

## **The Impact of Environmental Threats on Controlling Parenting and Children's Motivation**

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### **Abstract**

Past studies looking at antecedents of controlling parenting revealed an association between parents' use of these detrimental practices and their perceptions of the environment as threatening for their children. However, the causal impact of environmental threats on controlling practices remained to be assessed. This study filled this gap using an experimental design and a sample of 101 children ( $M_{\text{age}} = 10.21$  years) and their mothers. We manipulated mothers' perceptions of environmental threats, subsequently asked them to help their children complete a task in a guided learning setting, and obtained multi-informant observational measures of maternal controlling practices during this interaction. Results first showed that mothers with a high (but not low) controlling style were coded by an independent observer as significantly more controlling in the threat condition than in the control condition. Second, results revealed that mothers in the threat condition were perceived by their children as significantly more controlling than mothers in the control condition, regardless of their controlling style. Path analyses then showed that coded maternal practices predicted children's perceptions of maternal controlling practices, which in turn were associated with higher levels of controlled motivation in children. Examining indirect effects also revealed a significant link from environmental threats to children's controlled motivation, via perceived maternal controlling practices. Contributions of these results to the literature on parenting are discussed.

*Keywords:* autonomy support, controlling parenting, environmental threats, experimental design, motivation

### **The Impact of Environmental Threats on Controlling Parenting and Children's Motivation**

The social context to which children are exposed influences the extent to which they learn and internalize cognitive and socio-emotional skills that, in turn, allow them to successfully integrate, and contribute to, their social groups. Through the quality of their involvement with their children, parents play a crucial role in fostering these skills. Specifically, research anchored in Self-determination theory (SDT) consistently found that parental involvement characterized by controlling (vs. autonomy-supportive) practices predicts suboptimal developmental pathways in children (Soenens & Vansteenkiste, 2010). According to SDT, controlling parenting consists of pressuring, intrusive and dominating practices that constrain children to think, feel or be in specific ways, whereas autonomy-supportive parenting refers to practices that demonstrate consideration and respect for children's internal frame of reference and volitional functioning.

SDT also postulates that controlling (vs. autonomy-supportive) practices are harmful for children's development because they thwart (vs. satisfy) children's basic psychological needs – that is, their need for autonomy, competence and relatedness (Soenens & Vansteenkiste, 2010). Thwarted needs would hinder children's development because they would cause children to regulate their behaviors with suboptimal motivational strategies or even induce amotivation (Deci & Ryan, 2008). According to SDT, the quality of motivation varies as a function of its self-determination level (with highly self-determined motivations being most optimal). When children's motivation is highly self-determined, they act out of *autonomous* motivation – that is, for intrinsic reasons (e.g., self-interest, enjoyment) and identified reasons (e.g., personal beliefs or values). Conversely, children whose motivations are non-self-determined tend to behave out of *controlled* motivation – that is, for introjected reasons (e.g., guilt, shame) and external reasons (e.g., rewards, punishments). Finally, children who fail to see any contingency between their

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behaviors and desired outcomes (and thus may be confused with regards to the reasons underlying their behaviors) are said to be *amotivated*. Given the well-documented negative consequences of controlling practices on children's development through their impact on children's needs and motivation, identifying risk factors that prompt parents to use these practices is crucial. Indeed, such knowledge could then be included in (or even guide the development of) parental education programs, thereby helping parents to avoid these risk factors or respond to them in other ways than by being controlling.

### **Theoretical Models of the Antecedents of Controlling Parenting**

Theoretical models of parent-child interactions have proposed that different pressures could prompt parents to get involved with their children in a controlling way. These pressures have been argued to originate from parents' and children's characteristics as well as from socio-contextual factors (Grolnick, 2003). For instance, experimental research has shown that parents who are led to believe that their children lack (vs. possess) the resources to face challenges in their environment (e.g., because they would lack the cognitive skills to face such challenges) tend to be more controlling when interacting with them (e.g., Wuyts, Vansteenkiste, Mabbe, & Soenens, 2017). Relatedly, studies on socio-contextual antecedents of controlling parenting found that the more parents perceive the social environment as unable to provide satisfying support, the more likely they are to be controlling with their children (e.g., Harvey et al., 2016).

One explanation for why such pressures could elicit controlling practices is that they would influence, or be suggestive of, parents' beliefs about the threatening nature of their children's environment (Gurland & Grolnick, 2005). According to Gurland and Grolnick (2005), threats in children's environment may be conceptualized as imminent external challenges that present a risk to children's wellbeing and future. These challenges include the presence of

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competition, scarce resources as well as unstable future opportunities, and may be accompanied by negative affect (e.g., worry). Proposing environmental threats as an antecedent of controlling parenting seems particularly relevant to consider in a world where access to information about, and second-hand exposure to, various environmental threats have reached unprecedented levels.

### **Environmental Threats as a Risk Factor for Controlling Practices**

Advances in technologies have indeed increased peoples' access to information about various threats in children's environment, including the challenges that await or currently affect younger generations (e.g., climate crisis; Olteanúa, Castillo, Diakopoulos, & Aberer, 2015) and worldwide large-scale violence events and catastrophes (e.g., Slone & Shoshani, 2010). Given that individuals tend to disseminate and grant importance to negative information (Hornik, Satchi, Cesareo, & Pastore, 2015), parents in modern society are likely to be frequently exposed to threatening information about children's environment. This is important to consider given that past correlational research has found the existence of a link between parents' beliefs regarding such information and their parenting practices. Gurland and Grolnick (2005) have indeed shown that parents who perceived their children's environment as more threatening also relied more heavily on controlling practices when interacting with them during a guided learning task. In a second study, Murras, Grolnick, and Friendly (2012) found a similar pattern of results, but in another setting. In that study, mothers' perceptions of environmental threats were related to more controlling (vs. autonomy-supportive) practices during conversations with their daughters. Thus, while no study has yet confirmed that perceptions of environmental threats caused controlling practices, research nonetheless found a clear relation between these two constructs.

