



# Predicting school adjustment from multiple perspectives on parental behaviors



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## ABSTRACT

Past research supported the importance of parental autonomy support, involvement, and structure for student outcomes. The goal of this study was to test the contribution of these behaviors from mothers and fathers in predicting adolescents' adjustment in school using a multi-informant approach. A sample of 522 adolescents (233 boys, 389 girls), their mothers ( $n = 535$ ), and fathers ( $n = 296$ ) participated in the study. Results revealed that parents' self-evaluations explained additional variance in children's school adjustment, over and beyond the contribution of children's evaluation of their parents. Maternal reports on their positive behaviors (autonomy support, involvement, and structure) predicted their child's academic and emotional adjustment while their reported control predicted lower levels of these. Fathers' self-reported positive behaviors predicted academic adjustment while their control predicted lower academic and personal-emotional adjustment. These findings support the importance of multiple assessments of parental behaviors for improving the prediction of adjustment in school.

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A key factor to understanding how adolescents can adjust to school demands is the role of parents, who have been recognized as the “single most consistent predictor of adolescents' mental health and well-being” (Steinberg & Silk, 2002, p. 120). Parenting behaviors were found to contribute to positive school outcomes (Reschly & Christenson, 2009) and the quality of the home environment parents provide is an important predictor of students' adjustment (Dubow & Ippolito, 1994). This study examined parental behaviors from a self-determination perspective and used a multi-informant approach. We first present our conceptualization of parental behaviors, followed by a discussion on the use of multiple informants in evaluating behavior.

## 1. A self-determination perspective on parenting

Self-determination theory (SDT; Deci & Ryan, 2000), an organismic dialectical perspective on individuals' growth and development, recognizes the role significant individuals, such as parents, have in promoting adjustment. Research within SDT

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identified three categories of supporting behaviors, which have been studied in the context of parent-child relationships (Joussemet, Landry, & Koestner, 2008; Skinner, Johnson, & Snyder, 2005).

First is *autonomy support*, where parents recognize the child as a unique and volitional individual (Grolnick & Ryan, 1989) through behaviors such as providing a meaningful rationale for one's rules and expectations toward the child, recognizing the child's feelings and behaviors, as well as offering opportunities to hold responsibilities that are appropriate for their age and competence level and to exert meaningful choice, when possible. Autonomy support has been contrasted with parental control (Deci & Ryan, 1987; Soenens, Vansteenkiste, & Sierens, 2009), a category of behaviors whose aim is to coerce, pressure, and dominate the child (Pomerantz & Grolnick, 2009); they were found to be distinct (Soenens & Vansteenkiste, 2010). The present study therefore distinguished between autonomy support and control.

Second is *involvement*, which encompasses the allocation of important resources to the child's learning (see Pomerantz, Kim, & Cheung, 2012) such as material (e.g., providing the child with a functional learning environment, have a budget for purchasing books) and emotional resources (e.g., interest in the child's schooling, time and affection for the child). Finally, *structure*, a category of behaviors in which parents provide information that makes children's environment predictable and support their self-regulation and competence (Farkas & Grolnick, 2010). Through structure, parents communicate their expectations and rules, the predictable outcomes of meeting these or not, and guidelines and feedback on their actions.

Previous studies in the self-determination literature that examined these parental behaviors has mostly focused on the role of autonomy support and, to a lesser extent, involvement. More recently, a new conceptualization of parental structure was proposed (Farkas & Grolnick, 2010), which helped better distinguishing it from parental control (also see Pomerantz & Grolnick, 2009) and contributed to an increase in research on parental structuring behaviors. To our knowledge, there is little, if any research that considered autonomy support, involvement, and structure simultaneously when examining parents' contribution to their child's schooling. Because each of these behaviors predict specific motivational processes (Connell & Wellborn, 1991; Skinner et al., 2005), a more complete understanding of children's outcomes will therefore be gained by assessing all behaviors.

### 1.1. Parental need support and adjustment in school

Children's adjustment in school is conceptualized as a multidimensional construct (Baker & Siryk, 1984, 1989) that distinguishes between academic, social, and personal-emotional adjustment. *Academic adjustment* pertains to the way students deal with the demands associated with their homework, class work, and exams. *Social adjustment* refers to how students deal with the demands of the academic community (e.g., responsiveness to social activities, their appreciation of their social environment in school). Finally, *personal-emotional adjustment* involves the way students come to terms with an environment characterized by pressure and stress (e.g., anxiety, distress, somatic symptoms).

There is ample evidence in the literature regarding the positive contribution of children's perceptions of their parents' behaviors to their adjustment, in general and in the school context. Children adapt more easily to the challenges they face within school when their parents support their autonomy (and refrain from using controlling behaviors), are involved, and structuring (for reviews, see Joussemet et al., 2008; Pomerantz, Grolnick, & Price, 2005; Pomerantz et al., 2012; Raftery, Grolnick, & Flamm, 2012). This conclusion applied for children's academic (e.g., competence, autonomous motivation, engagement in school work, skill development, and achievement), social (e.g., cooperation with classmates; desirable social behaviors; respectful attitude), as well as personal-emotional adjustment (e.g., positive emotions, life satisfaction; self-esteem, anxiety, negative emotions, internalizing problems; e.g., Costa, Soenens, Gugliandolo, Cuzzocrea, & Larcen, 2015; Grolnick, Raftery-Helmer, Flamm, Marbell, & Cardemil, 2014; Joussemet, Koestner, Leskes, & Landry, 2005; McLeod, Wood, & Weisz, 2007). Hence, the positive contribution of parental behaviors, as evaluated by children, is robust and well-established. Without calling into question the value of these findings, it is important to note that they constitute half of the perspectives on the parent-child relationship. A remaining question is whether parents' perspective explains additional variance in their school adjustment.

### 1.2. A multi-informant approach to parental behaviors

In the psychological assessment literature, having more than one informant evaluating a behavior is recommended (see De Los Reyes, Thomas, Goodman, & Kundey, 2013). What has been labelled as *multiple informant methodology* mainly aimed at increasing reliability of psychiatric diagnosis in the psychological literature (e.g., Kraemer et al., 2003; van der Ende, Verhulst, & Tiemeier, 2012) or of organizational dynamics in the sociological literature (Wagner, Rau, & Lindemann, 2010) but it can also be used to study disagreement between raters (e.g., Ringoot et al., 2015). However, using multiple evaluations can yield discrepancies between scores. Such discrepancies are recognized and also accepted as a norm rather than an exception (De Los Reyes et al., 2013). In the context of parental need supporting behaviors, our review of the literature showed that children and parents differ in their evaluation of parental behaviors, from no overlap (e.g., Sessa, Avenevoli, Steinberg, & Morris, 2001) to a larger correspondence (e.g., Rohner et al., 2005). The overall pattern suggests parent-child agreement is fairly inconsistent across parental dimensions as well as for each target (mother or father) and that developmental age does not appear to be the explaining mechanism.

