

# SCHOOL ACHIEVEMENT AT THE SECONDARY LEVEL: INFLUENCE OF PARENTING STYLE AND PARENT INVOLVEMENT IN SCHOOLING

R. DESLANDES *Université du Québec à Trois-Rivières*  
E. ROYER, D. TURCOTTE, R. BERTRAND *Laval University*

**ABSTRACT.** This study examined the influence of parenting style and parental involvement in schooling on academic achievement at the secondary level. The research was conducted with 525 adolescents of the Quebec-Appalaches region and used two instruments, the first one being developed by Steinberg and his colleagues (1992), and the second one by Epstein, Salinas, and Connors (1993). The instruments were validated with French-speaking secondary III students in 1994. It was found that the three factors, parental acceptance, supervision, and psychological autonomy granting, contributed to school achievement. Results also indicated that youngsters whose parents gave them affective support performed better than their peers. Parent-teacher contacts seemed to be related to lower school grades. These data provide evidence that parents retain substantial influence over their adolescent's school performance.

**RÉSUMÉ.** La présente recherche examine la relation entre d'une part, le style parental et la participation parentale au suivi scolaire et d'autre part, la réussite scolaire au secondaire. L'étude a été réalisée auprès de 525 adolescents de la région de Québec-Appalaches à l'aide de deux instruments, dont le premier a été conçu par Steinberg et ses collègues (1992) et le deuxième, par Epstein, Salinas et Connors (1993). Les instruments ont été validés auprès d'élèves de secondaire III, en 1994. Les résultats indiquent que les trois facteurs de l'encadrement parental, de l'encouragement à l'autonomie et de l'engagement parental, contribuent à prédire le rendement scolaire. Plus les jeunes perçoivent leurs parents comme leur apportant un soutien affectif, meilleurs sont leurs résultats scolaires. Les contacts entre parents et enseignants semblent toutefois avoir un rapport avec les difficultés scolaires. Ces données démontrent que les parents exercent toujours une influence prépondérante sur la réussite scolaire des adolescents.

Research has shown that the home environment influences academic achievement and thus prevents high school dropout (Dauber & Epstein, 1993; Janosz, 1994). Among the family-related factors associated with school performance are family background variables, such as parental

education and family structure, and family processes, such as parental education style and parental involvement in schooling (Dornbusch, Ritter, Mont-Reynaud, & Chez, 1990; Steinberg, Lamborn, Dornbusch, & Darling, 1992). Parenting style refers to a general child-rearing pattern that characterizes parents' behaviors toward their child. It is most often conceptualized along two dimensions, parental acceptance-involvement and strictness-supervision, which can be combined to create a fourfold parenting typology: authoritative, authoritarian, indulgent, or neglectful, wherein parental involvement in schooling refers to the parents' role in their child's education. It can take several forms: presence at school, communicating with the teachers, or helping at home with homework (Christenson, Rounds, & Franklin, 1992; Steinberg et al., 1992).

Baumrind (1978) was the first one to identify authoritative parenting in her socialization studies; however, most of her studies were conducted with young children. Recent American studies on adolescents have reported positive links between authoritative parenting and school performance (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Lamborn, Brown, Mounts, & Steinberg, 1993; Steinberg et al., 1992). According to these researchers, authoritative parenting is defined by a combination of high levels of warmth and acceptance, behavioral control, and psychological autonomy granting.

Concerning the influence of a high level of parental involvement in schooling on school grades, a review of literature demonstrates convergence in the research results at the elementary level (Epstein, 1992). However, at the high school level, research evidence is less supportive. Although Steinberg et al. (1992) have found that parent involvement is positively linked with academic achievement, a few researchers noted little or no effect of parental involvement on adolescent school performance (Keith, Reimers, Fehrmann, Pottebaum, & Aubey, 1986; Natriello & McDill, 1986). Keith (1991) explains these inconsistencies in part by the numerous definitions of parent involvement in studies on school performance. For instance, some authors use the latter term to refer to parent participation in school activities while others use it to refer to more general parental interest in their child's academic and social life (Keith, 1991; Keith et al., 1986).