Offering an interpretation for this finding, Grolnick (2003) argued that such controlling practices could reflect parents' propensity to try to protect their children from situations they

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perceive as potentially harmful. This could be especially true for parents with a more favorable attitude towards controlling practices, as they may be more inclined to believe that such practices could be beneficial or sometimes necessary. In line with this idea, past experimental studies on antecedents of controlling parenting (mostly examining pressures related to parents' own ego-involvement) found that parents with a high controlling style tended to react to induced pressures by becoming even more controlling, whereas those with a low controlling style were often less affected or unaffected by such experimental manipulations (e.g., Grolnick, Gurland, DeCoursey, & Jacob, 2002; Grolnick, Price, Beiswenger, & Sauck, 2007).

Not only may some parents be more disposed to becoming more controlling in response to environmental threats, some interaction contexts may be particularly likely to elicit such responses. One context in which perceived threats would be likely to induce controlling practices is guided learning settings. In these settings, parents are required to help their children acquire cognitive and socio-emotional skills that will help them function in their social environment (Grusec & Davidov, 2010). Thus, the more parents perceive their children's environment as presenting threats to their optimal functioning, the more they could feel pressured to teach their children these skills and hence adopt controlling practices in an attempt to reach that goal. Yet, and as mentioned, controlling practices do not tend to generate motivational strategies that can successfully enhance children's skills and coping strategies to deal with environmental threats.

### **Present Research**

In sum, the reviewed studies suggest a causal sequence, where environmental threats trigger more controlling parenting, which in turn exacerbates suboptimal motivation in children. Yet, the causal impact of environmental threats on controlling practices was never formally tested. The goal of our present research was thus to fill this gap. To do so, we first randomly

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assigned mothers to one of two experimental conditions in which we manipulated their perceptions of environmental threats. In line with Gurland and Grolnick (2005), we then asked mothers to interact with their children in a guided learning setting.

To evaluate the impact of our experimental manipulation on controlling parenting, we used a multi-informant design. Specifically, we (1) assessed children's perceptions of their mothers' controlling practices and (2) corroborated these perceptions with those of an independent observer. Using these two sources of information is important because although both are valid and converge with one another (e.g., Grolnick et al., 2002), they are not interchangeable (e.g., Sessa, Avenevoli, Steinberg, & Morris, 2001). Also, according to the principle of universality without uniformity (as discussed by Soenens, Vansteenkiste, & Van Petegem, 2015, p.46), observed controlling practices should impact children inasmuch as they are, in turn, actually perceived as such by children. Given that various factors may lead children to perceive their parents' practices in a different way than what a third party may observe, examining both perceptions should offer a more comprehensive understanding of the effect of environmental threats on parenting.

We enhanced the validity of our findings by ensuring that participants in both conditions would not differ on covariates susceptible to influence controlling parenting and motivational outcomes. In all our analyses, we thus controlled for (1) mothers' anxiety traits (Gurland & Grolnick, 2005), (2) children's competence level in the task (e.g., Robichaud, Bureau, Ranger, & Mageau, 2019), (3) relevant sociodemographic variables (i.e., children's age and gender as well as families' SES), and (4) differential amount of time spent by mother-child dyads completing the task. Finally, we (5) asked mothers to report on their controlling style, so that we could examine the potential moderating role of this factor (e.g., Grolnick et al., 2007).

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**Hypotheses.** In line with past experimental studies, we expected a significant interaction between mothers' controlling style and our manipulation of environmental threats on mothers' controlling practices. More specifically, we hypothesized that the effect of environmental threats on controlling practices would be stronger for mothers with a high controlling style than for those with a low controlling style. In turn, and based on Soenens et al (2015)'s application of the principle of universality without uniformity, we expected that coded controlling parenting would predict children's perceptions of their mothers' controlling practices, and that these perceptions would in turn predict children's reports of their controlled motivation and amotivation toward the task. Although controlling practices are theorized to be less strongly related to autonomous motivation (Vansteenkiste & Ryan, 2013), we nonetheless tested whether controlling parenting also predicted lower autonomous motivation. Finally, we expected to observe indirect links between environmental threats and children's motivation, through maternal controlling practices.

### Method

#### Participants

A sample of 101 Canadian child-mother dyads participated in this study. Participants were part of a larger research on parenting and, as such, they also took part in Robichaud et al. (2019)'s study. Most participants (69.5%) were recruited through a list of potential participants obtained from participants' provincial Ministry of Health and Social Services, while the rest were recruited through postings in summer camps and public schools. We targeted elementary school children (52 girls and 49 boys) aged between 8 and 12 years old ( $M_{\text{age}} = 10.20$  years,  $SD = 0.90$  years). We chose this age range to ensure that children had the cognitive maturity to complete self-reports, while being sufficiently young for mothers to play a significant guided learning socializing role during the interaction. Mothers were aged from 27 to 55 years

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( $M_{\text{age}} = 42.40$  years,  $SD = 5.40$  years). On average, families earned between CAN\$50,000 and 59,999. A fifth (20.60%) had an income lower than CAN\$30,000, while a little more than the third (35.1%) earned over CAN\$90,000. In terms of education, 2.0% did not finish high school, 8.1% had a high school diploma as their highest certification, 53.5% had a university diploma, and 36.4% had another kind of post-secondary accreditation. This study was approved by the ethical committee of the first author's university.

### **Procedure**

We conducted the experiment in a single home visit. To plan this visit, we first called the participants and explained the goal of our study (i.e., to understand mother-child interactions during a guided learning activity) as well as its procedure. At the scheduled day, we reviewed the procedure with participants and obtained formal consent from both mothers and children.

**Block design.** After giving their consent, children completed the *Wechsler's Intelligence Scale for Children-IV (WISC-IV)*'s block design alone with the experimenter. The block design requires children to reproduce up to 14 images of increasing difficulty, each with a determined number of cubic blocks and within a determined time limit (Wechsler, 2003). This procedure provided a measure of children's competence at this task and indicated which block image had a difficulty level situated in their zone of proximal development. This image was then used as a starting point for the subsequent mother-child guided learning interaction, so that the task would be difficult enough for mothers to see opportunities to help their children, while being sufficiently easy for children to actively participate and remain in charge of their own learning. Specifically, the chosen block image was either (a) the first of two consecutive uncompleted images, (b) when no images were consecutively failed, the third uncompleted image, or, (c) the last or current image, if the first two criteria were not met after a 15-minute period.