When multiple informants are discrepant in their evaluations, researchers typically treat variations as measurement error without actually testing whether it is a justified interpretation (see De Los Reyes et al., 2013). But discrepant evaluations are

seen by some as meaningful and not interchangeable (Hunsley & Mash, 2007). According to the Operation Triad Model (OTM; De Los Reyes et al.), variations in informants' evaluation can provide valuable information on behavior, once measurement error is ruled out as an explaining mechanism. Discrepancies can reflect meaningful variations across informants by expressing differences in the situations across which behavior is expressed (and witnessed by informants). The Attribution Bias Context Model (De Los Reyes & Kazdin, 2005) explains variations across informants by several factors, one of which is differences across contexts and situations within which behavior occurs. Informants are involved in a variety of dyadic situations and variations in these situations activate differences in the expression or intensity of behavior, hence the discrepancies in levels of a behavior across informants. Within the parent-child relationship, informants asked to report on parental behaviors might not refer to the same range of situations within which parental behaviors occur.

As recommended by the OTM, discrepancies across informants should be studied for themselves when methodological factors (e.g., reliability and validity of measures) and artifacts (e.g., differences in study procedures or measures) do not account for divergences. Researchers first need to make a priori hypotheses regarding informants' evaluations (i.e., will scores be concordant or discrepant). When discrepancies are expected, measurement error needs to be ruled out as the explanation, after which variations across informants should be studied as reflecting valuable information. As mentioned above, parents and children were found to be discrepant across behaviors (e.g., Sessa et al., 2001), leading to the expectation of discrepancies between children's and parents' evaluations of parental behaviors. Thus, each informant's perspective on parental behaviors should provide meaningful information on the parent-child relation. In the present study, such a test includes all need supporting behaviors within SDT and uses a more refined analytical strategy. Using a multi-informant methodology will therefore provide valuable information on the extent to which evaluations of parental supporting behaviors from parents and children are redundant.

We distinguish between mothers and fathers in light of past research showing them to report dissimilar levels of supporting behaviors (e.g., Annear & Yates, 2010). In the parenting literature, there are controversial findings as to whether mothers and fathers' attitudes and behaviors really are different (see Adamsons & Buehler, 2007; Fagan, Day, Lamb, & Cabrera, 2014). Underlying this issue is whether these differences result from actual differences in mothers' and fathers' behaviors or from shortcomings in measurement. While their focus was not on autonomy support, involvement, or structure, it would be important to verify the equivalence of measures for these behaviors. According to Adamsons and Buehler, researchers need to evaluate the measurement equivalence of parenting constructs prior to examining their contributions on children outcomes.

### 1.3. Predicting students' adjustment from multiple perspectives

The reviewed studies showed that children's perceptions of their mother and father are good predictors of their adjustment, that parents and children diverge in their evaluation of parental behaviors, and that discrepancies across informants can provide meaningful information on behavior (and its associated outcomes). As a result, it becomes important to examine the added benefits of using mother's and father's reports on their behaviors when predicting school adjustment. Findings that parents' evaluations have an additional contribution to their child's adjustment in school would support the importance of adopting a multi-informant approach when studying the parent-child relationship instead of focusing on one or the other. Past studies typically focused on one or two parental behaviors, used measures for one parent, and did not sample all dimensions of adjustment. Nevertheless, the overall pattern that emerged from studies comparing the contribution of each informant suggests that children's perceptions of their mother's behaviors were stronger predictors of their adjustment than their mother's self-reports. Specifically, their academic adjustment (e.g., achievement) was more strongly predicted by their perception of their mother's involvement (Bogenschneider & Pallock, 2008). For their personal-emotional adjustment, children's perceptions of their mother's autonomy support, involvement, and structure were more strongly predictive of their anxiety and depressive symptoms (Brenning, Soenens, Braet, & Bal, 2012; Kins, Beyers, Soenens, & Vansteenkiste, 2009; Laird, 2011; Laird and De Los Reyes, 2013), especially when these outcomes were evaluated by the child. The contribution of maternal control to depressive symptomatology was inconsistent, sometimes being better predicted by children's perceptions (Kouros & Garber, 2014; Laird, 2011; Scanlon & Epkins, 2013), others by mothers' self-reports (Steeger & Gondoli, 2013). Very few studies focused on social adjustment (Gaylord, Kitzmann, & Coleman, 2009; Kuppens, Grietens, Onghena, & Michiels, 2009) and yielded inconsistent findings. Although studies considering fathers' perspective are scarce, those who did report a similar pattern (Bogenschneider & Pallock, 2008; Brenning et al., 2012; Kins et al., 2009). In light of these findings, we would expect children's perceptions of their parents' behaviors to more strongly predict their academic, social, and personal-emotional adjustment. However, based on a multi-informant approach, we expected mothers' and fathers' evaluations of their behaviors to explain an additional proportion of variance in their child's adjustment at school.

In sum, the pattern of findings from the reviewed literature yields three conclusions. First, discrepancies are expected between children's and parents' evaluation of parental behaviors. Second, distinguishing between mothers and fathers is important as their behaviors were not found to be redundant (i.e., their similarity varies from small to high depending on the behavior under study). And third, children's perceptions predicted their adjustment more strongly but studies that show how parents' self-reports can explain additional variance are emerging. Discrepancies in the evaluation of parental behaviors by children, mothers, and fathers have important implications for estimating the contribution these behaviors have on children's outcomes such as adjustment in school. Given the scarcity and inconsistency of past results on the unique contribution children's, mothers' and fathers' evaluations of their autonomy support, involvement, and structure to school adjustment, further research was warranted.

## 1.4. The present study

The goal of this study was to test the contribution of parental behaviors to children's adjustment in school using a multi-informant approach. More specifically, we wanted to estimate the contribution of mothers' and fathers' self-reported behaviors to children's adjustment in school once children's perceptions were controlled for. Whereas there is evidence for the paramountcy of children's perceptions of their parents' behaviors, no research to our knowledge examined the unique, additional contribution of mothers' and fathers' self-reported behaviors simultaneously for all behaviors identified by SDT as promoting adjustment. Based on previous research, we expected children's evaluation of maternal and paternal behaviors to be strong predictors of their school adjustment but that mothers' and fathers' self-reports will explain additional variance in academic, social, and personal-emotional adjustment. Separate models were examined for mothers and fathers since our interest was in the added value of considering more than one informant (i.e., the parent) when evaluating the behaviors of each parent.