In addition, modest yet positive correlations observed between parenting style and parental involvement in schooling suggest that a combination of some dimensions of these variables could be associated with adolescent school performance (Steinberg et al., 1992). In fact, studies have

indicated that students with higher grades come from parents who demonstrate high levels of warmth, supervision, and psychological autonomy granting and who are highly involved in their adolescent's schooling (Lamborn et al., 1993; Steinberg et al., 1992). Obviously, despite the differences reported above, the reviewed literature leaves no doubt as to the positive influence the family environment has on adolescent school achievement.

## CONCEPTUAL FRAMEWORK

Epstein's (1987) theoretical model of overlapping spheres of influence provides a useful conceptual framework for a global understanding of children's development and school achievement. The model focuses on the roles that parents and the school need to play and on linkages needed between schools and families to promote a child's success. In the model, schools and families are represented by two spheres that can be pushed together or pulled apart depending on the degree of family and school collaboration. Three major forces determine the amount of intersection: force A, which refers to individual and historic time, the age and grade level of students, and the social conditions of the period during which the child is in school; forces B and C, which represent the practices of families and schools. Students, their development and their success, are central to the model. Aiming to complete the model, Deslandes and Royer (1994) have proposed to add the parenting style variable, next to the other family variables in the external structure of the family sphere. Figure 1 (p. 194) illustrates the modified model of overlapping spheres of influence.

While keeping the whole model in a background perspective, the objective of the current study is to specifically investigate the influence of two family variables, parenting style and parental involvement in schooling, on adolescents' school performance. A dimensional approach is applied, that is, dimensions or factors of the family variables are considered as continuous variables.

Concerns arise from the two family variables which address more precisely the following three questions:

- What is the influence of parenting style on the academic achievement of high school students?
- What is the influence of parental involvement in schooling on the academic achievement of high school students?
- What is the relative contribution of parenting style and parental involvement in schooling on the academic achievement of high school students?

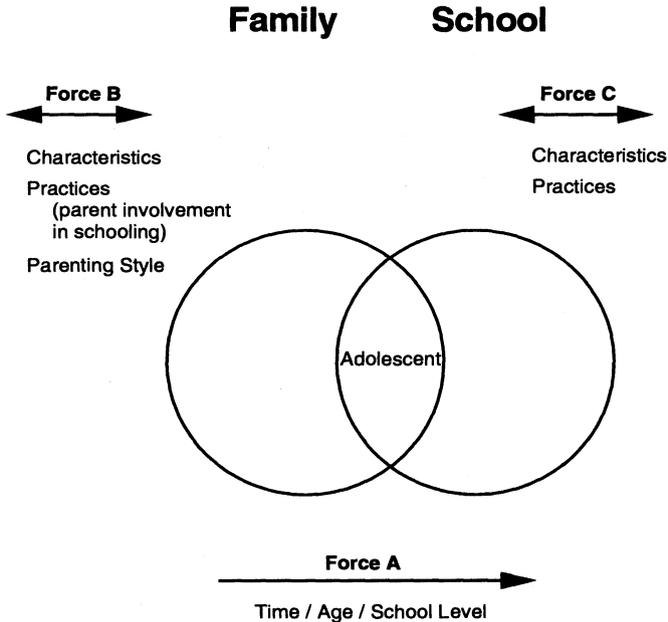


FIGURE 1. Modified model of overlapping spheres of influence

Deslandes, & Royer, 1994; based on Epstein's overlapping spheres of influence on children's learning (1987, 1992).

## METHODOLOGY

### *Sample*

The sampling was composed of 525 secondary III students (equivalent to grade nine in the American school education system), 282 girls (53.7%), and 243 boys (46.3%), aged between 14.0 and 16.0. The subjects were attending two French-speaking high schools from the Quebec-Appalaches region. The first one was situated in a rural city (12,000 inhabitants) and the students were transported from surrounding villages. The second one was a Quebec suburb high school (72,000 inhabitants). Table 1 presents some of the sociodemographic characteristics of the sampling.

### *Measures*

School achievement measured by the year-end point averages as they appeared in the official school records were used as the dependent variable. We selected school grades because, according to Keith et al.

