteurs scolaires qui ont déterminé la réussite en écriture des élèves francophones de 13 et 16 ans en milieu minoritaire (Manitoba, Ontario, Nouveau Brunswick, et Nouvelle Écosse) et en milieu majoritaire (Québec) ($N$ = 5 700). L'analyse factorielle a permis d'identifier trois facteurs qui ont été soumis à la régression logistique binaire avec le rendement en écriture : (a) les ressources humaines et matérielles et les relations famille-communauté-école, (b) la vision et les croyances du directeur de l'école, et (c) les règles et procédures. La

Corresponding author: Yamina Bouchamma, Faculté des sciences de l'éducation, Département Fondements et pratiques en éducation, Université Laval, Québec, QC, G1K 7P4; <yamina.bouchamma@fse.ulaval.ca>

régression logistique a retenu deux déterminants majeurs de la réussite en écriture : (a) les ressources humaines et matérielles et les relations famille-communauté-école et (b) la vision et les croyances du directeur de l'école. En milieu minoritaire, le test *t* a montré des faiblesses significatives qui affectent la capacité de l'école à offrir des programmes d'enseignement en termes de ressources humaines et matérielles et de relations famille-communauté-école. L'influence de la direction d'école et du personnel enseignant (individuellement) sur des activités générales, des programmes scolaires, et le moral du personnel est plus faible en milieu minoritaire qu'en milieu majoritaire. À l'opposé, l'appui de la communauté, l'esprit scolaire, et le niveau de fierté des élèves et des enseignants sont plus forts en milieu minoritaire francophone.

Canada is now facing a phenomenon called functional illiteracy. This phenomenon means that a person can be virtually illiterate if they have not developed skills related to reading, writing, and mathematics, or if the requirements of their environment increase (Warren, Rees, & Edwards, 1991). We live in a society where changes are so frequent and numerous that skills quickly become outdated. In these conditions, we must constantly update our knowledge and skills. Despite easy access to new technologies and knowledge, we must learn basic skills in communication. These skills remain essential today (Simard, 1992), particularly in school where good writing skills are a prerequisite to learning other school subjects. In fact, studies have already demonstrated the favourable impact of mastering writing skills on performance in mathematics and sciences (Pruneau & Langis, 2002; Thayer & Giebelhauss, 2001).

Academic success in high school can have many consequences. It does not concern only students, but also our school boards and society as a whole. Corbeil (2000), from data collected by the International Adult Literacy Survey (IALS) in 1994 and 1995, revealed that academic success was among the main determinants of success or failure in adulthood. Although illiteracy is defined as a complex product of socioeconomic factors, it remains closely linked to a lack of academic success. Osberg (2000) noted that literacy may have a notable impact on income, representing close to 30% of education's economical achievement.

Although Canada fares well compared to many countries in terms of the academic achievement of 13-to-16-year-olds in sciences and mathematics (Trends in International Mathematics and Science

Study [TIMSS], 1995) and of 15-year-olds in writing achievement (Program for International Student Assessment in Writing [PISA], 2000), many challenges lie ahead for our country if we are to improve the situation. For example, we must seek a better understanding of those factors related to issues such as academic performance and provincial and language inequalities. Our research examined these inequalities in two French-speaking student populations in Canada: a minority setting (Manitoba, Ontario, New Brunswick, and Nova Scotia), and a majority one (Quebec).

The school systems in Francophone minority settings already deal with many challenges: teaching French language and culture, multiple-level classes, lack of human and material resources for the needs of heterogeneous groups, schools in remote areas, poor cultural facilities, lack of human resources for special needs, and shortcomings in teachers' initial and continuous training relevant to minority settings (Gilbert, LeTouzé, Thériault, & Landry, 2004). Results of the School Achievement Indicators Program (SAIP), directed by the Council of Ministers of Education, Canada (CMEC), have revealed disparities since 1994 with regard to writing tests according to province, level, gender, and language. For example, Francophone students living in minority settings (French-language schools outside of Quebec: Manitoba, Ontario, New Brunswick, and Nova Scotia) perform at lower levels on these tests than do those living in Quebec and Anglophones in their provinces (Crocker, 2002). In a Francophone minority setting, students' linguistic and cultural vitality is weakened by the dominant Anglophone social environment (Hache, 2001). This situation has led to a decline in postsecondary education enrolments in Ontario (Frenette & Quazi, 1999). This study (a) identifies school factors associated with achievement in writing in general; (b) examines the differences between Francophone students in minority (Manitoba, Ontario, New Brunswick, and Nova Scotia) and majority settings (Quebec); and (c) discusses the implications of these findings for linguistic minority schools' management.

## REVIEW OF LITERATURE

In this study, the notion of "effective" or "successful" schools refers generally to schools that display a level of academic achievement, as measured by standardized tests, equal to or even higher than schools in high socioeconomic areas, despite obvious socioeconomic and cultural challenges. Since the early 1980s, the school-effect on student achievement has generated much research. Jencks (1979) and

Goodlad (1984) found significant differences in school success among schools. Other researchers have also tried to specify this school-effect on student achievement (Cousin, 1993; Derouet, 1990; Duru-Bellat & Henriot-Van Zanten, 1992; Gregoire, 1990). While studies maintain a strong connection between social factors and school success, there are schools where the academic success of every student is a reality (Deblois & Corriveau, 1993; Gaskell, 1995; Lamb, Hogan, & Johnson, 2001; Papalewis & Fortune, 2002). According to these researchers, school success is possible, despite obstacles such as poverty, a significant proportion of students from ethnic communities, poor grades from male students, rural society context, language, or ethnic minority status (Papalewis & Fortune, 2002).

According to studies on effective schools, characteristics related to school management can turn things around, resulting in good grades for students despite socioeconomic restrictions. In their meta-analysis of 60 studies, Gonzalez, Glasman, and Glasman (2002) confirmed the positive effect of management practices on students' academic performance. This positive effect is possible despite poverty (Cawelti, 2000; Deblois & Corriveau, 1993; Izumi, 2002), a strong proportion of students from ethnic communities (Scheurich, 1998), or a rural context (Lee & McIntire, 1999). This success may be explained in part by factors related to school management leadership and practices. There are good grades when the leaders involve every member of the school community in a lasting organizational process of development and learning (Leithwood, 2001).

## Human/Material Resources and Achievement

The Coleman Report (Coleman et al., 1966) showed a very slight link between material resources and academic success. Since the publication of the Coleman Report, however, several studies have shown a definite connection between material resources and achievement in schools (Byrnes, Kiger, & Manning, 1998; Codding & Tucker, 2000; Dickinson, 2005; Greenall & Loizides, 2001; Greenwald, Hedges, & Laine, 1996; Hanushek, 1997; Hedges, Laine, & Greenwald, 1994; Howley & Howley, 2001; Loeb, 2003; Nighswander, Cherkasky-Davis, & Bearden, 2001; Pablo, Ongteco, Belen, & Koki, 2000; Pan, Rudo, Schneider, & Smith-Hansen, 2003; Reyes, Garza, & Trueba, 2004).

According to Hanushek (1994, 1996), it's not only a question of the amount of available funding, it's also about the way these funds are managed. The mixed results regarding the link between available

material resources and academic success do indicate one important thing: success does not come automatically with the addition of resources. These resources must be managed effectively, and training and information must be provided for students and teachers alike on the appropriate use of these resources.