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**Experimental manipulation.** While children were completing the block design with the experimenter, mothers filled out a questionnaire in a separate room. This questionnaire included measurements of their controlling style and the other covariates of the present study (i.e., anxiety traits and sociodemographic). Mothers then took part in a short pilot study on the effectiveness of communication strategies, presented as being conducted in partnership with the department of communication of the experimenters' university. This pilot study was a false pretense to have mothers listen to an 8-minute audio journalistic report designed to prime (or not) environmental threats without their knowledge. Half of the mothers were randomly assigned to a threat condition, while the other half was assigned to a control condition. In the threat condition, the journalistic report presented a pessimistic forecast of children's future, with the goal of creating a feeling of environmental threats. Specifically, and based on Gurland and Grolnick (2005)'s operationalization of environmental threats, the report depicted the transition from childhood to teenage years in modern society as overwhelmingly difficult and pressuring, and argued that the competitive, worrying, harsh, resource-scarce, and unstable state of our society made dreams and aspirations impossible to fulfill for many children (see supplemental material for a written version of the journalistic report). In the control condition, the journalistic report was meant to provide non-threatening information about children's environment. To this end, we adapted an actual 8-minute audio journalistic report that forecasted a probable increase in people's interest in and access to local food and markets. To verify the validity of our manipulation, we asked mothers to evaluate the credibility of the journalistic reports and their emotional impact on them.

**Mother-child guided learning interaction.** Once both members of the dyad had finished their respective tasks, we invited mothers to help their children continue the block design during an approximate 10-minute period ( $M = 10.79$  minutes,  $SD = 2.49$  minutes), starting with the

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optimally challenging block image previously determined by the experimenter. After the interaction, children reported their perceptions of their mother's controlling practices and rated the extent to which different reasons explained why they had engaged in the block design.

**Debriefing.** At the end of the experiment, we revealed the actual objective of the study to the participants and debriefed them. We notably told mothers in the threat condition that the journalistic report they had listened to was specifically created to elicit feelings of threat concerning children's future, and that this future was in no way as pessimistic as it had been described. All mothers reported having believed our cover story and none mentioned still being negatively affected by our manipulation. After answering participants' questions, we gave them a pamphlet describing positive parenting practices and offered them 20\$ for their participation.

### Measures

**Manipulation checks.** To ensure that the journalistic reports were believable, we asked mothers to evaluate on a 7-point scale (1 = *Strongly disagree* to 7 = *Strongly agree*) their level of agreement with six statements pertaining to their credibility (e.g., "I believed the events reported in the journalistic report"). The reliability coefficient of this scale was satisfactory ( $\alpha = .77$ ).

We also assessed the emotional impact of the journalistic reports by asking mothers to indicate on a 5-point response scale (1 = *Very slightly or not at all* to 5 = *Extremely*) the extent to which they were "currently experiencing each of the following [negative] emotions after having listened to the journalistic report", using the negative affect subscale of the *Positive and Negative Affect Schedule* (PANAS; Watson, Clark, & Tellegen, 1988). We chose this 10-item validated subscale because of its good psychometric properties and focus on negative emotions related to feelings of threat (Suarez & Bell-Dolan, 2001). Its reliability coefficient was very good ( $\alpha = .83$ ).

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**Coded Maternal Controlling Practices.** To code maternal controlling practices, we filmed the guided learning interactions. An independent observer (blinded to the manipulation) then watched the videotapes, coded the occurrences of maternal practices relevant to guided learning settings and categorized them as either controlling or autonomy-supportive. Targeted maternal practices were operationalized based on four categories: practices regarding (a) respect of children's rhythm, (b) quality of guidance, (c) quality of feedback, and (d) respect of children's internal frame of reference (Grusec & Davidov, 2010). In line with SDT, controlling practices were defined as (a) invalidation of children's rhythm (e.g., placing blocks for children, without being asked), (b) intrusive guidance (e.g., telling children to place blocks in certain places, without being asked), (c) judgmental feedback (e.g., saying "That was not good"), and (d) invalidation of children's frame of reference (e.g., saying "No, it's easy"). In contrast, autonomy-supportive practices were defined as (a) respect of children's rhythm (e.g., following children's lead), (b) informational guidance (e.g., giving hints), (c) descriptive feedback (e.g., describing children's efforts), and (d) acknowledging children's frame of reference (e.g., saying "It sure can be hard to distinguish those blocks from this image").

To create our score of coded maternal controlling practices, we computed eight variables, each one capturing mothers' average number of controlling or autonomy-supportive practices per block image in one of the four operationalized categories. To control for variations in the number of maternal practices and amount of time spent on each block image, we then calculated the percentage of controlling (vs. autonomy-supportive) practices used by mothers across categories and on average per block image. This proportion score, which was used in our analyses as our score of coded maternal controlling practices, ranges from 0 to 1 and indicates that 0 to 100% of guided learning practices were controlling (across categories and on average per block image).

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To evaluate the reliability and validity of our coding procedure, we first asked a second independent observer to code 42.8% of the interactions so that we could assess inter-rater reliability. In an attempt to optimize reliability, we trained both observers to appropriately code our operationalized behaviors as well as provided them with several examples of controlling and autonomy-supportive practices for each category. To assess inter-rater reliability, we calculated the total amount of behaviors that were coded (across categories) as controlling or as autonomy-supportive and then calculated intraclass correlations. Intraclass correlations indicated good reliability for both controlling,  $ICC = .96$ , and autonomy-supportive practices,  $ICC = .72$ .

Second, we conducted an exploratory factor analysis (EFA) to ensure that the eight coded variables (4 categories x 2 qualities) would load on two distinct factors (i.e., one controlling, one autonomy-supportive). The EFA revealed a two-factor solution with all scores loading clearly on their respective factor (all loadings  $\geq .39$ , no significant cross-loading; see supplemental material for detailed results). These results support the reliability and validity of our coding system.