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TABLE 1. Demographic characteristics of the sample (N=525)

Sex		(%)
Female		53.7
Male		46.3
Family size		
1 child		7.4
2 Children		48.4
3 children & more		44.2
Family structure		
Intact		80.8
Nonintact		19.2
Parental education	Mother	Father
Elementary level, high school started	28.2	31.0
High school diploma	34.0	19.2
Vocational school	9.4	10.0
College or university	28.4	39.8

(1993), these are more valid measures of learning than achievement tests. The authors also contend that school grades are more sensitive to student effort and motivation and they represent the criteria which are most often used in promotion decisions. The selection of the year-end point overall average as opposed to the year-end point averages in French and in math was based on the strong correlations observed between our three measures (year-end GPA with French:  $r = .85$ ; year-end GPA with math:  $r = .84$ ).

The independent variables were measured with the following instruments.

**PARENTING STYLE.** Measures of parenting style were based on the scores obtained on three Likert scales developed by Steinberg et al. (1992), translated in French, and validated with a sampling of 145 secondary three level students, in December 1994 (Deslandes, Bertrand, Royer, & Turcotte, 1995). The subscales correspond to the three factors of parenting style previously identified by Steinberg et al. (1989, 1992): warmth-acceptance, behavioral control, and psychological autonomy-granting. The first subscale, entitled warmth-acceptance, assesses the extent to which the adolescent perceives his or her parents as loving, responsive, and involved (sample items: "I can count on my parents to help me out, if I have some kind of problem"; "My parents spend time just talking with me", 9 items,  $\alpha = 0.87$ ). The second subscale, called behavioral control, measures parental monitoring and supervision of the adolescent (sample items: "Your parents really know what you do with your free time"; "Your parents really know where you are most afternoons after school"; 8 items,  $\alpha = 0.72$ ). The third subscale, labeled psychological autonomy granting, measures the extent to which parents

employ democratic discipline and encourage the adolescent to express individuality with the family (sample items, reverse score: "My parents answer my arguments by saying something like 'You'll know better when you grow up'"; "My parents say that I shouldn't argue with adults"; 9 items,  $\alpha = 0.72$ ) (for complete subscales, see Deslandes, 1996).

**PARENT INVOLVEMENT IN SCHOOLING.** The measure of parent involvement in schooling was designed by Epstein, Connors, and Salinas (1993) from the Center on Families, Communities, Schools and Children's Learning of Johns Hopkins University, in Maryland. In the adapted French version validated in the Quebec context, the scale includes twenty parental involvement activities, at home and at school (sample items, activities at home: "A parent gives me encouragement about school"; "A parent asks me about school"; sample items, activities at school: "A parent attends activities that I am in at school (sports, music, drama, etc.)"; "A parent picks up my report card at school" (for complete scale, see Deslandes, 1996). The internal consistency of the instrument in its adapted French version was quite satisfactory ( $\alpha = 0.90$ ).

### *Procedures*

Measurements of the family variables were based on the youth's perception. Adolescents had to evaluate the adults' behaviors at home who had the most contact with them. They participated in the study on a voluntary basis. The questionnaires were administered during the French or the English classes in the presence of the regular teacher. Data were collected from students in early spring 1995 and the year-end point averages were obtained from official school records in the first week of July, 1995.

### **RESULTS**

First, the psychometric qualities of this French version of the instruments were examined.<sup>1</sup> A factor analysis using a principal components procedure was performed to study the structure of the parenting-style measure. Based on the two criteria, latent root equal or greater than 1 and the scree test, the analysis confirmed the trifactorial structure previously identified by Steinberg et al. (1992). However, three items which were supposed to load on the factor called psychological autonomy granting appeared under the first factor labeled warmth-acceptance. Cronbach's alpha values for the warmth-acceptance (12 items) and the behavioral control (6 items) subscales were, respectively, 0.86 and 0.74. Two items were deleted under the factor psychological au-

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tonomy granting because of weak corrected item-total correlation. Thus modified, the alpha coefficient for the psychological autonomy granting subscale (0.73) appeared relatively adequate.

A factor analysis using the same procedures as above was also executed with all of the items included in the parental involvement measure. Five factors emerged.<sup>2</sup>

The subscales presented the following internal consistency indices: affective support (6 items;  $\alpha = 0.76$ ), communication with the teachers (4 items;  $\alpha = 0.69$ ), daily interactions based on school matters (4 items;  $\alpha = 0.76$ ), parents-school communication (3 items;  $\alpha = 0.63$ ), and parents-adolescents communication (3 items;  $\alpha = 0.65$ ).