For some academic success factors, such as socioeconomic and individual conditions, it is not always possible for staff to make a difference. However, it is possible for school administrators to have an impact on academic success with the material resources effect. This possibility must be closely examined in order to find solutions for Francophone students in minority and majority settings. There must be a strategy for the improvement of their academic success with new material resources and the appropriate training for their use.

Training opportunities and appropriate working conditions help teachers to be more effective. A good working environment is essential for employee performance, satisfaction, and productivity (Cicchinelli, Gaddy, Lefkowits, & Miller, 2003). Thus, reducing class size not only improves learning, student participation, and student-teacher relationships, but also minimizes discipline problems (Schwartz, 2003). When class size is reduced, the possible positive effects are boundless. Teachers may then teach every subject and are able to delve deeper into each one. Learning quality therefore improves (Reynolds, Reagin, & Reinshuttle, 2001; Schwartz, 2003) as do teaching methods (Gilstrap, 2003; Reynolds et al., 2001).

When class size is reduced, teachers devote less time to disciplinary matters and have a better understanding of individual differences and students' needs. Teachers can also adjust their strategies to these needs (Gilstrap, 2003). Finally, teachers have the possibility of improving their interpersonal relations with students and facilitating their involvement (Gilstrap, 2003; Schwartz, 2003). A smaller class size can improve student performance. Findings from a longitudinal study showed the positive effect of the small-size class (Egelson, Harman, Hood, & Achilles, 2002). For some authors, encouraging small-size classes should be the principal's responsibility (Deutsch, 2003).

Despite the many advantages mentioned here, there is no unanimity regarding small-size classes. Some researchers have found that students learn better in small than in large classes (Egelson et al., 2002; Gilstrap, 2003). However, for other researchers, the quality of teaching is, ultimately, the factor having the greatest impact on stu-

dents' learning (Miller-Whitehead, 2003; Seyfarth, 2002). Finally, for some researchers, teachers do not significantly change their teaching methods when moving from a larger class of students to a smaller one (Harman, Egelson, & O'Connell, 2002).

In other respects many studies have pointed out the positive effects of technological resources on student achievement (Cawelti, 1997; Ediger, 2003; Lewis, 1999; Owston & Wideman, 2001; Puri, 2005; Rogers, 2004; Sweet, Rasher, Abromitis, & Johnson, 2004). This positive effect can also be achieved through school environment, teachers' commitment, and satisfaction (Ross & Lowther, 2003). The use of technological resources is sometimes considered a catalyst (Hawkridge, 1990; McDonald & Ingvarson, 1997) or a lever (Venezky, 2002). There is a debate today regarding the real impact of technological resources on academic success (Cuban, 2001; Cuban & Kirkpatrick, 1998; Roshelle, Pea, Hoadley, Gordin, & Means, 2000; Ungerleider & Burns, 2002).

Many international agencies, such as the International Association for the Evaluation of Educational Achievement (IEA) and the Organisation for Economic Co-Operation and development (OECD), and researchers have tried to understand whether technological resources have an impact on achievement (Adam & Wood, 1999; Grunberg & Summers, 1992; Roshelle et al., 2000; Ungerleider & Burns, 2002). Mixed results indicate that it is very difficult to generalize methods and procedures in the school setting. The prevailing opinion today on teaching with technological resources is that it must be a coordinated collective approach. This approach must take into consideration aspects of the school system such as curriculum, educational methods, teachers' professional development, assessment, and particularities of the school culture (Roshelle et al., 2000).

The effect of human resources on students' achievement is brought out in several studies (Brown, Roney, & Anfara, 2003; Heneman & Milanowski, 2004; Hertert & Teague, 2003). Teachers can exercise this influence on their students' performance through their skills, knowledge (Holland, 2005), and specialization (language or other) (Sunderman & Kim, 2005). Interestingly, it is not the availability of human resources that improves students' performance, but rather the way in which they are managed (Daley & Vasu, 2005). In other words, more important than securing teachers is holding on to them and providing continuing education opportunities. Students' academic performance actually improves when the teaching staff is certified,

well-prepared (Darling-Hammond, 2000), and allowed to pursue professional development (Desimone, Smith, & Ueno, 2006). This is also the case with financial resources, which have no effect when inadequately managed (Pan et al., 2003; Pan, Rudo, & Smith-Hansen, 2002).

Principals of high-performance schools can therefore play a major role in shaping how well their students do. They may do this partly in the way they manage human resources. Effective principals assign the strongest teachers to those students who are most in need (Haycock, 2002), set up aid and intervention teams to support teachers (Myers & Kline, 2002), provide frequent feedback (Chester & Beaudin, 1996), and participate in sessions on their teachers' professional development (Fisher & Frey, 2002). In fact, principals of effective schools act as catalysts in improving both the school's culture of teaching and learning (Gantner, Newsom, & Dunlap, 2000; Sheppard, 1996; Singh & McMillan, 2002; Zigarelli, 1996) and student evaluations (Ediger, 2000). Furthermore, these effective principals opt for individualized teaching and the betterment of low achievers (Bushman, Goodman, Brown-Welty, & Dorn, 2001).

Some studies have reported that increasing human and material resources is particularly beneficial with at-risk students, such as those in rural areas (Schwartz, 2001), disadvantaged sectors (Acevedo, 1999), or linguistic minority groups (Dickinson, 2005). If specialized teachers can cope with cultural and linguistic diversity, their shortage in schools is counter-productive to student achievement (Tyler, Yzquierdo, Lopez-Reyna, & Saunders Flippin, 2004). In this regard, the most significant challenge faced by principals in minority or disadvantaged areas lies in finding ways to retain these qualified teachers (Sunderman & Kim, 2005).

## Vision and Beliefs

Vision is defined as an ideal that represents or reflects the organization's shared values (Shamir, House, & Arthur, 1993). School principals and teachers' vision can affect students' achievement (Finnigan, 2005; Holland, 2005; Leithwood, Louis, Anderson, & Wahlstrom, 2004). Principals and their teaching staff must forge common goals and collaborate to establish and implement a plan that focuses on improving their students' learning (Zmuda, Kuklis, & Kline, 2004). Principals have an indirect yet measurable influence on learning through their vision, mission, and goals (Hallinger & Heck, 1998).

Principals who display strong leadership have a positive impact on their students' learning, while those who show poor leadership negatively affect their students' performance (Waters & Kingston, 2005).

### Family-School Collaboration

Findings suggest that involving parents in their children's education and school activities can have a positive impact on academic achievement. Scientific research (Chih-Lun, 2005; Larrivée, Kalubi, & Terisse, 2006; Pounder, Ogawa, & Adams, 1995) and professional writing (Cawelti, 1997; Waters & Kingston, 2005) also suggest that school-family collaboration can be fruitful for students. This collaboration could take on many forms. Larrivée et al. (2006) identified four levels: consultation (mutual information), dialogue (coordination), partnership (cooperation), and fusion (co-management). The first principle of this collaboration is well-known. Skills, strategies, and other means must be shared in order to favour academic success. However, no empirical data exists on topics such as links between types of participation and socio-demographic characteristics (socio-economic category, ethnic background, etc.) among families. Research has not fully addressed families' representations regarding school, academic achievement, and supportive practices at home with their children.

### Beliefs and Performance (Effectiveness, Effort, Power, and Control)

Principals' beliefs and perceptions determine their actions and, therefore, influence how their students learn. Principals are most effective when they are optimistic and believe they can make a difference in their students' performance. They can be effective even when they lack a clear idea of how to achieve this goal (Chapman & Burchfield, 1992).