**Perceived Maternal Controlling Practices.** To evaluate children's perceptions of their mothers' controlling practices, we asked children to evaluate on a 4-point response scale (1 = *Not true at all*; 4 = *Completely true*) the extent to which they felt that their mothers were involved in a pressuring and intrusive manner during the interaction (4 items; e.g., "I felt that my mother helped me too much during the activity"). These items were specifically formulated to tap onto children's subjective internal experience of the coded controlling practices (e.g., the extent to which children actually felt pressured or dominated by these practices). As reported in a study using the same dataset (Robichaud et al., 2019), this questionnaire has a clear one factor structure and is associated with antecedents and measures of controlling parenting, suggesting high validity. Its reliability coefficient is acceptable ( $\alpha = .71$ ).

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**Maternal controlling style.** We assessed mothers' controlling style with the Parental Attitude Scale. Using a five-point scale (1 = *Do not agree at all*; 5 = *Strongly agree*), mothers indicated the extent to which they agreed with ten statements regarding child rearing attitudes (e.g., "Children should always do what their parents say, regardless of the situation"). This instrument is valid, yielding positive associations with mothers' usage of controlling practices (e.g., Grolnick et al., 2007), and is reliable ( $\alpha$  ranging from 0.65 to 0.76; e.g., Joussemet, Mageau, & Koestner, 2014). In this study, the reliability was satisfactory,  $\alpha = .78$ .

**Children's Autonomous and Controlled Motivation.** Children reported on a 5-point response scale (1 = *Not at all for this reason* to 5 = *Exactly for this reason*) the reasons that led them to do the block design, using the 16-item *Self-Regulation Questionnaire* (Ryan & Connell, 1989). This questionnaire measures two types of autonomous motivation (i.e., intrinsic, e.g., "Because I thought the activity was fun", and identified, e.g., "Because I believed that the activity was important for me") as well as two types of controlled motivation (i.e., external, e.g., "Because I was supposed to do it", and introjected, e.g., "Because I would have felt ashamed of myself if I hadn't"). Each motivation was measured with four items adapted to our guided learning setting. After conducting an exploratory factor analysis (EFA) to ensure that our adapted items would load on two distinct factors (i.e., one autonomous motivation factor and one controlled motivation factor), scores of autonomous and controlled motivation were respectively created by computing a mean score of intrinsic and identified motivation and a mean score of introjected and external regulation (Deci & Ryan, 2008). Reliability coefficients for autonomous motivation,  $\alpha = .87$ , and controlled motivation,  $\alpha = .78$ , were both satisfactory.

**Amotivation.** Finally, we assessed children's amotivation using the amotivation subscale of the *Situation Motivational Scale* (Guay, Vallerand, & Blanchard, 2000). Children reported on

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a 5-point response scale (1 = *Not at all for this reason* to 5 = *Exactly for this reason*) the extent to which they had difficulty understanding the reasons that had led them to do the task (e.g., “I did the activity, but I’m not sure why.”). The reliability of this subscale was acceptable ( $\alpha = .71$ ).

**Covariates.** We measured mothers’ perceptions of their anxiety traits using the 20-item *State-Trait Anxiety Inventory*, adapted to and validated with a Canadian population (Gauthier & Bouchard, 1993). Mothers read statements on feelings (e.g., “I feel nervous and agitated”) and indicated the extent to which each statement represented how they generally felt, using a 5-point response scale (1 = Not at all; 5 = Always). The reliability of the scale was excellent ( $\alpha = .91$ ).

We measured children’s competence in the block design using the *WISC-IV*’s procedure (Wechsler, 2003). We also obtained information on children’s age and gender and families’ SES. To calculate SES, we averaged the Z scores of mothers’ education level and their families’ income. Finally, we measured the total amount of time spent by each dyad on the task.

### **Plan of Analyses**

To verify the validity of our manipulation, we used descriptive statistics and t-tests to examine if (1) the majority of mothers at least “slightly agreed” that the journalistic reports were credible (i.e., at least 5 on the 7-point response scale), (2) the journalistic report designed to elicit feelings of threat was evaluated as equally credible as the one depicting real, but non-threatening, information, and (3) mothers in the threat condition experienced significantly more negative affect after having listened to their assigned journalistic report, compared to mothers in the control condition. We then performed a MANOVA to ensure that our experimental group did not significantly differ from the control group on maternal controlling style and the other covariates.

We conducted our main analyses on MPlus 8.0 using structural equation modeling with the maximum likelihood robust estimation. We first evaluated the impact of our manipulation of

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environmental threats on our main variables (i.e., controlling parenting and motivation), while controlling for mothers' controlling style and the covariates. We then tested the moderating effect of mothers' controlling style on the impact of our experimental manipulation<sup>1</sup>. Any significant interaction was then unpacked by examining the effect of our manipulation at one standard deviation over and under the mean score of mothers' controlling style.

Finally, we performed path analyses to evaluate if, while controlling for the covariates and considering any observed moderation effects of mothers' controlling style, (a) mothers in the threat condition were coded as being more controlling than those in the control condition, (b) mothers who were coded as more controlling were in turn perceived by their children as such, and (c) children who perceived their mothers as more controlling had in turn more suboptimal motivation. To verify if this full-mediation model was consistent with the data, we used the *Chi-square Exact-fit Test* ( $\chi^2_M$ ), the comparative fit index (CFI), the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR). To test the indirect effect of environmental threats on children's motivation, via maternal controlling practices, we calculated indirect effects still using the maximum likelihood robust estimation.

### Results

#### Manipulation Check

Results first indicated that the vast majority of mothers (88%) at least "slightly agreed" (at least 5 on the 7-point scale) that the information given in the journalistic report was credible, while the rest either "neither agreed or disagreed" (10%; 4 on the 7-point scale) or "slightly disagreed" (2%; 3 on the 7-point scale). Comparing mothers' perceptions between experimental

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<sup>1</sup> Given the documented role of children's competence on controlling practices (e.g., Wuyts et al., 2017), we explored whether this antecedent would moderate the effect of our manipulation. Results showed no interaction between children's competence and environmental threats (and no three-way with mother's controlling style) for all outcome variables, all  $ps \geq .116$ . Children's competence was thus kept solely as a covariate in our main analyses.