All data were analyzed using the stepwise procedures of SPSS Windows, release 6.1. The entry and removal criteria in the regression models were, respectively, 0.05 and 0.10.<sup>3</sup> Factor scores were generated and used in the analyses. Assumptions related to linearity, multicollinearity, normality, and homogeneity of variance were first verified. The study of potential outliers did not reveal any strong influential observations. Table 2 on page 198 shows the correlation matrix for all of the variables included in the study. The highest correlation was between affective support and school results. Correlations between variables of parenting involvement and school grades are not all significant to school grades, supporting the contention that only some of these dimensions might be associated with adolescent school performance. The final predictor model<sup>4</sup> of each of the regression analyses appears in tables 3, 4, and 5 (page 199).

### *Parenting style*

Regressions were performed to examine relations between year-end point averages and the three factors of parenting style. As can be seen from Table 3, the three-variable model accounted for 5.7% of the variance  $\{F(3,510)=10.31, p<.001\}$ . In the model, the factor named behavioral control was the best predictor of school grades ( $\beta=.15, p<.001$ ), followed by psychological autonomy granting ( $\beta=.13, p<.01$ ) and warmth/acceptance ( $\beta=.10, p<.05$ ). Each of the factors independently predicted school grades.

### *Parent Involvement in schooling*

The year-end overall point averages were then regressed simultaneously with the five factors of parent involvement in schooling. As illustrated

in Table 4, only two of the five factors contributed significantly to the prediction of school grades, thus yielding a two-variable model that accounted for 14.8% of the variance in the grades [ $F(2,517) = 44.78$ ,  $p < .001$ ]. The factor entitled affective support was the best predictor ( $\beta = .33$ ,  $p < .001$ ). The second factor labeled communication with the teachers ( $\beta = -.23$ ,  $p < .001$ ) showed a negative relationship with school grades.

TABLE 2. Correlation matrix of dependent and independent variables

Variables	Y	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	X <sub>7</sub>	X <sub>8</sub>
Y (dép.)	1.000	.165	.159	.136	.310	-.196	-.006	-.046	.128
		.000	.000	.001	.001	.000	.449	.156	.002
X <sub>1</sub>		1.000	.171	.264	.528	.209	-.327	.178	.566
			.000	.000	.000	.000	.000	.000	.000
X <sub>2</sub>			1.000	-.106	.275	.128	-.352	.162	.214
				.008	.000	.002	.000	.000	.000
X <sub>3</sub>				1.000	.118	-.022	.045	-.025	.195
					.004	.310	.154	.284	.000
X <sub>4</sub>					1.000	.114	-.307	.160	.332
						.005	.000	.000	.000
X <sub>5</sub>						1.000	-.295	.313	.160
							.000	.000	.000
X <sub>6</sub>							1.000	-.267	-.384
								.000	.000
X <sub>7</sub>								1.000	.181
									.000
X <sub>8</sub>									1.000

(Y, year-end grade point averages; X<sub>1</sub>, warmth/acceptance; X<sub>2</sub>, behavioral control; X<sub>3</sub>, psychological autonomy granting; X<sub>4</sub>, affective support; X<sub>5</sub>, communication with the teachers; X<sub>6</sub>, parents-adolescent interactions based on daily school matters; X<sub>7</sub>, parents and school communication; X<sub>8</sub>, parents-adolescents communication)

### *Parenting style and parent involvement in schooling*

The regression analyses which simultaneously introduced the eight independent variables yielded a four-variable model that explained 17% of the variance in the school grades [ $F(4,507) = 26.32$ ,  $p < .001$ ] (see Table 5). The affective support factor was the most powerful predictor of school grades ( $\beta = .29$ ,  $p < .001$ ). Communication with the teachers, which displayed a negative relationship with average grade-points ( $\beta = .24$ ,  $p < .001$ ), was the second strongest predictor. Behavioral control and psychological autonomy granting emerged respectively as the third ( $\beta = .12$ ,  $p < .01$ ) and fourth ( $\beta = .11$ ,  $p < .01$ ) predictors of school grades.