### Organizational Climate

Organizational climate concerns the perception people have of the school context and how it affects them. A principal's influence is indirect on academic performance, yet direct on commitment (Hoy, Tarter, & Bliss, 1990). School climate, leadership, and quality teaching are frequently associated with effective schools (Kelley, Thornton, & Daugherty, 2005).

Shared Responsibility

Principals' leadership capabilities have been positively correlated with commitment, which is then positively associated with their school's effectiveness (Pounder et al., 1995). Effective schools have principals who share leadership (Cowley & Meehan, 2002). Schools with a strong organizational commitment expose their students to an ordered, scholarly environment. This kind of environment not only facilitates study but also involves teachers more deeply in the decision-making process. Organizational commitment has been positively correlated with academic achievement (Kushman, 1992).

## THEORETICAL FRAMEWORK

The School Achievement Indicators Program is based on a theoretical framework from the model developed by Wang, Haertel, and Walberg (1993). This model includes seven major categories: (a) the provincial/district context (e.g., size, autonomy, resource allocation); (b) the out-of-school context (e.g., community size and type, home environment, home language); (c) the school context (e.g., structure and size, leadership style, policies, programs); (d) student characteristics (e.g., aspirations, attributions of success/failure, importance of school and of writing); (e) program design (e.g., implemented curriculum, lesson planning, use of materials); (f) teacher characteristics (e.g., qualifications, experience, views on writing and the teaching of writing); and (g) classroom instruction and climate (e.g., classroom routines, use of time, classroom climate, homework). This article examines the third factor, which is the school context: structure and size, leadership style, policies, and programs.

This third factor from the Wang et al. (1993) model used for the SAIP concerns the following components: school's rules and norms, staff retention, team planning, collective relations, use of a cooperative structure, discipline and order, recognition of students' academic success, principal's involvement as the educational leader, school daily activities, school size, number of classes, number of teachers and teaching assistants, and finally, relationships between racial, ethnic, and socioeconomic groups.

We must mention here the absence of two important dimensions in this particular model: representations and beliefs. For this reason, we adopted the theoretical framework of Corallo, McDonald, Sattes, and Walsh (2003), which contains the following elements: (a) vision,

(b) mission, (c) core beliefs, (d) strategic structures (rules, procedures, etc.), and (e) distributed accountability. This theoretical framework appears to us to be more complete than the one used by the SAIP, which lacks detail on the dimension of the principals' representations and beliefs.

## METHODOLOGY

### Participants

This study related to the SAIP Writing III 2002 data. The total sample was made up of 23,680 students (24% Francophone and 76% Anglophone) and 1,675 schools. The writing task included two sessions. During the first session, the students were asked to respond to a short text during one hour. They then had to discuss a series of brief texts. A few days later, during the second session, the students had two and a half hours to complete the assigned writing task. The latter writing achievement was scored on a 5-point level scale (low to high) representing a continuum of knowledge and skills acquired by students of the same age. Syntax, overall ideas, and errors in each essay were considered in the rating. The writing essay results were coded as either success or failure, which served as the dependent variable for this study.

### Material

This study used part of its secondary data from the school background questionnaire. School practices and principals' representations and beliefs were measured using questions 16, 17, 18, 29, 30, and 33 of the school's questionnaire. Table 1 shows examples of items used for measuring some characteristics of the school and the principals' representations and beliefs. There were 56 items in all: 13 for question 16, 5 for question 17, 14 for question 18, 7 for question 29, 8 for question 30, and 9 for question 33 (see Table 1 for more details). The items were rated on a 4-point Likert-type scale ranging from *a lot* (4) to *none* (1).

### Analysis

Factor analysis (Table 2) and variance analysis (Table 3) were performed for each school ($N$ = 1,675) in our study. Logistic regression was done by taking into account all of the students' writing achieve-

ment ($N$ = 23,680). A $t$-test was also used to compare school factors (from the factor analysis) for the Francophone minority settings (Manitoba, Ontario, New Brunswick, and Nova Scotia) and majority settings (Quebec).

A factor analysis with varimax rotation was conducted on the 56 items. A logistic regression was performed with the selected factors to identify determinants in academic achievement. It must be pointed out that our independent variables were ordinals. For this study, we chose the Hosmer-Lemeshow (1987) dichotomic logistic regression with the pass or fail nominal dependent variable defined as follows:

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

where $g(x) = ß_0 + ß_1 x_1 + ß_2 x_2 + \ldots + ß_p x_{p\ldots}$ and where $ß_1, ß_2 \ldots ß_p$ are regression coefficients and $x_1 \ldots x_p$ are the independent variables.

**Table 1**
**Examples of Items Used for Practices and Representations in School Questionnaire Writing Assessment III, 2002 (School Achievement Indicators Program)**

| Questions | Examples | Items (*N*) |
|---|---|---|
| 16 How much influence would you say each of the following has on your school's overall activities and programs? | Parent advisory committees or school councils | 13 |
| 17 To what degree is your school's capacity to provide instruction limited by the following? | Students' home backgrounds | 5 |
| 18 To what extent does a shortage or an inadequacy of the following affect your school's capacity to provide instruction? | Quality of computers for instructional use | 14 |
| 29 Where students do not take the same courses in English Language Arts, how much influence does each of the following have in deciding which English Language Arts courses a student will take? | Teachers' recommendations | 7 |
| 30 In your school, to what extent do parents… | Influence the selection of the principal or teachers? | 8 |
| 33 To what extent do you agree or disagree with the following statements? | Because a student's home environment has a major influence on achievement | 9 |

## RESULTS

Factor analysis gave us the opportunity to reduce the number of items of the six main questions from 56 to 31 items. These 31 items were then brought together under three factors. Table 2 provides factor loadings on the three factors.

This tri-dimensional solution shows that the first factor consisted of 16 items related to *Human and Material Resources and School-Community-Family Relations* and explained 11.28% of variance (see Table 3). The second factor involved nine items connected with *Principal's Vision and Beliefs* and explained 5.09% of variance. The third factor gathered seven items related to *Rules and Procedures* and explained 4.94% of variance.

In Table 4, logistic regression was carried out between students' achievement level and the three factors from the factor analysis. Of the three initial variables, two were selected as determinant factors in writing achievement. *Human and Material Resources and School-Community-Family Relations* was selected in step one of the regression in predicting student achievement (*OR* = .89, 95% *CI* = .85-.93); *Principal's Vision and Beliefs* was selected in step two (*OR* = 1.06, 95% *CI* = 1.2-1.11).

The *t*-test (the independent-sample *t*-test) was used to compare Francophone schools in minority and majority settings. The *t*-test results show a significant difference (at $p < .001$) in all of the groups related to Factor 1 (*Human and Material Resources and School-Community-Family Relations*). The deficits affecting the school's ability to offer more extensive teaching programs were more significant in minority-area schools that lack sufficient human (18a, 18b, and 18c) and material resources (18d–18n), and school-community-family relations (17c and 17d). This conclusion is taken from Table 5.