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conditions revealed, however, that mothers in the threat condition ( $M = 5.71$ ,  $SD = .88$ ) found the journalistic report less credible, compared to mothers in the control condition ( $M = 6.13$ ,  $SD = .56$ ),  $t(98) = 2.88$ ,  $p = .005$ ,  $d = .57$ . Concerning the emotional impact of the journalistic report, mothers in the threat condition ( $M = 1.86$ ,  $SD = .64$ ) felt more negative affect, compared to mothers in the control condition ( $M = 1.33$ ,  $SD = .43$ ),  $t(93) = 4.91$ ,  $p < .001$ ,  $d = .97$ .

### Preliminary Analyses

Table 1 presents the means, standard deviations and correlations between all variables used in the main analyses. Results first showed that the two groups did not significantly differ on mothers' controlling style and the covariates at the multivariate level, Wilks'  $\Lambda = .87$ ,  $F_{\text{exact}}(11, 78) = 1.108$ ,  $p = .366$ . Correlations revealed that both measures of controlling practices were significantly related (1) to one another and to mothers' controlling style, (2) to children's controlled motivation and (for perceived controlling practices) amotivation, and (3) to the same covariates (i.e., children's competence and families' SES), suggesting good validity overall. Mothers' controlling style was also positively associated with children's controlled motivation and amotivation as well as with maternal anxiety traits. Finally, significant correlations were found between children's motivation and the covariates. Specifically, children's competence and families' SES were negatively related to children's controlled motivation and amotivation, while children's age was negatively associated with autonomous motivation.

### Main Analyses

**Main effect of environmental threats.** Examining the main effects of environmental threats indicated that, while controlling for the covariates, the overall proportions of coded controlling (vs. autonomy-supportive) maternal practices did not significantly vary across conditions,  $p = .969$ . Yet, mothers were generally perceived by their children as more controlling



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in the threat condition than in the control condition,  $\beta = .29, p = .010$ . There was no significant effect of our experimental manipulation on children's motivation, all  $ps \geq .609$  (for a table presenting the main effects of our manipulation as mean differences, see supplemental material).

**Moderating role of mothers' controlling style.** Results also revealed a significant interaction between mothers' controlling style and environmental threats on maternal coded controlling practices,  $\beta = .46, p = .007$ . As shown in Figure 1, unpacking this interaction indicated that mothers with a high controlling style were coded as significantly more controlling in the experimental condition, compared to mothers in the control condition,  $\beta = .32, p = .014$ , while mothers with a low controlling style did not significantly differ across conditions,  $p = .219$ . There was no significant interaction effect between mothers' controlling style and environmental threats on perceived controlling practices,  $p = .156$ , nor on children's motivation, all  $ps \geq .650$ .

### **Path analyses.**

**Model fit.** Path analyses were used to assess whether our manipulation of environmental threats had an indirect effect on children's motivation, via its impact on controlling practices. To take into account the fact that the effect of our manipulation on coded and perceived controlling practices was respectively moderated by and independent from mothers' controlling style, we included a direct link from the manipulation to perceived controlling practices. Model fit indices indicated an excellent fit ( $\chi^2_M(10) = 4.55, p = .919, CFI = 1.00, RMSEA < .001, SRMR = .01$ ), suggesting that the data was consistent with this model (see Figure 2, for the proposed model).

**Direct effects.** Results first reiterated the significant interaction effect between mothers' controlling style and our manipulation on coded controlling practices,  $\beta = .46, p = .007, R^2 = .21$ . Coded controlling practices, in turn, predicted children's perceptions of controlling practices,  $\beta = .37, p = .024, R^2 = .08$ . In addition, results revealed a remaining direct impact of our

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experimental manipulation on children's perceptions of controlling practices. Thus, regardless of mothers' controlling style and beyond the effect of our manipulation captured by our coding, mothers in the threat condition were perceived by their children as more controlling than those in the control condition,  $\beta = .28$ ,  $p = .004$ ,  $R^2 = .08$ . Children's perceptions of their mothers' controlling practices were in turn linked to their controlled motivation to do the task,  $\beta = .20$ ,  $p = .025$ ,  $R^2 = .04$ , but not to their autonomous motivation, nor their amotivation, both  $ps \geq .426$ .

**Indirect effects.** Finally, we tested the indirect effects of our manipulation on controlled motivation (i.e., one interaction effect via coded and perceived practices; one main effect via perceived practices). The indirect effect of the interaction between mothers' controlling style and our manipulation on children's controlled motivation, via coded and perceived practices, was not significant,  $p = .235$ . In contrast, there was a significant indirect main effect of environmental threats on controlled motivation via perceived controlling practices,  $\beta = .06$ ,  $p = .012$ . Thus, inasmuch as our manipulation of environmental threats influenced children's perceptions of their mothers' controlling practices, it also seemed to impact their controlled motivation.

### Discussion

#### Impact of Environmental Threats on Coded Controlling Practices

Overall, the present study's findings supported our hypotheses. First, results showed that mothers with a high controlling parenting style were coded as significantly more controlling in the threat condition, compared to the control condition. In contrast, no significant difference between conditions was observed for mothers with a low controlling style.

If one assumes that environmental threats activate parents' propensity to try to protect their children from potential harm, notably by using more controlling practices (Grolnick, 2003), these findings may be interpreted as an indication that mothers with a less favorable attitude towards

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controlling parenting may better resist the urge to become more controlling in such situations. Considering that most parents in current society have easy access to information on threatening situations that may darken their perceptions of their children's environment (e.g., Slone & Shoshani, 2010), it is important to identify mechanisms on which to intervene in order to help parents respond more optimally to such pressure. Given that parents' attitudes toward controlling practices are malleable through parenting programs (e.g., Joussemet et al., 2014), this study and its results made a significant step in that direction. Yet, results regarding children's perceptions of their mothers' controlling practices suggested that mothers with a low controlling style might not be fully immune to the prompting effect of environmental threats on controlling parenting.