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TABLE 3. Summary of stepwise regression for factors of parenting style predicting school achievement ( $N=514$ )

Step	Variables	$\Delta R^2$	F	$\beta$
1	Warmth/acceptance	.026	13.78***	.10*
2	Behavioural control	.043	11.48***	.15***
3	Psychological autonomy granting	.057	10.31***	.13**

NOTE  $\Delta R^2$  cumulative  
 \*\*\* $p < .001$   
 \*\* $p < .01$   
 \* $p < .05$

TABLE 4. Summary of stepwise regression for factors of parent involvement in schooling predicting school achievement ( $N=520$ )

Step	Variables	$\Delta R^2$	F	$\beta$
1	Affective support	.093	53.69***	.33***
2	Communication with the teachers	.148	44.78***	-.23***

NOTE  $\Delta R^2$  cumulative  
 \*\*\* $p < .001$

TABLE 5. Summary of stepwise regression for factors of parenting style and factors of parent involvement in schooling predicting school achievement ( $N=512$ )

Step	Variables	$\Delta R^2$	F	$\beta$
1	Affective support	.096	54.29***	.29*
2	Communication with the teachers	.151	45.10***	-.24***
3	Behavioural control	.161	32.44***	.12**
4	Psychological autonomy	.172	26.32***	.11**

NOTE  $\Delta R^2$  cumulative  
 \*\*\* $p < .001$   
 \*\* $p < .01$

## DISCUSSION

The results of this study provide empirical evidence supporting the influence of parenting style and parental involvement in schooling on adolescents' school grades. Each of these elements will be discussed in detail.

### *Parenting style*

The results show a link between each of the factors of parenting style and school success. However, the percentage of the explained value of the variance in the school grades is rather modest, 5.7%. Behavioral control is the strongest predictor of adolescents' school grades; then come psychological autonomy granting and warmth-acceptance. Thus, the adolescents who perceive their parents as being firm, warm, involved, and democratic perform better at school than do their peers. In summary, our data point to the findings of Steinberg et al. which permitted them to conclude that "all three aspects of authoritative parenting lead to increases in school grades over one year" (1989, p. 1428). Even though the ordering of the predictor variables is dissimilar in the two studies, the difference in the relative contribution of each one in predicting school grades is rather small, the  $\beta$  coefficients varying between .10 and .15 (for further discussion, see Deslandes, 1996).

Globally, our results corroborate the links reported by other researchers between school grades and parenting style characterized by high levels of parental warmth, behavioural control, and granting (Dornbusch et al., 1987; Steinberg et al., 1992). As reported in prior studies (Lamborn et al., 1993; Steinberg et al., 1989), the combination of the three factors of parenting style is more effective than any of the factors considered individually.

### *Parent involvement in schooling*

Two factors of parent involvement are significantly related to school grades: affective support and communication with the teachers, the latter one being negatively associated with school grades. The positive correlation between affective support and school results is consistent with Dornbusch and Ritter's study (1992) in which encouragement measured by praise for good grades, use of encouragement to try harder, and offers to help was found to be a powerful determinant of school grades. Dornbusch and Ritter proposed that "encouragement supports internal motivation by giving responsibility for further actions to the student" (1992, p. 116). It also helps the students to internalize the values of the parents. Similarly, our findings support the results from Lee's study (1994) based on a national sample of 17,424 students. The researcher noted significant positive relationships between family discussions about school, grades and the future, and school achievement. Our results are consistent with those obtained by Dornbusch and Ritter

(1988) which revealed a positive relation between students' grades and parental attendance at their children's activities, such as dramatic performances and athletic events. As possible explanations, the two authors report that through their attendance, the parents demonstrate their values and their emphasis on adolescents' education.

A negative correlation was observed between communication with the teachers and adolescents' school grades. In their exploratory study, Baker and Stevenson (1986) had observed the same phenomenon. Lee (1994) also noted that students who reported frequent contacts between school and home had lower school grades. Even though startling, these results must be interpreted with caution. The data surely do not mean that contacts with the teachers lead to low school achievement. As Epstein (1996) suggests, they rather imply that the school and families are more likely to get in touch when the student is having school problems .