The *t*-test results in Table 5 indicate a significant difference between minority and majority groups, using six out of the nine variables related to Factor 2 (*Principal's Vision and Beliefs*). The influence of the principal ($t$ (4161) = -5.31, $p < .001$) and the teaching staff (individually) ($t$ (3057) = 7.24, $p < .001$) on general activities and school programs was weaker in the minority group than in the majority group. Moreover, it appears that staff morale was lower in the minority group ($t$ (2631) = 3.66, $p < .001$). In contrast, community support ($t$ (2417) = -19.77, $p < .001$), school spirit ($t$ (2500) = -3.92, $p < .05$), and students' and teachers' level of pride ($t$ (4161) = -3.29, $p < .01$) were stronger in the minority group.

**Table 2**
**Determining Factors of School Achievement**

| Items | Human and material resources | Factors vision and beliefs | Rules and procedures |
|---|---|---|---|
| 18. To what extent does a shortage or an inadequacy of the following affect your school's capacity to provide instruction? | | | |
| m) Library resources for French language | .69 | | |
| i) Special purpose space (e.g., resource rooms, libraries) | .66 | | |
| j) Number of computers for instructional use | .66 | | |
| f) Condition of school buildings and grounds | .65 | | |
| n) Audio-visual resources | .65 | | |
| h) Instructional space (e.g., classrooms) | .64 | | |
| k) Quality of computers for instructional use | .64 | | |
| g) Heating/cooling/ventilation/lighting systems | .64 | | |
| d) Instructional materials (e.g., textbooks) | .60 | | |
| l) Number of computers for French language instruction | .58 | | |
| e) Budget for supplies (e.g., paper, pencils) | .57 | | |
| c) Non-teaching staff | .52 | | |
| b) Teachers specialized in French language | 51 | | |
| a) Specialized teaching staff (e.g., guidance, library) | .49 | | |
| 17. To what degree is your school's capacity to provide instruction limited by the following? | | | |
| c) Students' home backgrounds | .36 | | |
| d) Community conditions (e.g., language, migration) | .35 | | |
| 33. To what extent do you agree or disagree with the following statements? | | | |
| f) This school is supported by the community. | | .53 | |
| i) Students and staff take pride in this school. | | .49 | |
| h) There is a strong school spirit in this school. | | .49 | |
| g) Staff morale is high in this school. | | .41 | |
| 16. How much influence would you say each of the following has on your school's overall activities and programs? | | | |
| e) Teachers collectively (in the whole school) | | .53 | |
| f) Individual teacher | | .49 | |
| d) Teachers within subject areas | | .46 | |
| c) Principal | | .46 | |
| g) Parent advisory committees or school councils | | .40 | |
| 29. Where students do not take the same French language courses, how much influence does each of the following have in deciding which French language courses students will take? | | | |
| b) Previous achievement in French language | | | .68 |
| e) The student's own wishes or choices | | | .67 |
| f) Parents' wishes or choices | | | .67 |
| a) General academic ability | | | .66 |
| d) Teachers' recommendations | | | .54 |
| g) Interviews or oral exams | | | .45 |
| c) Performance on an entrance exam | | | .40 |

*N* = 10,055

**Table 3**
**Total Variance and Determining Factors of School Success**

| Factors | Initial Eigenvalues | | | Extraction sum of squared loadings | | | Rotation sum of squared loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % variance | % cumulative | Total | % variance | % cumulative | Total | % variance | % cumulative |
| Human and material resources | 7.02 | 12.55 | 12.55 | 6.36 | 11.37 | 11.37 | 6.32 | 11.28 | 11.28 |
| Vision and beliefs | 3.65 | 6.51 | 19.06 | 2.88 | 5.14 | 16.51 | 2.85 | 5.09 | 16.37 |
| Rules and procedures | 3.34 | 5.97 | 25.03 | 2.69 | 4.81 | 21.31 | 2.77 | 4.94 | 21.31 |

*N* = 10,055

**Table 4**
**Logistic Regression Between the Three Factors to Predict Level of Student Achievement**

| Predictive variable | B | SD | Wald | OR | 95% CI |
|---|---|---|---|---|---|
| Achievement level | | | | | |
| Human and material resources | -.12 | .02 | 31.19*** | .89 | .85-.93 |
| Vision and beliefs | .06 | .00 | 7.50** | 1.06 | 1.2-1.11 |
| Constant | .20 | .02 | 95.44*** | .82 | |

*N* = 23,680
**$p < .01$; ***$p < .001$

**Table 5**
**Independent Sample *t*-Test; Factor 1 Items**

| Independent variables | Majority environment | | Minority environment | | *t* | *Df* |
|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | | |
| 18. To what extent does a shortage or an inadequacy of the following affect your school's capacity to provide instruction? | | | | | | |
| a) Specialized teaching staff (e.g., guidance, library) | 1.78 | .83 | 2.00 | .96 | -7.33*** | 4171 |
| b) Teachers specialized in French language | 1.57 | .89 | 2.00 | .87 | -15.05*** | 2776 |
| c) Non-teaching staff | 1.62 | .78 | 1.90 | .74 | -10.93*** | 2607 |
| d) Instructional materials (e.g., textbooks) | 1.78 | .84 | 2.35 | .86 | -20.51*** | 2875 |
| e) Budget for supplies (e.g., paper, pencils) | 1.70 | .81 | 2.18 | .83 | -17.86*** | 4191 |
| f) Condition of school buildings and grounds | 1.73 | .78 | 2.08 | .82 | -13.68*** | 2907 |
| g) Heating/cooling/ventilation/ lighting systems | 1.57 | .72 | 1.96 | .82 | -15.20*** | 4203 |
| h) Instructional space (e.g., classrooms) | 1.74 | .84 | 2.17 | .92 | -15.35*** | 3128 |
| i) Special purpose space (e.g., resource rooms, libraries) | 1.74 | .77 | 2.18 | .85 | -16.96*** | 3136 |
| j) Number of computers for instructional use | 2.01 | .90 | 2.48 | .85 | -16.35*** | 2684 |
| k) Quality of computers for instructional use | 2.02 | .89 | 2.54 | .94 | -17.36*** | 2995 |
| l) Number of computers for French language instruction | 2.07 | .95 | 2.55 | .94 | -15.60*** | 2865 |
| m) Library resources for French language | 1.95 | .83 | 2.60 | .76 | -24.56*** | 2667 |
| n) Audio-visual resources | 1.87 | .76 | 2.49 | .71 | -25.60*** | 2661 |
| 17. To what degree is your school's capacity to provide instruction limited by the following? | | | | | | |
| c) Students' home backgrounds | 2.26 | .85 | 2.38 | .69 | -4.48*** | 2414 |
| d) Community conditions (e.g., language, migration) | 1.73 | .80 | 2.36 | .85 | -23.55*** | 3079 |

***$p < .001$

**Table 6**
**Independent Sample *t*-Test; Factor 2 Items**

| Independent variables | Majority setting *M* | *SD* | Minority setting *M* | *SD* | *t* | *Df* |
|---|---|---|---|---|---|---|
| 33. To what extent do you agree or disagree with the following statements? | | | | | | |
| f) This school is supported by the community. | 2.53 | .73 | 2.98 | .63 | -19.77*** | 2417 |
| g) Staff morale is high in this school. | 3.23 | .54 | 3.17 | .52 | 3.66*** | 2631 |
| h) There is a strong school spirit in this school. | 3.07 | .65 | 3.15 | .57 | -3.92*** | 2500 |
| i) Students and staff take pride in this school. | 3.23 | .58 | 3.29 | .53 | -3.29** | 4161 |
| 16. How much influence would you say each of the following has on your school's overall activities and programs? | | | | | | |
| c) Principal | 3.45 | .63 | 3.34 | .63 | 5.31*** | 4161 |
| d) Teachers collectively (in the whole school) | 3.30 | .62 | 3.30 | .67 | .06 | 3097 |
| e) Teachers within subject areas | 3.20 | .69 | 3.17 | .72 | 1.43 | 4176 |
| f) Individual teachers | 2.87 | .78 | 2.68 | .87 | 7.24*** | 3057 |
| g) Parent advisory committees or school councils | 2.51 | .72 | 2.48 | .71 | 1.37 | 4130 |

**$p < .01$; ***$p < .001$

## DISCUSSION

The primary objectives of this study were to verify the relationship between school factors and writing achievement, to compare Francophone schools in minority and majority settings, and to identify the various determining factors for both groups. Two significant determinants for writing achievement were retained as a result of applying logistic regression: *Human and Material Resources and School-Community-Family Relations* and *Principal's Vision and Beliefs*. *T*-test results show significant deficits in minority areas. This situation affected the schools' ability to provide teaching programs in terms of human and material resources and school-community-family relations.