Before testing the contribution unique to each informant, two steps need to be taken. First, the equivalence of parenting constructs for mothers and fathers needed to be evaluated prior to predicting child outcomes (Adamsons & Buehler, 2007). We did not formulate specific hypotheses regarding the equivalence of coparents' representations of their behaviors given the lack of research on this issue for the targeted parental behaviors. Second, and in line with the OTM, testing the contribution unique to each informant requires obtaining divergent evaluation of parents' behaviors and that these discrepancies not result from measurement error. Previous findings diverge on the level of overlap but children's evaluation of both maternal and paternal behaviors were found to be discordant with their parents' self-reports. We thus expected children and parents to be discordant, but the magnitude of these discrepancies was difficult to anticipate. Importantly, the prediction of adjustment controlled for previously researched predictors like gender (e.g., Duchesne, Ratelle, Larose, & Guay, 2007; Ratelle & Duchesne, 2014) and achievement (Duchesne et al., 2007; Ratelle & Duchesne, 2014).

## 2. Method

### 2.1. Participants and procedures

Data came from a larger study on parents' contribution to youths' vocational development, which began when adolescents were in their third year of high school and included the participation of adolescents as well as their mother and father. The present study used the Time 1 data. A total of 522 adolescents (233 boys, 389 girls), their mothers ( $n = 535$ ), and fathers ( $n = 296$ ) participated in the first wave of the study. Adolescents' mean age was 14 years ( $SD = 0.50$ ) and 61% of them lived in intact families. More than 88% of mothers and 84% of fathers earned a high school diploma or higher and the average family income ranged from \$60 000 CAN to \$69 000 CAN, in line with the median household income in the province of Quebec at the time of the first data wave (\$68 170 CAN; Statistics Canada, 2013).

Participants came from a random sample provided by the Quebec Ministry of Education of students who were in Secondary 3 during the 2011–2012 academic year and attended a French-speaking high school. The sample was stratified on the basis of gender, geographic location (rural or urban), type of school (public or private), and socioeconomic status. Upon receiving parental consent, students were given a consent form and a questionnaire in either in paper or electronic format (via a secured server). Parents were also given the choice between a paper and electronic questionnaire. Participants were surveyed each fall and were given a gift card for online or in person purchases at a music and book store for their participation.

### 2.2. Measures

#### 2.2.1. Adolescent questionnaire

**2.2.1.1. Perceived parental behaviors.** The Perceived Parental Autonomy Support Scale (P-PASS; Mageau et al., 2015) was used to measure adolescents' perceptions of mothers and fathers' *autonomy support* and *control*. This scale demonstrated satisfying psychometric qualities (Duchesne & Ratelle, 2010; Mageau, Bureau, Ranger, Allen, & Soenens, 2016; Mageau et al., 2015) and was chosen because it provides a multidimensional assessment of these two parental behaviors, in line with SDT. Adolescents indicated their level of agreement with each item, regarding their mother and father's behaviors, on a 7-point Likert scale that ranged from 1 (do not agree at all) to 7 (very strongly agree). Sample items include "When my father/mother asks me to do something, he/she explains why he/she wants me to do it" (autonomy support, 12 items;  $\alpha = 0.92$  and  $0.93$  for mother and father, respectively) and "When my father/mother wants me to do something differently, he/she makes me feel guilty" (control, 12 items;  $\alpha = 0.89$  for mother and father). The Children's Report on Parent Behavior Inventory (Schludermann & Schludermann, 1988) was used to assess perceived *involvement* from their mother and father. This measure has demonstrated satisfying psychometric qualities in the past (e.g., Duchesne & Ratelle, 2010; Mageau et al., 2015; Safford, Alloy, & Pieracci, 2007) and adequately assess parents' allocation of important resources to the child. Adolescents indicated their level of agreement with each item (e.g., "In general, my mother/father gives me a lot of care and attention"; 10 items) regarding their mother and father using a 5-point Likert scale that ranged from 1 (totally disagree) to 5 (totally agree). High internal reliability was obtained ( $\alpha = 0.91$  and  $0.93$  for mother and father, respectively). For perceived *structure*, we used a

scale (Ratelle, Duchesne, Guay, & Boisclair-Châteauver, 2016) based on a multifaceted conceptualization (Farkas & Grolnick, 2010). This scale is the only measure, to our knowledge, that assesses structure a multidimensional fashion. Adolescents indicated the extent to which each item corresponded to their relationship with each parent using a 5-point Likert scale that ranged from 1 (never or almost never) to 5 (always or almost always). A sample item is “My mother/father tells me when I don't respect a family rule” (20 items;  $\alpha = 0.86$  and  $0.88$  for mother and father, respectively). This scale was found to possess acceptable psychometric qualities (Ratelle, Duchesne, Guay, & Boisclair-Châteauver, 2016).

**2.2.1.2. Adjustment in school.** Adolescents' perceived adjustment to the school setting was assessed using a French version (Larose, Soucy, Bernier, & Roy, 1996) of the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1989), adapted to the high school setting (e.g., Duchesne et al., 2007; Ratelle & Duchesne, 2014). Three dimensions of adjustment were assessed: *academic* (e.g., “I have been keeping up to date with my academic work”; 7 items), *social* (e.g., “I have friendly relationships with several people at school”; 8 items), and *personal-emotional* (e.g., “I have been feeling in good health”; 7 items). Participants indicated the extent to which each item applied to them, using a 9-point scale ranging from 1 (does not apply to me at all) to 9 (applies to me very well). Empirical support for the psychometric qualities of the SACQ has been obtained the French versions (Duchesne et al., 2007; Larose et al., 1996; Ratelle & Duchesne, 2014). In the present study, Cronbach alphas were 0.81, 0.82, and 0.80 for academic, social, and personal-emotional subscales respectively.

**2.2.1.3. Demographic and control variables.** Adolescents were also asked about their age, gender, and achievement in core disciplines (average of math and French, reported as a percentage, ranging from 0 to 100).

## 2.2.2. Parent questionnaire

**2.2.2.1. Parental behaviors.** The Parental Autonomy Support Scale (Mageau, Ratelle, Moreau, & Koestner, 2014), was used to assess mothers and fathers' self-reported *autonomy support*, *control*, and *involvement*. This scale is based on the child measure described above (P-PASS; Mageau et al., 2015) and demonstrated satisfying psychometric qualities (Ratelle, Duchesne, Guay, & Boisclair-Châteauver, 2016; Mageau et al., 2014). As for the child version, it adequately assesses autonomy support and control, and also includes items similar to those in the CRPBI that were used to assess children's perceived involvement. Mothers and fathers indicated the extent to which each item applied to them on a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree). Sample items include “When I try to help my child to do something that is difficult for him/her, I make an effort to see things from his/her perspective” (autonomy support; 13 items;  $\alpha = 0.87$  and  $0.89$  for mother and father, respectively), “When my child plays without rules or structures, I tell him/her how to be the best at what he/she does” (control; 12 items;  $\alpha = 0.89$  and  $0.86$  for mother and father), and “I'm sincerely interested by what my child does and to know how he/she is doing” (involvement; 4 items;  $\alpha = 0.82$  and  $0.89$  for mother and father). *Structure* was assessed with a 20-item scale (Ratelle, Duchesne, Guay, & Boisclair-Châteauver, 2016) based on a multifaceted conceptualization (Farkas & Grolnick, 2010) that parallels the child version described above. It was found to possess acceptable psychometric qualities (Ratelle, Duchesne, Guay, & Boisclair-Châteauver, 2016). Mothers and fathers evaluated the extent to which each item applied to them using a 6-point scale ranging from 1 (not at all like me) to 6 (completely like me). A sample item is “My child knows what are my expectations regarding school”. Alphas were 0.85 and 0.86 for mother and father, respectively.