### **Impact of Environmental Threats on Perceived Controlling Practices**

Indeed, our analyses revealed that, in contrast to what was found with our coding, children in the threat condition rated their mothers as more controlling than those in the control condition, independently of their mothers' controlling style. This may suggest that mothers with a low controlling style actively tried not to adopt controlling behaviors when prompted to do so but only partly succeeded. For instance, it is possible that subtle changes, potentially more detectable by someone familiar with these mothers' typical practices, occurred (e.g., changes in tone of voice or in characteristics of apparent non-controlling verbalizations) and that such changes were in turn perceived as controlling by children (who are most familiar with their mothers' practices). Supporting this hypothesis, children's low mean score on perceived controlling practices in the threat condition (i.e., 1.56 on a 4-point scale) suggests that mothers' controlling practices were, overall, rather subtle.

Another potential explanation for the diverging results between children's self-report and our coding stems from the possibility that both measures have captured different nuances of

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controlling parenting. Specifically, children's self-report assessed controlling parenting more globally (i.e., by focusing on their overall subjective experience of their mothers' behaviors), while our coding focused on specific types of behaviors and verbalizations. Coherently, the correlation between coded and perceived controlling practices was only moderate ( $r = .44$ ), resulting in an important amount of unshared variance (80.64%) that might explain the diverging results. Yet, scholars discussing the relevance of using multi-informant designs have defended the importance of considering children's perceptions when predicting the consequences of parenting practices (e.g., Soenens et al., 2015, p.46). According to these writings, it is children's subjective experience of observed parental practices that ultimately determines their impact on them. In the present study, relying on children's perceptions (and their potential ability to detect changes in their mothers' behaviors that were not captured by our coding) allowed to consider the possibility that part of the impact of environmental threats on controlling practices transcended mothers' attitudes toward controlling parenting.

This is not to say however that there is no alternative explanation for the diverging results between children's and coders' assessments of controlling practices. For instance, it is possible that an interaction effect between environmental threats and mothers' controlling style also exists for perceived controlling practices but was simply not detected in our present sample. This explanation is somewhat coherent with the fact that the *p-value* of this interaction was close-to-significance. To explore this alternative explanation further, we tested this interaction again but this time without any additional parameter in our analysis (i.e., no covariables and no control for interrelations among outcome measures) so that we could maximize statistical power. This exploratory analysis revealed a significant interaction between mothers' controlling style and environmental threats on perceived controlling practices,  $t(93) = 2.85, p = .005$ . Unpacking this

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interaction effect replicated our results with our coded system. Future research is thus needed to clarify the moderating role of parents' controlling style on their controlling practices.

### **Indirect Links to Children's Motivation**

With respect to the impact of environmental threats on children's motivation, results showed no significant direct effect. This was expected given that our manipulation directly targeted mothers (rather than children). Indeed, it is likely that any effect of antecedents targeting parents would be observed indirectly on children – that is, through their impact on controlling practices. In coherence with this idea, a significant indirect link from environmental threats to controlled motivation, via perceived maternal controlling practices, was observed. However, no significant indirect link, via coded and then perceived controlling practices, was found. This suggests that the relations between the variables of this indirect pathway were too weak to yield a stable and significant effect. Future research could examine whether the strength of an experimental manipulation of environmental threats could be increased (e.g., by presenting a visual journalistic report rather than audio one) and see if an indirect effect on children's controlled motivation, via coded and then perceived controlling practices, could be detected.

Concerning children's autonomous motivation, not only was it unaffected by our manipulation, it was also unrelated to any indicator of controlling parenting. This pattern of results is coherent with recent theoretical models of parenting anchored in SDT, suggesting the existence of a “dark” and a “bright” pathway toward negative (e.g., controlled motivation) and positive outcomes (e.g., autonomous motivation). According to these models, these dark and bright pathways would be more strongly activated respectively by practices that thwart (e.g., controlling parenting) and support (e.g., autonomy-supportive parenting) children's basic psychological needs (Vansteenkiste & Ryan, 2013). An alternative explanation for the non-

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significant relation between mothers' controlling parenting and children's autonomous motivation could be that children's initial completion of the block design with the (autonomy-supportive) experimenter heightened their autonomous motivation, such that the effect of their mothers' subsequent controlling practices on their autonomous motivation was buffered.

Additional research could clarify the interplay between autonomy support, controlling parenting, and children's autonomous motivation.

Finally, with regards to amotivation, path analyses revealed a non-significant relation between children's perceived controlling practices and reported amotivation, such that no indirect link could be examined. The lack of relation between controlling practices and amotivation in path analyses might be interpreted in different ways. For instance, it may be that the documented association between controlling parenting and amotivation actually reflects a learned response that emerges from repeated (rather than situational) exposure to controlling practices. This would imply that the construct of amotivation would be less sensitive to isolated occurrences of controlling parenting but be better predicted by global measures of parents' controlling style. In our main analyses, the relations between amotivation and our indicators of mothers' controlling practices and style offered some support to this hypothesis. Indeed, amotivation was more strongly related to mothers' controlling style ( $\beta = .24$ ) than to the situational measures of controlling parenting (coded,  $\beta = .02$ ; perceived,  $\beta = .09$ ). However, none of these relations were statistically significant, all  $ps \geq .116$ .

### **Strengths**

In addition to providing several insights into the interplay of antecedents and consequences of controlling parenting, this study has methodological strengths that are worth mentioning. First, its experimental design allowed the assessment of the directionality of the relation between

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environmental threats and controlling parenting. Also, evaluating the validity of the experimental manipulation through mothers' credibility beliefs and negative affect raised our confidence in the idea that environmental threats may be an important risk factor for the onset of controlling parenting. Indeed, if listening to one not overly credible, nor emotionally intrusive, journalistic report about threats in children's environment can prompt mothers to be involved with their children in a manner that is experienced as more controlling (and independently coded as such for mothers with a high controlling style), it may be reasonable to foresee that perceptions of environmental threats have a significant impact on parenting.