The factor analyses account for approximately 21% of variance in the variable set. Although this proportion is low, it does enable us to see that school factors had an impact on academic achievement. This finding supports the explanation of performance by factors related to the students (characteristics, practices, and perceptions) and the socioeconomic and cultural milieu involved. Interestingly, back in the 1960s, the Coleman Report (1966) concluded that the school effect was non-contributory, while Jencks (1979) mentioned the limited control by reformers on several aspects of school environments.

Many studies have shown the significant influence of resources on student performance (e.g., Dickinson, 2005; Loeb, 2003; Pan et al., 2003; Schwartz, 2003). Our findings also indicate that the lack of human and material resources is particularly acute in minority areas and thus has negative effects on academic achievement (Byrnes et al., 1998; Greenall & Loizides, 2001; Reyes et al., 2004). Some studies report that augmenting human and material resources is particularly beneficial with students in rural areas (Schwartz, 2001) or in linguistic minority groups (Dickinson, 2005). Specialized teachers are able to cope with cultural and linguistic diversity. The lack of these teachers, therefore, may limit students' achievement (Tyler et al., 2004). Findings have already shown that specialized teachers positively affect students' performance (Sunderman & Kim, 2005). Therefore, retaining these qualified teachers in minority areas is the real challenge. The quality of non-teaching staff also influences academic achievement in minority areas. Research shows, for example, that a good librarian can positively influence students' performance on an individualized level (Dickinson, 2005).

We must remember that the school's mission in a Francophone minority setting regards the transmission of the French language and culture within a dominant Anglophone society as primary. In this particular context, however, these minority areas face important challenges every day, such as the lack of material and human resources, limited numbers of pupils, and the dispersion of schools (Gilbert et al., 2004), which results in significant repercussions on school management. Our study reveals that gaps do exist between Francophone minority and majority settings. There are deficits affecting the minority area schools' ability to provide teaching programs related to human and material resources and school-community-family relations. The influence of both principals and teaching staff (individually) on general activities, school programs, and staff morale was indeed weaker in the minority setting.

In fact, there are so many obstacles to the transmission of French language and culture in minority settings that one issue must be addressed: appropriate long-term funding. Increased financial support is obviously much needed for continuing education programs and communication networks for teachers, the improvement of working conditions for staff, programs for linguistic and cultural integration, and new connections with parents and local institutions (Gilbert et al., 2004).

The schools' human and material resources are considered in the SAIP data. The principals' beliefs are key elements in their practice. However, this subject was not approached in studies on school principals. Interestingly, our findings show that academic achievement is determined to some extent by many factors under school principals' control. To better understand the inequalities in academic achievement, the practices of principals and teachers in a minority context should be further examined.

Contrary to previous observations, community support (33i), school spirit (33h), and students' and teachers' level of pride (33i) are shown to be stronger in minority settings. Article 23 of the *Canadian Charter of Rights and Freedoms* clearly calls for preserving the right to education in their own language for minority groups where numbers justify it. This implication of community in the school system could be explained by civil rights for Anglophones in Quebec and Francophones outside Quebec. A spontaneous conclusion can be formulated in this particular context regarding students in minority settings: appropriate material and human resources should be increased in order to provide equal chances for success and a quality of education that is comparable to that of Francophone Quebec.

In other respects, our findings also reveal a low level of staff morale (33g) in minority-area schools (Table 6). This particular finding is not surprising. It goes without saying that school staff (principals, teachers, etc.) who must cope on a daily basis with a shortage of human and material resources have reason to lack morale because they feel powerless when faced with the challenges mentioned regarding the academic success of their students—which is one of the most gratifying aspects of their profession. In conclusion, school factors are certainly "necessary, yet insufficient" to ensure academic achievement. As Backes, Ralston, and Ingwalson (1999) aptly note, they are the means to an end, not an end in themselves. It therefore appears very important for that need to be addressed in minority settings.

The CMEC has replaced the SAIP with the Pan-Canadian Assessment Program (PCAP) to reflect the changes made within the provincial and territorial education programs during the last 10 years and to include international evaluations. To achieve this, the CMEC has evaluated the same age range considered in the PISA, namely students between 13 and 15 years of age. The secondary data used in our study are based on a general theoretical construct developed from a highly exhaustive review of literature on academic achievement determinants. Studies using these secondary data must be founded on a specific theoretical or conceptual framework. This does not mean that these questionnaires lacked such a framework. In fact, the designers based their questionnaire on research on the effect of human and material resources and the impact of school leadership on academic achievement. However, Wang et al.'s theoretical model (1993), on which the SAIP study is based, dates back 15 years and therefore does not enable us to consider more recent changes in school administration practices.

Moreover, although the SAIP data were not collected to study the differences between Francophone minority and majority settings, our study did include a significant number of school factors that enabled us not only to identify indicators of academic achievement, but also to determine among these same determinants certain differences between the Francophone minority and majority settings. The CMEC may consider other questions related to the minority setting, such as the proportion of children of entitled[1] parents who frequent participating schools and details on the ethnolinguistic vitality of the student community.

This study is of great relevance, as it covers a representative sample of schools across Canada. The SAIP's school background questionnaire did enable us to identify a highly specific aspect of the principals' representations with regard to their causal attributions (their explanations of students' success and failure), yet data pertaining to school principals' management and supervision practices were nonexistent. An important section could be added to take into account principals' daily practices considered to be related to recent developments in school management, such as change management and the role of administrators within the learning and teaching community. These findings suggest a significant number of research possibilities. With the many variables used here, the research goal was already quite complex without adding other dimensions to study. It would be interesting to extend this research by including certain

sociodemographic variables such as, for example, rural versus urban setting and school size.

NOTE

1. The term "entitled" signifies a parent who is first and foremost a Canadian citizen and who fits one of the following criteria: whose first language is French (meaning the first language learned and still used) or whose primary education was in French.

REFERENCES

Acevedo, G.L. (1999). *Learning outcomes and school cost-effectiveness in Mexico: The PARE Program*. Washington, DC: Policy Research Working Papers. (ERIC Document Reproduction Service No. ED 437 262)

Adam., L., & Wood, F. (1999). An investigation of the impact of information and communication technologies in sub-Saharan Africa. *Journal of Information Science, 25*(4), 307–318.

Backes, J., Ralston, A., & Ingwalson, G. (1999). Middle level reform: The impact on student achievement. *Education Quarterly, 22*(3), 43–57.