*Parenting style and parent involvement in schooling.*

The stepwise regression ran on the three factors of parenting style and the five factors of parent involvement, yielding a four-variable predictor model which accounted for 17% of the variations in the adolescents' school grades. Considering that school achievement is determined by multiple factors, the proportion of variance explained in that analysis is relatively important. The variable with the greatest effect is the affective support followed closely by communication with the teachers (negative relation), behavioural control, and psychological autonomy granting. Thus, the adolescents who perceived their parents as providing more emotional and instrumental support, more monitoring of their whereabouts, and more encouragement to express their individuality within the family and having fewer contacts with the teachers tended to have higher grades than their peers. As illustrated in Table 5, the addition of the behavioral control and psychological autonomy granting factors at the third and fourth steps of the regression analysis explained an additional 2% of the variation in the school grades. This may be taken as evidence that supports the following statement of Steinberg et al.: "How parents express their involvement and encouragement may be as important as whether and to what extent they do" (1992, p. 1279). We must note that Steinberg's studies also used youngsters' self-reports. Similarly, Lamborn et al. (1993) contend that factors of parenting style and parent involvement in schooling may have additive effects on adolescents' school performance.

## IMPLICATIONS

These findings and their implications for both parents and teachers are of interest, despite some limitations in the research. First, measurements of the family variables were based on the youths' self-reports. In interpreting the results, it is necessary to keep in mind that the assessed parent behaviors represent what the adolescents perceived. Limits are also associated with the fact that adolescents were asked to evaluate the adult behaviors at home and who has the most contact with them. Since mothers are usually perceived by adolescents as being more involved in schoolwork (Sputa & Paulson, 1995), we may have assessed the mothers' behaviours more than the fathers'. Another possible shortcoming is related to the characteristics of the sampling. For instance, 20% of the recruited subjects' families were non-intact as compared to a percentage of 27% (Santé-Québec, 1995) at the provincial level. Moreover, the students were all at the same grade level and only one of them happened to be black. Consequently, the results can only be generalized to secondary three students (grade nine) that come from a rather traditional, white middle-class population.

The major goal of this study was to understand in greater depth the influence of the family on school achievement at the secondary level. Our findings provide empirical evidence that parents retain substantial influence over their adolescents' school performance. Results demonstrate that the three factors of parenting style are statistically significant determinants of adolescents' school grades. Each one contributes independently to the prediction of school grades, with the behavioural control factor in the first rank, followed by the psychological autonomy granting and warmth-acceptance factors. Two of the parent involvement factors predict school performance. Most notable in this study is the positive association between parental affective support and school grades. Also, of particular interest is the negative correlation observed between the factor labeled communication with the teachers and school grades. As a whole, the combination of parental support, infrequent communication with the teachers, parental supervision, and psychological autonomy granting maximizes the prediction of high marks at the secondary level. The final four-variable predictor model explains nearly one-fifth (1/5) of the overall variance in the adolescents' school grades.

Where do we go from here? From a practical standpoint, findings from the study provide hints as to how parents can intervene more effectively in order to help their adolescents succeed better in school. As operationalized in our study, supportive parents give encouragement

and praise about school, talk with the adolescent about courses that can be selected, attend activities at school that the adolescent is in (sports, music, drama), help with homework when asked, and take a trip or go to a special event with the youngster. We may hypothesize that parental praise and encouragement about school is based in part on harmonious relationships and effective communication between parents and adolescents. Furthermore, discussions between parents and adolescents rely on information transmitted by the school about school programs, students' progress, and students' future planning.

The results also supply potential guidelines to the schools in promoting activities of partnership needed during the adolescent years. For example, schools can foster parental affective support by offering activities such as joint-teacher-parent-student planning (programs of study, career counselling, and problem-solving), workshops and seminars for parents to learn tutoring skills and the use of resource materials for homework and career planning (Cadieux & Tenace, 1996; HSTW, 1995). Schools and educators should also promote parent attendance at school to support student performances in the arts, sports, or other events. One way which is often suggested for involving more families is to offer varied representation schedules (Epstein, 1995). But, as a prerequisite to parent participation is the adolescent's own engagement in school and extracurricular activities. Schools have therefore the responsibility of making available a large number of activities appealing to the adolescents in terms of interest and challenges.