**2.2.2.2. Demographic and control variables.** Parents were asked about their age, gender, marital status, education level, and income.

## 2.3. Statistical analyses

### 2.3.1. Model testing

Structural equation modeling was used to test our hypotheses, using Mplus (version 7.11; Muthén & Muthén, 2008–2012). Because our data came from members of a same family, we used maximum likelihood robust (MLR) estimation and used the family as a cluster to control for the interdependence of data. The adequacy of model fit was estimated with the Bentler comparative fit index (CFI; Bentler, 1990), the Tucker-Lewis index (TLI; also known as the Bentler-Bonett non-normed fit index; Bentler & Bonett, 1980), and the root mean squared error of approximation (RMSEA). We used the CFI because it is less affected by sample size and the TLI because it corrects for model complexity. Values for the CFI and TLI range from 0 to 1 (except for the NNFI, whose values can be greater than 1), and values above 0.90 are assumed to reflect an acceptable fit (Schumacker & Lomax, 1996). For the RMSEA, a perfect model fit is reflected by a value of 0, values close to 0.08 indicate reasonable errors of approximation, and values over 0.08 are considered unacceptable (Browne & Cudeck, 1993). Model comparison was done using the Satorra-Bentler scaled  $\chi^2$  for which statistically nonsignificant results would suggest that model fits are equivalent.

### 2.3.2. Missing data

In the context of family research, having some members decline to participate is unfortunately more frequent than one wishes for and can reflect the complexity of the family system. Tagliabue and Donato (2015) demonstrated that missing data



can be evaluated at the item level (with some items not being answered), the respondent level (with one member not completing the questionnaire) or dyadic/family level (with families not participating in the study). In line with their recommendation, we considered the multilevel aspect of missingness in our sample. In this study, there were more mothers ( $N = 535$ ) that participated than there were fathers ( $N = 296$ ) and, to a lesser extent, children ( $N = 522$ ). Little's test was performed and yielded a statistically significant result ( $\chi^2 [740] = 1141.60, p < .01$ ), suggesting the missing pattern was not MCAR. In line with Tagliabue and Donato, we examined the correlations between missingness and auxiliary variables in our data set. Results suggested that, while the pattern of missing data was not MCAR (as per Little's test), it could be assumed to be MAR. More specifically, fathers' participation was a little more likely when the child participating in the study was a boy ( $r = -0.10$ , where 0 represents boys and 1 represents girls) and when mothers reported a higher income ( $r = 0.23$ ). These are variables whose contribution is controlled for in our model. At the item level, missingness across children, mothers, and fathers' questionnaires was largely below the 5% threshold point (see [Kline, 2016](#)), with some exceptions. The contribution of missingness on these items was alleviated by averaging items of a same dimension to create composite scores for model testing, which by the same token increased the reliability of our estimates (see [Marsh & Yeung, 1997](#)).

### 3. Results

#### 3.1. Preliminary analyses

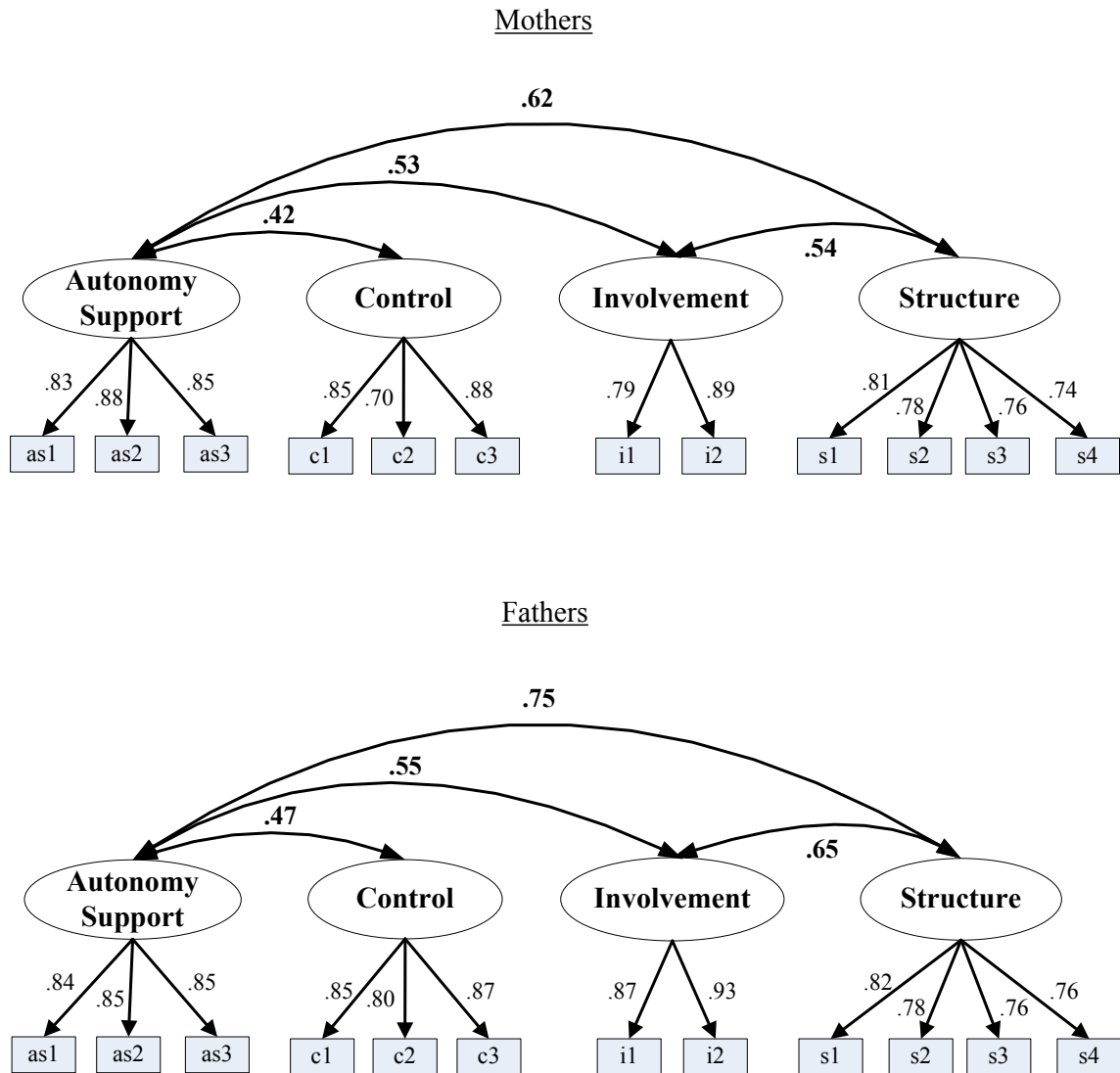
Data was screened to ensure that it met basic statistical assumptions. Some univariate outlying cases were obtained on parental self-reports and social adjustment. To reduce their deviation from the sample and influence on the mean, we brought these scores closer to the mean by assigning them a value within a 3-*SD* range. We also identified 22 multivariate outliers, whose influence was controlled for by the estimation method (MLR). We also examined gender differences on the measures of the study, Wilk's  $\lambda (8181) = 0.21, p = 0.07$ . Univariate tests revealed that: 1) mothers of girls reported being more involved ( $M = 6.79$ ) and structuring ( $M = 4.99$ ) than mothers of boys ( $M_s = 6.49$  and  $4.80$ ;  $p_s < 0.05$ ;  $\eta^2 = 0.09$  and  $0.04$ ); 2) boys reported higher levels of emotional adjustment ( $M = 7.07$ ) than girls ( $M = 6.54$ ;  $\eta^2 = 0.03$ ); and 3) girls reported higher levels of academic adjustment ( $M = 6.68$ ) than boys ( $M = 6.23$ ;  $\eta^2 = 0.02$ ). Measures of the study were also compared as a function of family structure (intact families vs. others), Wilk's  $\lambda (19,159) = 0.77, p = 0.001$ . Univariate analyses indicated that, in intact families, mothers reported higher levels of autonomy support and involvement, fathers reported lower levels of control, and adolescents perceived more positive behaviors from both parents and reported high levels of academic, social, and emotional adjustment than adolescents from other family configurations ( $\eta^2 = 0.02$  to  $0.09$ ). Finally, correlational analyses revealed that adolescents' academic achievement was positively correlated with their academic, social, and emotional adjustment ( $r_s = 0.54, 0.18$ , and  $0.28$ , respectively). Model testing therefore controlled for the contribution of gender, family structure, and academic achievement.