Brown, K.M., Roney, K. & Anfara, V.A. Jr. (2003). Organizational health directly influences student performance at the middle level. *Middle School Journal, 34*(5), 5–15.

Bushman, J., Goodman, G., Brown-Welty, S., & Dorn, S. (2001). Testing: How principals choose priorities. *Educational Leadership, 59*(1), 33–36.

Byrnes, D.A., Kiger, G., & Manning, M.L. (1998). Classroom teachers and language-minority students. *Educational Research Quarterly, 22*(1), 26–32.

Cawelti, G. (1997). *Effects of high school restructuring: Ten schools at work*. ERS Concerns in Education Series. Arlington: Educational Research Service. Report-Research. (ERIC Document Reproduction Service No. ED406730)

Cawelti, G. (2000). Portrait of a benchmark school. *Educational Leadership, 57*(5), 42–44.

Chapman, D.W., & Burchfield, S. (1992). *Headmasters' beliefs about their role in improving student performance*. Washington, DC: Agency for International Development, Bureau for Research and Development. (ERIC Document Reproduction Service No. ED 353 646)

Chester, M.D., & Beaudin, B. (1996). Efficacy beliefs of newly hired teachers in urban schools. *American Educational Research Journal*, *33*(1), 233–257.

Chih-Lun, H. (2005). Family background, parental involvement and environmental influences on Taiwanese children. *Alberta Journal of Educational Research, 51*(3), 261–276.

Cicchinelli, L., Gaddy, B., Lefkowits, L., & Miller, K. (2003). *No Child Left Behind: Realizing the vision*. Retrieved December 8, 2007, from <http://www.mcrel.com/PDF/PolicyBriefs/5032PI_PBNCLBBrief.pdf>.

Codding, J.B., & Tucker, M.S. (2000). A new high school design focused on student performance. Retrieved December 8, 2007, from <http://bul.sagepub.com/cgi/reprint/84/615/79>.

Coleman, J.S., et al. (1966). *Report on equality of educational opportunity*. Washington, DC: US Office of Education.

Corallo, C., McDonald, D., Sattes, B., & Walsh, J. (2003). *Creating a high-performance learning community: A conceptual framework*. (ERIC Document Reproduction Service No. ED 479 079)

Corbeil, J.P. (2000). Literacy in Canada: Disparity between Francophones and Anglophones. Retrieved October 12, 2002, from <http://www.statcan.ca:8096/bsolc/english/ bsolc?catno=89-573-X>.

Council of Ministers of Education. (2000). *PISA 2000. Measuring up: The performance of Canada's youth in reading, mathematics and science—First results for Canadians aged 15*. Ottawa: Author. Retrieved December 8, 2007, from <http://www.cmec.ca/pisa/2000.rapportcanada.fr.pdf>.

Cousin, O. (1993). L'effet établissement. Construction d'une problématique. *Revue Française de Sociologie, 34*(3), 395–419.

Cowley, K., & Meehan, M. (2002). *Student achievement gaps in high-performing schools: Differences as a function of the professional staff as a learning community*. Retrieved December 8, 2007, from <http://eric.

ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/1b/04/3e.pdf>.

Crocker, R.K. (2002). *Résultats d'apprentissage : analyse critique du domaine au Canada*. Report presented to the Conseil des statistiques canadiennes de l'éducation. Ottawa: CSCÉ. Retrieved December 8, 2007, from <http://www.cmec.ca/stats/pcera/Learning OutcomesStateoftheField_RCrocker2002f.pdf>.

Cuban, L. (2001). *Oversold and underused computers in the classroom*. Retrieved December 8, 2007, from <http://books.google.ca/books?hl=fr&lr=&id=sdSutyVQfzYC&oi=fnd&pg=PA1&dq=Cuban,+2001&ots=VCZjxucwR_&sig=RFyHVBFIUpuomcJ1vBmF4I2O9ZQ#PPP1,M1>.

Cuban, L., & Kirkpatrick, H. (1998). Computers make kids smarter—Right? *Technos, 7*(2), 26–31.

Daley, D.M., & Vasu, M.L. (2005). Supervisory perceptions of the impact of public sector personnel practices on the achievement of multiple goals. *American Review of Public Administration, 35*(2), 157–167.

Darling-Hammond, L. (2000). How teacher education matters. *Journal of Teacher Education, 51*(3), 166–173.

Deblois, C., & Corriveau, L. (1993). *La culture de l'école secondaire et le cheminement scolaire des élèves*. Research report. Centre de recherche et d'intervention sur la réussite scolaire (CRIRES).

Derouet, J.-L. (1990). Approches ethnométhodologiques en sociologie de l'éducation : l'école et la communauté, l'établissement scolaire, la classe. II Une sociologie des établissements scolaires : les difficultés de construction d'un nouvel objet scientifique. In A. Coulon et al. (Eds.), *Sociologie de l'éducation. Dix ans de recherches. Recueil de notes de synthèse publiées par la Revue française de pédagogie, éducation et formation* (pp. 152–174). INRP, L'Harmattan.

Desimone, L.M., Smith, T.M., & Ueno, K. (2006). Are teachers who need sustained, content-focused professional development getting it? An administrator's dilemma. *Educational Administration Quarterly, 42*(2), 179–215.

Deutsch, F. (2003). How small classes benefit high school students. *NASSP Bulletin, 87*(635), 35–44.

Dickinson, G.K. (2005). How one child learns: The teacher-librarian as evidence-based practitioner? *Teacher Librarian, 33*(1), 16–20.

Duru-Bellat, M., & Henriot-Van Zanten, A. (1992). *Sociologie de l'école*. Paris: Armand Colin.

Ediger, M. (2000, September). The principal and evaluation of student achievement. Report. *Journal of Instructional Psychology*. (ERIC Document Reproduction Service No. ED 439 146)

Ediger, M. (2003). *Problems in multi-median use in the reading curriculum*. Kansas: Reading, English, and Communication. (ERIC Document Reproduction Service No. ED 479 486)

Egelson, P., Harman, P., Hood, A., & Achilles, C.M. (2002). *How class size makes a difference: Research & development*. Tallahassee, FL: SERVE Publications. (ERIC Document Reproduction Service No. ED 472 824)

Finnigan, K.S. (2005, April). *Principal leadership and teacher expectancy in low-performing schools*. Paper presented at the national conference of the American Educational Research Association, Montreal. Retrieved December 8, 2007, from: <http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/1b/c2/16.pdf>.

Fisher, D., & Frey, N. (2002). Lessons for leaders: Principal leadership. *Educational Leadership*, *3*(3), 53–55.

Frenette, N., & Quazi, S. (1999). Some long-term lessons from minority language education in Ontario. *Canadian Journal of Higher Education, 29*(1), 83–109.

Gantner, M.W., Newsom, J., & Dunlap, K. (2000). *Reconceptualizing the role of the principal: Giving voice to the silence*. Paper presented at the meeting of the American Educational Research Association, New Orleans, LA. (ERIC Document Reproduction Service No. ED 450 484)

Gaskell, J. (1995). *Secondary schools in Canada: The national report of the exemplary schools*. Toronto: Canadian Education Association. (ERIC Document Reproduction Service No. ED 430 750)

Gilbert, A., Le Touzé, S., Thériault, J.-Y., & Landry, R. (2004). *Le personnel enseignant face au défi de l'enseignement en milieu minoritaire francophone*. Research report. Ottawa: Centre interdisciplinaire de recherche sur la citoyenneté et les minorités (CIRCEM), Institut

canadien de recherche sur les minorités linguistiques/Fédération canadienne des enseignantes et des enseignants.