In regard to communication with the teachers, our results are interpreted to support that school and family communication are currently based on a problem-solving approach rather than on a conflict-prevention approach. Parents and schools get in touch more often when the adolescent is having school problems. It could be worthwhile to investigate the benefits associated with home and school communications based on difficulties only. In recent years, research reviews have provided evidence that positive and regular communication between the schools and the families represent the cornerstone of effective partnerships (Epstein, 1996). Consequently, parents and teachers should be encouraged to develop activities based on "good news" phone calls, open houses, social events, "celebration" of student success, and "exchange days" (Epstein, 1995, 1996; HSTW, 1995).

Examination of parent behaviors used to evaluate the parenting style reveals that parental skills associated with higher school grades are related to supervision and monitoring, fostering of the adolescents'

autonomy, and expression of love and interest in the youngster. Examples of activities that schools could promote include workshops, parent education, and parent support groups that discuss information on adolescent development and provide parents with competencies related to schooling and the adolescent as a student. In order to reach more families, schools could draw on social services and community resources such as the local newspaper, radio, and television.

In terms of research perspectives, it could be interesting to evaluate a multivariate causal model (e.g., LISREL structural equation) of how the factors of parenting style and parental involvement in schooling simultaneously influence school grades. It could also be worthwhile to include family characteristics (e.g., parental education, family structure, family size) in order to obtain a more global predictive family model of school achievement.<sup>5</sup> The results of our study also lead us to question whether we would obtain the same findings with students of different grade levels, and of different sociocultural and socioeconomic backgrounds. Since the participants were from regular classes, results cannot obviously be applied to special education students whose learning difficulties are such that they are placed in alternative environments. Similarly, we could address the question as to whether parents influence differently girls' and boys' school grades.<sup>6</sup> Lastly, other indicators of school success could also be used such as attendance rate, behavior,<sup>7</sup> school aspirations, and time spent on homework.

#### NOTES

1. The results of a first validation process are reported in *Mesure et évaluation en éducation*, (Deslandes et al., 1995).
2. The preliminary study with a smaller sample of subjects had identified four factors (Deslandes et al., 1995).
3. According to the default values set by SPSS, Windows, 6.1
4. The *R*-square procedure (SAS) was used to assess the validity of the stepwise regression models. As suggested by Neter, Wasserman, & Kutner, (1990), the criteria used in the procedure aimed at maximizing the value of  $R^2$ , the squared multiple correlation and at converging  $C_p$ , the bias index, as near as possible to  $p$ , the number of parameters to estimate. All of the obtained stepwise predictor models were thus validated.
5. A separate paper will examine the influence of family characteristics on school achievement and parenting style and parental involvement dimensions (Deslandes & Potvin, 1997).
6. In a separate article, we will show gender differences in perceived parental influences on school grades. For example, behavioural control (supervision) and psychological autonomy granting were positive predictors of boys' school grades. As for girls, parental warmth was the only significant predictor of school grades (Deslandes, Bouchard, & St. Amant, 1997).

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7. In another study, we will demonstrate that parent-adolescent interactions based on daily school matters are more likely to occur in response to inappropriate behaviours. Students whose parents provided supervision are less likely to get into "trouble" in school (Deslandes & Royer, 1997).

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**ROLLANDE DESLANDES**, Professor in the Department of Education at Université du Québec à Trois-Rivières, received a Ph.D. in Educational Psychology from Laval University.

**EGIDE ROYER** is Director, Centre de recherche et d'intervention sur la réussite scolaire (CRIRES), and Professor, Faculty of Education at Laval University.

**DANIEL TURCOTTE** is Professor, School of Social Work, Laval University.

**RICHARD BERTRAND** is Professor in the Department d'orientation, d'administration et d'évaluation en éducation, Faculty of Education, Laval University.

**ROLLANDE DESLANDES**, professeur au département des sciences de l'éducation de l'Université du Québec à Trois-Rivières a obtenu son doctorat en psychopédagogie, à la Faculté des sciences de l'éducation de l'Université Laval.

**EGIDE ROYER** est directeur du Centre de recherche et d'intervention sur la réussite scolaire (CRIRES) et professeur à la faculté des sciences de l'éducation de l'Université Laval.

**DANIEL TURCOTTE** est professeur à l'école de service social de l'Université Laval.

**RICHARD BERTRAND** est professeur au département d'orientation, d'administration et d'évaluation en éducation à la faculté des sciences de l'éducation de l'Université Laval.



*Papke*