#### 3.2. The equivalence of parenting constructs for mothers and fathers

Multigroup invariance of parental measures between mothers and fathers was estimated where each model included four latent constructs (autonomy support, control, involvement, and structure). Items were averaged to obtain fewer indicators ( $\leq 4$ ) per factor so to reduce the number of indicators per factor and yield a more valid and reliable assessment of indicators ([Marsh & Yeung, 1997](#)). Each factor was scaled by fixing one factor loading to 1.0.

First, baseline measurement models were freely estimated for mothers and fathers separately (Model 1). For both parents, indicators adequately assessed their respective latent factors (all factor loadings  $\geq 0.70$ ; see [Fig. 1](#)) and fit indices were acceptable (see [Table 1](#)). Correlations among latent factors revealed that autonomy support and control were positively correlated for mothers and fathers. They also demonstrate that control is unrelated to involvement and structure, whereas autonomy support is highly and positively correlated with these two factors. In a second step, equality constraints were imposed on factor loadings for mothers' and fathers' models (Model 2). As presented in [Table 1](#), the Satorra-Bentler scaled  $\chi^2$  did not reach statistical significance (S-B  $\chi^2 [7] = 13.11, p = 0.07$ ), nor did the model fit change. Hence, imposing equality constraints on factor loading did not worsen model fit. In a third step, equality constraints on factor covariances were added (Model 3), to determine whether the relations between parenting behaviors were equivalent for mothers and fathers. A statistically significant Satorra-Bentler scaled  $\chi^2$  (S-B  $\chi^2 [15] = 61.26, p < 0.001$ ) was obtained, suggesting that the relations between self-reported parental behaviors were not equivalent for mothers and fathers. Finally, equality constraints were added on intercepts and yielded a statistically significant Satorra-Bentler scaled  $\chi^2$  (S-B  $\chi^2 [9] = 131.48, p < .01$ ). This finding suggests that mothers' and fathers' intensity on these behaviors differed. Estimated marginal means revealed mothers to be more autonomy supportive, involved and structuring than fathers. Overall, invariance analyses revealed that representations of behaviors were equivalent for mothers and fathers but that the relations among these factors and average levels on these were not.

We also examined correlations among latent factors, which suggest that mothers and fathers were moderately similar in their behaviors ( $r_s = 0.27, 0.31, 0.23$ , and  $0.41$  for autonomy support, control, involvement, and structure, respectively). Overall, these findings suggest that mothers' and fathers' representations of their behaviors are equivalent and that their levels and association among these behaviors differed. The finding that coparents' representations of their behaviors were similar supported the appropriateness of examining how these behaviors predict adjustment for both parents. The findings



**Fig. 1.** Obtained multigroup measurement model for mothers and fathers.  $N = 196$ . Factor loadings and correlations between latent factors were statistically significant at  $p < .01$  unless they are in parentheses ( $p \geq 0.43$ ).

that intercepts were different and mother-father correlations for each behavior were not very high support the importance of distinguishing between mothers and fathers.

### 3.3. Assessing divergence between informants

Divergences between the evaluations of parental behaviors from parents and adolescents were estimated by correlations between latent factors. A first CFA was done with mothers' self-reports and adolescents' perceptions of their mother. It included eight latent factors: adolescents' perceptions of their mothers' autonomy support, control, involvement, and structure, as well as mothers' self-reported autonomy support, control, involvement, and structure. Fit indices for the model were acceptable ( $\chi^2 [296] = 527.48$ ,  $p < 0.001$ ; CFI = 0.97, TLI = 0.96; RMSEA = 0.04 [0.04, 0.05]) and factor loadings for each latent factor were high and ( $\geq 0.65$ ). As presented in Table 2 (top panel), correlations were moderate between informants' evaluations of maternal control, involvement and structure and null for maternal autonomy support. Coefficients also revealed that adolescents do not discriminate among their mothers' specific behaviors. Another noteworthy finding pertains to the relation between autonomy support and control, which was positive from mothers' perspective but negative from children's.

The same CFA model was ran with fathers and yielded acceptable fit indices ( $\chi^2 [296] = 406.58$ ,  $p < 0.001$ ; CFI = 0.98, TLI = 0.97; RMSEA = 0.04 [0.03, 0.05]) and high factor loadings for each latent factor ( $\geq 0.72$ ). Correlations between the

**Table 1**  
Fit indices for Multigroup Measurement Models.

Models	Npar	$\chi^2$	df	p	CFI	TLI	RMSEA [CI]	Scaled $\chi^2$ difference [CI]
Model 1: No constraint imposed	83	169.93	97	.000	.97	.96	.06 [.05, .08]	
Model 2: Equality constraint imposed on factor loadings	76	183.01	104	.000	.97	.96	.06 [.05, .08]	M2 vs. M1
Model 3: Equality constraints imposed on factor loadings and covariances	61	244.14	119	.000	.95	.94	.07 [.06, .09]	M3 Vs. M2*
Model 4: Equality constraints imposed on factor loadings and intercepts	67	345.14	113	.000	.90	.89	.10 [.09, .12]	M2 Vs. M4*

Note. Npar = number of parameters in model. \* =  $p < .01$ .

evaluations of fathers and adolescents were weak for paternal autonomy support and control and moderate for paternal involvement and structure (bottom panel of Table 2). As with mothers, children do not discriminate among the specific paternal behaviors and opposite patterns were obtained for the relation between autonomy support and control (negative for children and positive for fathers).