As an additional strength, relying on path analyses allowed us to test the indirect effect of environmental threats on children's motivation, via controlling practices. Showing the detrimental role of environmental threats on children's perceptions of maternal controlling practices, and in turn on their controlled motivation, demonstrated how this factor could represent a risk for both optimal parenting and child development. Including information about the downfalls related to perceptions of environmental threats in parenting education programs could increase parents' awareness of the proximal and distal impacts of this risk factor on their own behaviors and on their children's experiences. This in turn could help them respond more adaptively to such stressor. In line with this idea, research has shown that parental knowledge about parenting as well as risk and protective factors for children's development predicts better parenting practices and may even act as a buffer against some risk factors (e.g., Hess, Teti, & Hussey-Gardner, 2004).

### **Limits and Future Research Directions**

**Experimental manipulation.** Despite its contributions and strengths, this study also contains limitations that are important to consider when interpreting the results. First, instead of

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examining whether our manipulation induced variations in perceptions and feelings specific to threats, we evaluated mothers' perceived credibility of the journalistic reports and general negative affect. It thus remains possible that the observed differences between our two conditions stemmed from perceptions and emotions that were nonspecific to threats. This confound is important to consider given that research found that children's motivation and parental practices could both be affected by parents' negative emotions (e.g., Aunola, Viljaranta, & Tolvanen, 2017). Future research could avoid this limitation by evaluating perceptions of environmental threats more directly (e.g., with a validated situational version of the questionnaire used in past studies to assess mothers' perceptions of environmental threats, Gurland & Grolnick, 2005).

Second, and somewhat related to the idea that our manipulation may have induced perceptions and feelings that were nonspecific to threats, the journalistic report presented to mothers in the control condition depicted people's increased interest in and access to local food and markets. As such, it may have been perceived as positive or even hopeful rather than neutral, thereby creating the possibility that the observed effects were due, at least partly, to a potential increase in mothers' positive affect (or any general heightening effect) in the control condition.

A third limitation that may be relevant to mention stems from the fact that our manipulation was a one-time event and that only short-term effects were examined. It is thus impossible to know on the ground of this study whether situational feelings of threat (and/or related induced negative emotions) would have a long-lasting impact on parents' controlling practices and children's resulting motivation, nor if chronic perceptions of environmental threats would have a more drastic impact on parenting by, for example, modifying parenting styles. Although manipulating parents' perceptions of environmental threats for long periods of time is neither ethical nor realistic, insight on this matter may be provided by studies investigating



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parenting practices among families coping with chronic stress that is likely to enhance parents' perceptions of environmental threats. Indeed, these studies suggest that parents who report elevated exposure to chronic stressors have parenting styles that are more controlling (e.g., McLoyd, 1989).

**Generalizability.** Another limitation of the present study relates to the generalizability of the findings. First, the impact of environmental threats was assessed using a convenience sample of mothers (and not also of fathers), most of which had a highly educated background. To ensure that the present study's results apply to the entire population, future research examining environmental threats would need to include fathers and recruit a more diverse sample.

Another way in which our results might lack generalizability relates to the strength of our manipulation. Specifically, it is possible that the arguably weak impact of our manipulation prevented us from observing reactions that would only occur in more threatening situations. For instance, parents whose children are exposed to highly threatening environments may come to experience these threats as insurmountable, which in turn could induce a feeling of learned helplessness (i.e., a feeling that their attempts to cope or help their children cope with environmental threats would have no effect, Maier & Seligman, 1976) and ultimately lower their level of involvement with their children. This would be in line with results of previous research showing that individuals' tendencies to address concerns about various environmental threats (e.g., climate crisis) are lower when they score higher on learned helplessness (e.g., Landry, Gifford, Milfont, Weeks, & Arnocky, 2018). To further understand the role of environmental threats on parenting, future research could examine the interplay between different intensity levels of this risk factor and feelings of learned helplessness.

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**Children's perceptions of environmental threats.** As a final idea for future research, it could be relevant to examine whether children's own perceptions of environmental threats have an impact on their wellbeing and development. Based on research on attributions, one could expect that seeing the world as competitive and harsh could heighten the salience of external reasons to emit behaviors, which could in turn exacerbate controlled motivation. It is also possible that overwhelming perceptions of threats could lead children to experience helplessness, which could translate into increased amotivation.

### **Conclusion**

In sum, the present study suggests that when parents perceive threats in their children's current and future environment, they can feel pressured to become involved with their children in a more controlling way. This, in turn, can negatively affect children's motivation. These findings are important because they identify (using an experimental design) a salient potential antecedent of controlling parenting. They also nuance previous findings and help to guide future research by showing that the potential effect of environmental threats on controlling practices may depend on mothers' attitude toward controlling parenting. Examining environmental threats as an antecedent of controlling parenting represents a valuable step toward the implementation of interventions aiming to help parents reduce their use of these detrimental practices.

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Table 1

*Means, Standard Deviations and Correlations Among all Variables.*

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Coded controlling practices	0.42	0.21											
2. Perceived controlling practices	1.42	0.55	.44***										
3. Autonomous Motivation	3.54	0.97	.11	.15									
4. Controlled Motivation	1.8	0.79	.21*	.35***	.04								
5. Amotivation	1.54	0.71	.13	.26**	-.15	.67***							
6. Mothers' controlling style	1.73	0.56	.25*	.26**	.05	.29**	.21*						
7. Children's competence	8.91	3.36	-.30**	-.21*	-.13	-.24*	-.23*	-.14					
8. Maternal anxiety traits	2.95	0.74	.06	.11	.01	.09	.00	.30**	-.06				
9. Socioeconomical status	-0.01	0.81	-.28**	-.30**	-.12	-.26**	-.19†	-.10	.27**	-.16			
10. Children's age	10.21	0.88	.05	-.02	-.18†	-.07	.11	.03	-.09	-.23*	.14		
11. Minutes spent on the task	10.79	2.49	.17†	.07	.18†	.18†	.16	.18†	-.47***	.07	-.07	12.	
12. Children's gender	0.50	0.50	.00	.17†	-.13	-.07	.07	.07	.06	-.10	-.11	.00	.08

(0 = boys, 1 = girls)