Gilstrap, S.C. (2003). *An evaluation of the effectiveness of federal class size reduction in the Los Angeles Unified School District: Does class size influence teacher-student interaction in secondary classrooms?* Los Angeles: Los Angeles Unified School District. (ERIC Document Reproduction Service No. ED 474 383)

Gonzalez, M., Glasman, N., & Glasman, L.D. (2002). Daring to link principal preparation programs to student achievement in schools. *Leadership and Policy in Schools*, *1*(3), 265–283.

Goodlad, J.I. (1984). *A place called school: Prospects for the future*. New York: McGraw-Hill.

Greenall, D., & Loizides, S. (2001). *Aboriginal digital opportunities: Addressing Aboriginal learning needs through the use of learning technologies*. Ottawa: Department of Human Resources and Social Development Canada. (ERIC Document Reproduction Service No. ED 479 671)

Greenwald, R., Hedges, L.V., & Laine, R.D. (1996). The effect of school resources on student achievement. *Review of Educational Research, 66*(3), 361–396.

Gregoire, R. (1990). *Les facteurs qui façonnent une bonne école : Rapport d'une recherche bibliographique sélective et analytique*. Québec, QC: Ministère de l'éducation.

Grunberg, J., & Summers, M. (1992). Computer innovation in schools: A review of selected research literature. *Technology, Pedagogy and Education, 1*(2), 255–276.

Hache, D. (2001). The ethnolinguistic profile of a Franco-Ontarian school board: A language planning project. *Language, Culture and Curriculum, 14*(2), 112–129.

Hallinger, P., & Heck, R.H. (1998). Exploring the principal's contribution to school effectiveness: 1980–1995. *School Effectiveness and School Improvement, 9*(2), 157–191.

Hanushek, E. (1994). Money might matter somewhere: A response to Hedges, Laine, and Greenwald. *Educational Researcher, 23*(4), 5–8

Hanushek, E. (1996). A more complete picture of school resource policies. *Review of Educational Research, 66*(3), 397–409

Hanushek, E. (1997). *Assessing the effects of school resources on student performance: An update*. Educational Valuation and Policy Analysis, 19.

Harman, P., Egelson, P., & O'Connell, D. (2002, April). *Observing life in small class-size classrooms*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA. Retrieved December 8, 2007, from <http://www.serve.org/rsi/images/aera02.pdf>.

Hawkridge, D. (1990). Computers in Third World schools: The example of China. *British Journal of' Educational Technology, 21*(1), 4–20.

Haycock, K. (2002). Closing the achievement gap. *Principal*, *82*(2), 20–23.

Hedges, L.V., Laine, R.D., & Greenwald, R. (1994). Does money matter? A meta-analysis of studies of the effects of differential school inputs on student outcomes. *Educational Researcher, 23*(3), 5–14.

Heneman, H.G. III, & Milanowski, A.T. (2004). Alignment of human resource practices and teacher performance competency. *Peabody Journal of Education, 79*(4), 108–125.

Hertert, L., & Teague, J. (2003). *Narrowing the achievement gap: A review of research, policies, and issues. Report.* Palo Alto, CA: EdSource, Inc. Retrieved December 8, 2007, from <http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/1a/d2/0b.pdf>.

Holland, P. (2005). The case for expanding standards for teacher evaluation to include an instructional supervision perspective. *Journal of Personnel Evaluation in Education, 18*(1), 67–77.

Hosmer, D., & Lemeshow, S. (1987). *Applied logistic regression*. New York: Wiley.

Howley, A., & Howley, G. (2001). *Rural school busing.* Charleston: ERIC Clearinghouse on Rural Education and Small Schools. Retrieved March 17, 2008, from <http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/29/cd/22.pdf>.

Hoy, W.K., Tarter, C.J., & Bliss, J.R. (1990). Organizational climate, school, health, and effectiveness: A comparative analysis. *Educational Administration Quarterly, 26*(3), 260–279.

Izumi, L.T. (2002). They have overcome: High-poverty, high-performing schools in California. San Francisco: Pacific Research Institute for

Public Policy. Retrieved March 17, 2008, from <http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/1a/82/96.pdf>.

Jencks, C. (1979). *L'inégalité : influence de la famille et de l'école en Amérique*, Paris: PUF.

Kelley, R.C., Thornton, B., & Daugherty, R. (2005). *Relationships between measures of leadership and school climate*. Available online: <http://mt.educarchile.cl/mt/jjbrunner/archives/ai_n.pdf>.

Kushman, J.W. (1992). The organizational dynamics of teacher workplace commitment: A study of urban elementary and middle schools. *Educational Administration Quarterly, 28*(1), 5–42.

Lamb, S., Hogan, D., & Johnson, T. (2001). The stratification of learning opportunities and achievement in Tasmanian secondary schools. *Australian Journal of Education, 45*(2), 153–67.

Larrivée, S.J., Kalubi, J.C., & Terisse, B. (2006). La collaboration école-famille en contexte d'inclusion : entre obstacles, risques et facteurs de réussite. *Revue des sciences de l'éducation, 32*(3), 525–543.

Lee, J., & McIntire, W.G. (1999). *Understanding rural student achievement: Identifying instructional and organizational differences between rural and nonrural schools*. Paper presented at the annual meeting of the American Educational Research Association, Montreal. (ERIC Document Reproduction Service No. ED430755)

Leithwood, K. (2001). School leadership in the context of accountability policies. *International Journal of Leadership in Education, 4*(3), 217–235.

Leithwood, K., Louis, K.S., Anderson, S., & Wahlstrom, K. (2004). *Review of research: How leadership influences student learning*. Toronto: Ontario Institute for Studies in Education.

Lewis, T. (1999). Content or process as approaches to technology curriculum: Does it matter come Monday morning? *Journal of Technology Education, 11*(1), 45–59.

Loeb, H. (2003). *Resource allocation in six discussions of high-performing, high-poverty schools*. Document ED478251.

McDonald, H., & Ingvarson, L.C. (1997). Technology: A catalyst for educational change. *Journal of Curriculum Studies, 29*(5), 513–527.

Miller-Whitehead, M. (2003, November). *Compilation of class size findings: Grade level, school, and district*. Paper presented at the annual meeting of the Mid-South Educational Research Association, Biloxi, MS. (ERIC Document Reproduction Service No. ED482693)

Myers, V., & Kline, C. (2002). Secondary school intervention assistance teams: Can they be effective? *High School Journal*, *85*(2), 33–42.

Nighswander, J.K., Cherkasky-Davis, L., & Bearden, A. (2001). *Nurturing teacher leadership*. Evaluation Study Report. Chicago: Teachers Union Quest Center. (ERIC Document Reproduction Service No. ED467062)

Osberg, L. (2000). Schooling, literacy and individual earnings. Ottawa: Statistics Canada. Retrieved December 8, 2007, from <http://www.rhdsc.gc.ca/en/hip/lld/nls/Publications/D/school-d.pdf>.

Owston, R.D., & Wideman, H.H. (2001). Computer access and student achievement in the early school years. *Journal of Computer Assisted Learning, 17*(4), 433–444.