Overall, findings from both models revealed that the evaluation of parental behaviors from children and parents are divergent, with at best a moderate correspondence between informants. We then examined whether methodological factors could explain these discrepancies. The scales' reliability coefficients and their structural validity, as revealed by measurement models where all factor loadings were high, suggest that measurement error cannot account for variations between informants. Consequently, parent-child discrepancies should be studied for themselves, as well as their contribution to children's adjustment.

### 3.4. Predicting adjustment from multiple evaluations of parental behaviors

We then tested whether children's and parents' perspectives had unique contributions to adolescents' adjustment in school. CFAs (one per parent) were first performed to ensure that latent constructs were adequately measured by their respective indicators. They each included 11 first-order latent variables: perceptions of parental autonomy support, control, involvement, and structure, parents' self-reported autonomy support, control, involvement, and structure, as well as adolescents' academic, social, and emotional adjustment. A second-order latent factor was created for adolescents' perceptions of their parents' behaviors in light of the high correlations obtained in previous CFAs. We also created a second-order factor for parents' self-reports for autonomy support, involvement, and structure (correlations were moderate to high among factors) while control was treated separately given the lower, positive correlation with autonomy support. Measurement models were adequate for both mother-child ( $\chi^2$  [538] = 1015.34,  $p < .01$ ; CFI = 0.94, TLI = 0.94; RMSEA = 0.05 [0.04, 0.05]) and father-child ( $\chi^2$  [538] = 851.74,  $p < .01$ ; CFI = 0.94, TLI = 0.94; RMSEA = 0.05 [0.04, 0.06]) models.

Next, hybrid models were estimated, adding adolescents' gender, academic achievement, and family structure as control variables. These variables were correlated with exogenous factors and used as predictors of adjustment dimensions. For the mother-child model, fit indices were acceptable,  $\chi^2$  (633) = 1161.83,  $p < .01$ ; CFI = 0.94, TLI = 0.93; RMSEA = 0.04 [0.04, 0.05]. Adolescents' perceptions of their mother's behaviors predicted higher levels of academic, social, and emotional adjustment but mothers' self-reported behaviors had an additional contribution (see Fig. 2, top panel). Specifically, mothers' positive behaviors (autonomy support, involvement, and structure) predicted higher levels of academic and personal-emotional adjustment, while the opposite was found for control. We also obtained a positive contribution of maternal control for social adjustment, which is counter-intuitive. This might be explained as a statistical suppression effect, which is more likely to occur in structural equation models with latent variables (Maassen & Bakker, 2001). Caution is therefore warranted when interpreting such a result. These findings were obtained over and beyond the contribution of academic achievement, gender, and family structure.

Then, we examined the proportion of variance explained by mothers' and children's scores for each type of adjustment. For academic adjustment ( $R^2 = 0.51$ ; see Fig. 2), results indicated that 19% of this variable's explained variance could be attributed to children's evaluation and 3% stemmed from that of mothers. For social adjustment ( $R^2 = 0.14$ ), 75% of its explained variance was accounted for by children's scores and 7% from mothers'. Finally, children's and mothers' evaluations respectively accounted for 32% and 7% of the explained variance in personal-emotional adjustment ( $R^2 = 0.27$ ). Overall, these findings suggest that, while a large proportion of the variance in academic, social, and personal-emotional adjustment is explained by children's evaluation of maternal behaviors, mothers' self-reports add between 3% and 7% additional variance, which is not negligible.

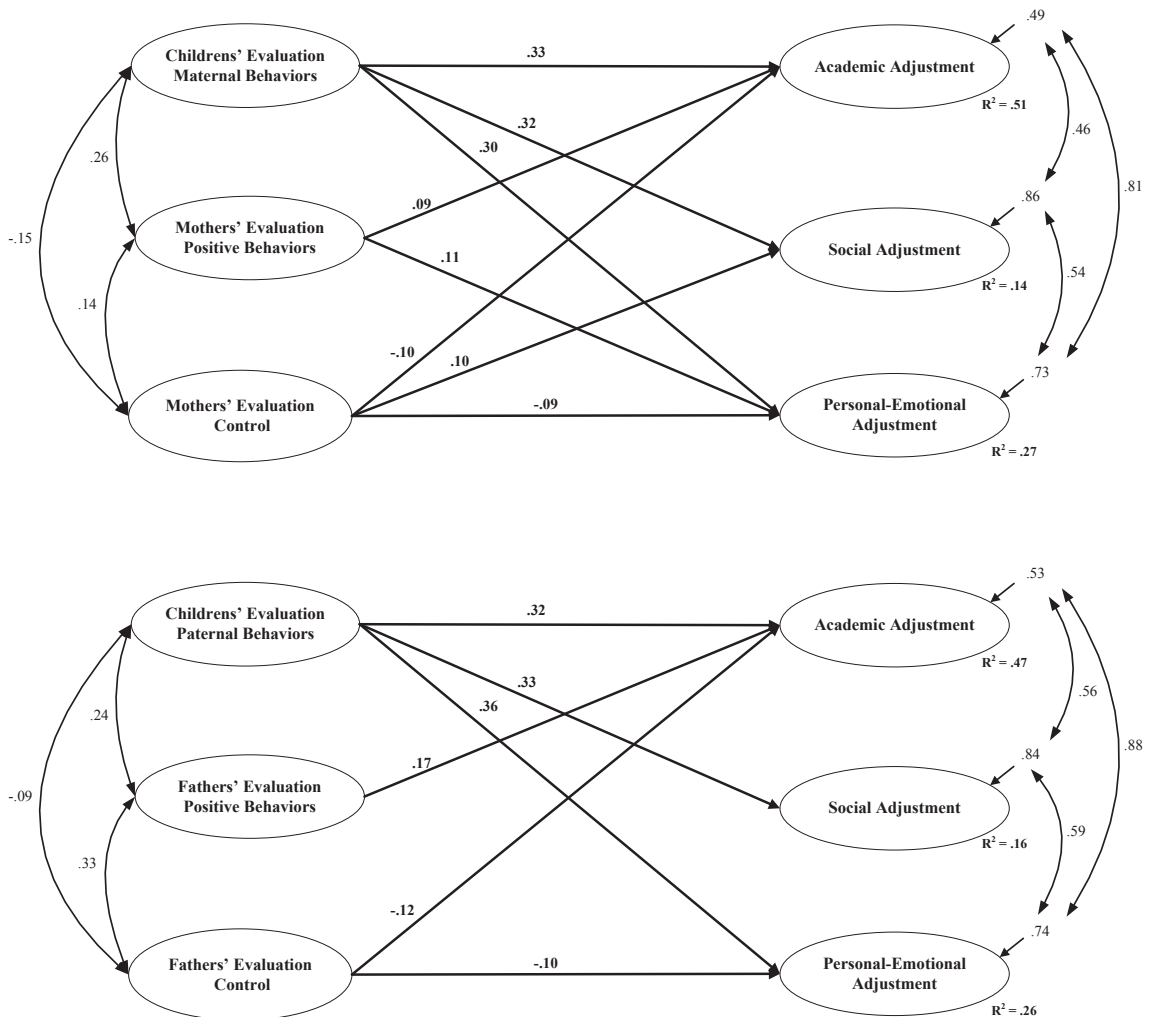
The father-child model had a similarly acceptable fit,  $\chi^2$  (633) = 1017.77,  $p < .01$ ; CFI = 0.93, TLI = 0.93; RMSEA = 0.05 [0.04, 0.06]. As in the previous model, adolescents' reports on their father's behaviors predicted higher levels of academic, social, and emotional adjustment but fathers' reports explained additional variance (see Fig. 2, bottom panel). Fathers' positive behaviors predicted higher levels of academic adjustment while their control predicted lower levels of academic and



**Table 2**  
Correlations among latent factors for parental behaviors.

	1	2	3	4	5	6	7	8	
<i>Mother-child model (N = 434)</i>									
<b>Child reports</b>									
1. Autonomy support	–								
2. Control	–.71	–							
3. Involvement	.84	–.66	–						
4. Structure	.83	–.59	.81	–					
<b>Mother's self-reports</b>									
5. Autonomy support	<b>.06</b>	.02	.06	.11	–				
6. Control	–.16	<b>.30</b>	–.11	–.09	.37	–			
7. Involvement	.27	–.20	<b>.27</b>	.27	.44	–.07	–		
8. Structure	.23	–.19	.21	<b>.27</b>	.59	.02	.60	–	
<i>Father-child model (N = 246)</i>									
<b>Child reports</b>									
1. Autonomy support	–								
2. Control	–.64	–							
3. Involvement	.84	–.61	–						
4. Structure	.81	–.54	.83	–					
<b>Father's self-reports</b>									
5. Autonomy support	<b>.16</b>	–.13	.15	.19	–				
6. Control	–.08	<b>.15</b>	–.07	–.08	.47	–			
7. Involvement	.25	–.14	<b>.26</b>	.29	.62	.07	–		
8. Structure	.19	–.09	.16	<b>.30</b>	.77	.08	.69	–	

Note. Coefficients in bold represent mother-child agreement (top panel) and father child agreement (bottom panel).



**Fig. 2.** Obtained hybrid model for mothers (top; N = 434) and fathers (bottom; N = 262).

personal-emotional adjustment. These relations held while controlling for academic achievement, gender, and family structure.

As for the model-child model, we examined proportions of variance in adjustment explained by fathers' and children's evaluations of paternal behaviors. For academic adjustment ( $R^2 = 0.47$ ; see Fig. 2), results indicated that 22% of this variable's explained variance could be attributed to children's evaluation and 9% to fathers' self-reports, which is nearly half as much as children's contribution. For social adjustment ( $R^2 = 0.16$ ), 70% of its explained variance was accounted for by children's scores while fathers' evaluations did not explain any variance. Finally, children's evaluations accounted for 50% of the explained variance in personal-emotional adjustment ( $R^2 = 0.26$ ), and fathers' score explained 4%. These findings revealed that, while fathers' perspective on their behaviors explained a lower portion of variance on dimensions of social and personal-emotion adjustment, they are more important in explaining their child's academic adjustment.

#### 4. Discussion

This study examined the contribution of supportive parental behaviors, as proposed by SDT, for adolescents' adjustment in school using a multi-informant approach. Once the equivalence of mothers' and fathers' representations of their behaviors was demonstrated, we replicated the expected discrepancies between informants. Children's and parents' perspectives were thus not redundant and needed to be studied in their own right. The findings also showed that children's perceptions of both maternal and paternal behaviors were moderate predictors of their adjustment in school and that mothers' and fathers' evaluations of their behaviors explained additional variance in their child's adjustment. Specifically, mothers' positive behaviors (autonomy support, involvement, and structure) explained additional variance in their child's academic and personal-emotional adjustment by predicting higher scores, whereas control predicted lower levels on these. Social adjustment was also predicted by maternal control, although caution is advised in interpreting this finding. Fathers' positive behaviors predicted higher academic adjustment, and their control predicted lower academic and personal-emotional adjustment. The implications of these findings are presented in the next section.

##### 4.1. A multi-informant approach to evaluating parental behaviors

In line with past research and theoretical models (e.g., OTM) in the psychological assessment literature (see De Los Reyes et al., 2013), our findings demonstrated the importance of evaluating behaviors from multiple sources. When examining the contribution of parental behaviors to their child's adjustment, researchers typically choose between asking children to report on their mother's and father's or asking the latter to report on their behaviors. The present results show that instead of choosing one informant or the other, both parent and child should be considered. Indeed, each perspective provides distinct information on the parent-child relation and contributes unique variance to child adjustment. Importantly, as proposed by the OTM, parent-child discrepancies in evaluating maternal and paternal behaviors were not mere methodological artifacts but valuable information that could be studied for itself. We replicated past findings on the non-redundancy of parents' and children's evaluation of parental behaviors and demonstrated that these discrepancies were not the result of measurement error, a conclusion that researchers typically reach without actually testing its adequacy (De Los Reyes et al.).

The present findings also concur with postulates of the Attribution Bias Context Model (De Los Reyes & Kazdin, 2005), which is partly based on research pertaining to the actor-observer phenomenon (Jones & Nisbett, 1972) and to memory recall (see De Los Reyes & Kazdin). Hence, when evaluating parental behaviors, children and parents can base their evaluation on the information accessible to each, with parents being more likely than children to base their interpretation on their internal states. Furthermore, children and parents can recall different situations, depending on their cognitive abilities, which should be more complex in adults, but also on what was more salient or important to them. Hence, a father's controlling behaviors during a conversation with his daughter regarding choices of elective classes might be of greater importance to her, and influence her recall of his controlling behaviors.