Pablo, J.D., Ongteco, B.C., Belen, C., & Koki, S. (2000). *A historical perspective on Title VII bilingual education projects in Hawaii*. San Francisco: Pacific Resources for Education and Learning. Available online: <http://www.prel.org/products/Products/historical-pers.pdf>.

Pan, D., Rudo, Z.H., Schneider, C.L., & Smith-Hansen, L. (2003). *Examination of resource allocation in education: Connecting spending to student performance*. Research report. Austin: Southwest Educational Development Laboratory. Retrieved March 17, 2008. (ERIC Document Reproduction Service No. ED 477 353)

Pan, D., Rudo, Z.H., & Smith-Hansen, L. (2002, November). *Resource allocation and student performance improvements in 12 districts in the Southwest Region*. Paper presented at the annual meeting of the Mid-South Educational Research Association, Chattanooga, TN. Retrieved March 17, 2008. (ERIC Document Reproduction Service No. ED 475 490)

Papalewis, R., & Fortune, R. (2002). *Leadership on purpose: Promising practices for African American and Hispanic students*. Thousand Oaks, CA: Urban Education, U.S. (ERIC Document Reproduction No. ED 469 532)

Pounder, D., Ogawa, R., & Adam, E.A. (1995) Program for international student assessment in writing [PISA] 2000. *Educational Administration Quarterly*, *31*(4), 564–588.

Pruneau, D., & Langis, J. (2002). L'enseignement et l'apprentissage des sciences en milieu minoritaire : défis et possibilités. *Actes du colloque pancanadien sur la recherche en éducation en milieu francophone minoritaire : Bilan et prospectives*. Retrieved December 8, 2007, from <http://www.acelf.ca/publi/crde/index.html>.

Puri, R. (2005). Preparing for an even brighter future. *Technology & Learning, 26*(2), 57.

Reyes, P., Garza, E., & Trueba, E.T. (2004). *Resiliency and success: Migrant children in the U.S*. Herndon: Paradigm. (ERIC Document Reproduction Service No. ED485424)

Reynolds, A., Reagin, M., & Reinshuttle, K. (2001) Less is more: What teachers say about decreasing class size and increasing learning. *American School Board Journal, 188*(9), 30–32.

Rogers, G. (2004). History, learning technology and student achievement: Making the difference? *Active Learning in Higher Education: The Journal of the Institute for Learning and Teaching, 5*(3), 232–247.

Roshelle, J.M., Pea, R.D., Hoadley, C.M., Gordin, D.N., & Means, B.M. (2000). Changing how and what children learn with computer-based technologies. *Children and Computer Technology, 10*(2)**,** 76–101.

Ross, S.M., & Lowther, D.L. (2003). Impacts of the Co-nect School reform design on classroom instruction, school climate, and student achievement in inner-city schools. *Journal of Education for Students Placed at Risk (JESPAR), 8*(2), 215–246.

Scheurich, J.J. (1998). Highly successful and loving, public elementary schools populated mainly by Low-SES children of color: Core beliefs and cultural characteristics. *Urban Education, 33*(4), 451–491.

Schwartz, W. (2001). *Closing the achievement gap: Principles for improving the educational success of all students*. *ERIC Digest*. New York: ERIC Clearinghouse on Urban Education. (ERIC Document Reproduction Service No. ED 460 191)

Schwartz, W. (2003). *Class size reduction and urban students*. *ERIC Digest*. Washington, DC: Office of Educational Research and Improvement. (ERIC Document Reproduction Service No. ED 472 486)

Seyfarth, J.T. (2002). *Human resources management for effective schools* (3rd ed.). Needham Heights: Allyn & Bacon/Longman Publishing, a Pearson Education Company document ED482623.

Shamir, B., House, R.J., & Arthur, M.B. (1993). The motivational effects of charismatic leadership: A self-concept based theory. *Organization Science, 4*(4), 577–594.

Sheppard, B. (1996). Exploring the transformational nature of instructional leadership. *Alberta Journal of Educational Research, 42*(4), 325–344.

Simard, C. 1992. *L'écriture et ses difficultés d'apprentissage*. In CRIRES-FECS (Ed.), *Pour favoriser la réussite scolaire : Réflexions et pratiques* (pp. 276–294). Québec, QC: Saint-Martin.

Singh, J., & McMillan, J.H.S. (2002). Development practices in schools demonstrating significant improvement on high-stakes tests. *Spectrum*, *20*(3), 14–18.

Sunderman, G.L., & Kim, J. (2005). *Increasing bureaucracy or increasing opportunities? School district experience with supplemental educational services*. Harvard Education Publishing Group. (ERIC Document Reproduction Service No. ED ED489173)

Sweet, J.R., Rasher, S.P., Abromitis, B.S., & Johnson, E.M. (2004). *Case studies of high performing, high technology schools: Final research report on schools with predominantly low-income, African-American, or Latino student populations*. Learning Point Associates. Retrieved December 8, 2007, from <http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/1b/ba/68.pdf>.

Thayer, J., & Giebelhauss, C. (2001). Integrating writing to improve math achievement. *Mid-Western Educational Researcher, 14*(2), 11–16.

Tyler, N.C., Yzquierdo, Z., Lopez-Reyna, N., & Saunders Flippin, S. (2004). Cultural and linguistic diversity and the special education workforce: A critical overview. *Journal of Special Education, 38*(1), 22–38.

Ungerleider, C.S., & Burns, T.C. (2002). *Information and communication technologies in elementary and secondary education*. Prepared for Pan-Canadian Education Research Agenda Symposium, "Information Technology and Learning." Retrieved December 8, 2007, from <http://www.cmec.ca/stats/pcera/RSEvents02/CUngerleider_OEN.pdf>.

Venezky, R.L. (2002) *Quo vademus? The transformation of schooling in a networked world* [Research Report]. Paris: OECD/CERI. Retrieved November 22, 2007, from <www.oecd.org/EN/documents/0,EN-documents-4-nodirectorate-no-28-no-4,00.html>.

Wang, M.C., Haertel, G.D., & Walberg, H.J. (1993). Toward a knowledge base for school learning. *Review of Educational Research, 63*(3), 249–294.

Warren, W.K., Rees, R., & Edwards, R. (1991). *Le personnel enseignant et l'alphabétisation*. Ottawa: Fédération canadienne des enseignantes et des enseignants (FCE).

Waters, T., & Kingston, S. (2005). The standards we need: A comparative analysis of performance standards shows us what is essential for principals to know and be able to do to improve the achievement. *Leadership, 35*(1), 14–39.

Zigarelli, M.A. (1996). An empirical test of conclusions from effective schools research. *Journal of Educational Research, 90*(2), 103–110.

Zmuda, A., Kuklis, R., & Kline, E. (2004). *Transforming our schools*. Alexandria, VA: Association for Supervision and Curriculum Development.

**Yamina Bouchamma** (Ph.D. in Educational Administration and Policy Studies) is a full professor in the Department of Educational Administration and Foundations at Laval University. Her research interests include pedagogical leadership, exemplary school academic achievement, and diversity in education.

**Claire Lapointe** (Ph.D. in Educational Administration and Policy Studies) is a full professor in the Department of Educational Administration and Foundations at Laval University. She is currently director of the *Centre de recherche et d'intervention sur la réussite scolaire*, one of the most active international French-language research groups in the field. Her research interests include leadership, Francophone minority settings, academic achievement, and professional development.

**Jean-François Richard** (Ph.D. in Physical Education) is Dean of the Science Education Faculty at Université de Moncton. His research interests include physical and health education and supervision.