Our findings replicated those from past studies where children's perceptions of their parents' behaviors were good predictors of their adjustment in school (e.g., Bogenschneider & Pallock, 2008; Brenning et al., 2012; Kins et al., 2009; Kouros & Garber, 2014; Laird, 2011, Laird and De Los Reyes, 2013) and extended on these by including both mothers and fathers and by assessing all types of supporting behaviors proposed by SDT. The present findings suggest that parents' and children's perspectives are complementary, which can be explained by several factors. A first explanation is that, when asked to report on parental behaviors, children and parents might not refer to the same situations, or the same range of behaviors (De Los Reyes & Kazdin, 2005). According to the OTM, specific situations can activate manifestations or intensity of a behavior in a different manner. When asked to report on these manifestations, individuals might not refer to the same, or same range of specific situations. As such, a parental behavior might be particularly salient for adolescents when discussing issues related to outings with friends whereas, for parents, salience might be more pronounced for school-related issues. A second explanation pertains to self-development. Adolescence is qualified by increases in children's ability to introspect as well as in their cognitive complexity but these developments are not fully under their control, and some of their egocentric tendencies remain (see Harter, 2012). When asked to reflect on their parents' behaviors, adolescents can indicate the extent to which they observed these behaviors but their evaluation might be limited to what they could recollect and process. With research suggesting that observers' scores corroborate children's perspective (e.g., Gonzales, Cauce, & Mason, 1996), it is tempting to discard parents'

evaluation of their behaviors. However, these findings were obtained in the specific context of controlled setting, which might not generalize in the day-to-day home setting. Future research would benefit from attending to these inconsistencies.

These findings might also result from child-to-parent effects where children's adjustment contributes to mothers' and fathers' evaluation of their behaviors. Past research and theory on the origins of parental behaviors focused on a variety of factors (e.g., parents' characteristics, environmental pressures), one of which was children's characteristics (see [Pomerantz et al., 2012](#)). Hence, children with behavioral difficulties will elicit more controlling behaviors from their parents and undermine their involvement ([Pomerantz et al., 2012](#)). In the present case, part of parents' evaluation of their parenting behaviors might reflect their child's adjustment in school such that parents will report more positive behaviors toward their child when she/he is well adapted in school. Because the design is cross-sectional, we cannot test the directionality of these effects but future research should replicate these findings using a prospective or longitudinal design and test for possible child effects.

#### 4.2. On the role of positive behaviors

Mothers and fathers' behaviors were found to have unique contributions to their child's adjustment in school, and sampled a variety of behaviors proposed by SDT to contribute to children's adjustment ([Joussemet et al., 2008](#); [Skinner et al., 2005](#)). These findings not only demonstrate the importance of mothers and fathers during adolescence but also of considering all behaviors proposed by SDT, some positive (autonomy support, involvement, and structure) and others negative (control). Another point that deserves attention regarding parental control is its relation to autonomy support. When we examined it from children's perspective, as is often the case in the literature, these two categories of behaviors were highly negatively correlated. Hence, when children perceived their parents as supporting their autonomy (e.g., considering their opinions and perspective, explaining the reasons for their rules and expectations, letting them hold age-appropriate responsibilities and make meaningful choices), they reported a low frequency of controlling behaviors such as pressure, reward contingencies, threats or guilt-inducing techniques. From parents' standpoint, however, these two categories of behaviors coexist, as revealed by moderate positive correlations for both mothers and fathers. Concretely, this suggests that parents who use autonomy supportive behaviors such as perspective taking, choice offering, or providing rationales for their expectations can, nevertheless, use some control (e.g., rewards, threats and punishments, or guilt), although to a lesser degree, as suggested by the magnitude of correlations. Our findings stand in contrast to those from previous studies, which found self-reported autonomy support and control to be negatively correlated (e.g. [Annear & Yates, 2010](#); [Besnard, Verlaan, Capuano, Poulin, & Vitaro, 2011](#)). These contrasting findings could result from differences in sampling (ours did not include "at-risk" students nor elementary school children) but also in measurement. We used multidimensional measures for both autonomy support (i.e., choice, rationale, acknowledgment) and control (i.e., threats, pressure, guilt; see [Mageau et al., 2015](#)), which provided a more comprehensive assessment of these SDT-derived constructs. Future research should examine the underlying dimensions of these two behaviors and their relation to important child outcomes.

Related to this issue is that of the associations among specific behaviors. We found that adolescents do not discriminate among parental behaviors, as evidenced by the high correlations among autonomy support, involvement, structure, and (low) control (i.e., correlations are negative with this construct). Hence, when asked to evaluate their parents' behaviors, adolescents report similar levels of autonomy support, involvement, and structure and opposite levels of control. We are left to wonder whether this is a problem or a blessing. We should hope that mothers and fathers who support their child's autonomy are also highly involved and structuring, and use low control. This type of parenting is coherent with SDT and highly conducive to psychological need satisfaction and ensuing outcomes (e.g., academic functioning, adjustment) in children. A promising future research direction would be to examine these parenting dimensions from a person-centered approach to identify heterogeneous patterns in relationships among behaviors. Such research would be coherent with typologies such as [Baumrind \(1991\)](#), although it would be less reductive by assessing all behaviors.

Overall, the findings presented here guide future research on the role of parents in their child's schooling by showing the value of taking into account both parents and child reports on parental behaviors. It also informs future research on the necessity of considering both mothers and fathers, who are not redundant in their self-reports and whose contribution to adjustment in school is not identical, especially for personal and social adjustment.

#### 4.3. Limitations and conclusion

In addition to the several strengths of this research (multi-informant approach, psychometric quality of the parental measures, stratified sample, etc.), it is important to take into account the inherent shortcomings when interpreting these findings. A first limit pertains to the descriptive nature of the research design. Because we do not have experimental control over the independent variables, causal interpretations of the role of parental behaviors in adjustment in school are unwarranted. Second, the design was cross-sectional, which prevented us from testing reciprocal relations between parents and children. Replication studies would benefit from using multiple data waves. Third, concerns regarding shared method variance could have been undermined by having a third person evaluate children's adjustment in school. Finally, since parental behaviors were assessed in general and adjustment was contextualized to school, we would expect the strength of the relations from parental behaviors to adjustment in school to be larger if measures of parental behaviors would have been contextualized.

Another suggestion would be to replicate these findings at different developmental periods. This would help identify if parents' additional contribution is maximized during certain periods. We also recommend testing our model by including the contribution of both parents simultaneously, something our data set could not allow. As proposed by Tagliabue and Donato (2015), preventing missing data at the respondent level, in this case fathers, needs to be addressed during the conceptualization of the study. Strategies therefore need to be included within the design to maximize the participation of, what we find are the most reluctant participants in family research. Finally, we hope future research can help better delineate the relationship between parental control and social adjustment. Using a prospective or longitudinal design would allow to determine whether poor social adjustment elicits parental control or if control leads to improved social adjustment.

In sum, the present study demonstrated that children and parents are discrepant in their evaluation of parental behaviors and that each informant provides useful information. Once children's perceptions of their parents were taken into account, mothers' and fathers' self-reports explained additional variance in their child's adjustment in school. Interventions should therefore aim at increasing parents' positive behaviors and reducing their control. Workshops and information booklets constitute useful means to reach parents and inform them on the importance of their positive behaviors such as autonomy support, involvement, and structure, and the practical application of this knowledge.

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