Note. † $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

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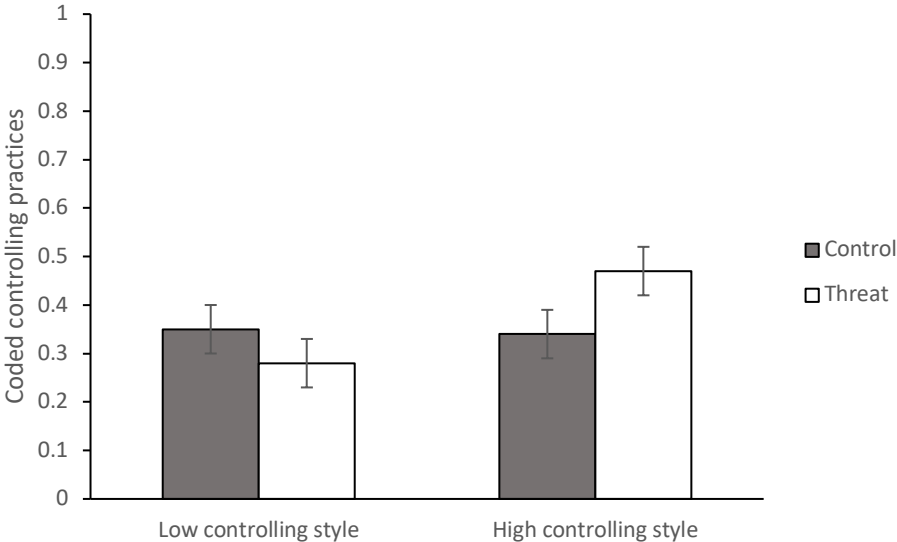
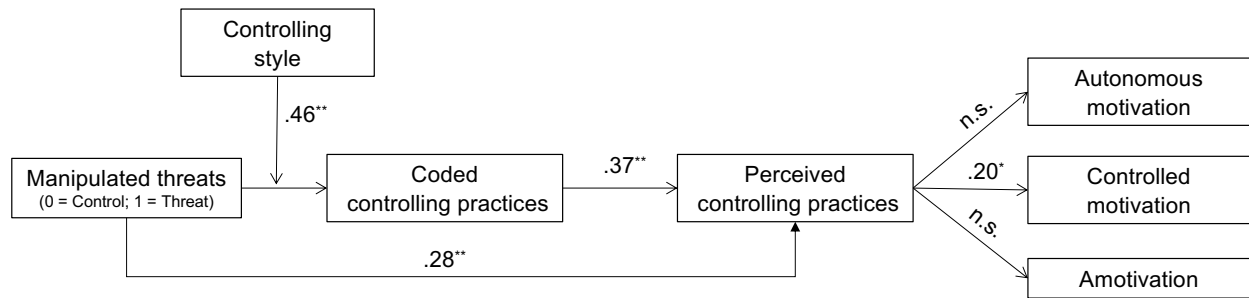


Figure 1. Effect of manipulated threats on maternal coded controlling practices, as moderated by mothers' controlling style



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*Figure 2.* Path analyses of manipulated threats as an antecedent of maternal controlling practices and an indirect predictor of children’s motivation during a guided learning interaction, while controlling for all mentioned covariates. For simplicity purposes, links between the covariates and the main variables of the study (as well as indirect links between manipulated threats and controlled motivation), although modeled, are not depicted.

Note.  $*p < .05$ ;  $**p < .01$ .

**SUPPLEMENTAL MATERIALS**

**Verbatim of the audio journalistic report in the threat condition**

Adolescence and the Society of Change.

We all risk, one day or another, to have to deal with change. And for humans, if there is a period that requires constant adaptation, it's the transition from childhood to adolescence, a period that affects both children and parents. Nowadays, more than ever, many social changes will directly affect the development of school-aged children. Here is a portrait of the situation:

Adolescence greatly alters the lives and behaviours of preteens. Throughout this transition, young people first seek to define themselves, then to identify their own values, but foremost to differentiate themselves from their parents. This transition period also reflects teens' natural tendency to take risks and to try new experiences such as alcohol and drug use. In addition, peer pressure and peer influence are becoming stronger. It is thus not surprising to learn that 7 out of 10 teens take their first drink or smoke their first cigarette and first joint during this period, according to a survey conducted in 2007. And very often, in these situations, parents do not realize that it is easier for their child to say "yes" than to say "no" when it comes to the consumption of substances harmful to their health.

Adolescence is thus a period of experimentations. Past studies also seem to demonstrate that the problems that develop during this life phase do not always solve themselves. This is why development specialists believe that adolescence is a *crucial period* of life. The choices that young people make during this period will greatly affect their *academic future* and *professional career*. Unfortunately, young people do not always make decisions that are well received by their parents, who sometimes feel unprepared to deal with their children's life choices.

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Moreover, we must take into account that in pre-adolescence, children are confronted with the transformation of their body and of their personality, which prompted the psychologist Emmanuelle Rigon to conclude that several young people experience great difficulty transitioning from childhood to adolescence. And we quote:

“Some disorders can appear and even be amplified during this transition. Eating disorders, aggression and attention deficits are some examples of behavioural disorders. Self-esteem problems are quite typical during this period and may have important consequences on children’s development. When children experience self-doubts, they will tend to conform to their peers and to adopt behaviours at odds with their characters.” End of the quote.

Although some parents trust that their child will make appropriate choices during adolescence, many do not always know what forces are influencing their children. Over the past twenty years, society has undergone several changes and new social problems have appeared, such as junk food, bullying, overconsumption, hypersexualization and cyberbullying. Nowadays, the social context often orients preteens toward competition, individualism, sexual precocity and trivialization. Many parents believe that these changes do not reflect a progression, but rather a regression.

In the school context, young students become obsessed with three rules that define the society in which we live in: pressure, performance and perfection. These three features of modern society are top priority in the minds of many students as early as primary school. This obsession tends to increase during the transition to secondary school. Having just reached adolescence, young people must already deal with the competition inherent to our adult world, which causes much anxiety, as confessed here by one student, and we quote:

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“When I have an exam, I feel that it’s a matter of life or death. I always wonder if I will have a good grade. I know that it’s my grades that decide what I’m going to do later in life, and I want to be successful.” End of the quote.

This situation has been corroborated by Judith Sanson, a grade 6 teacher. She indeed notes that over the past 10 years, a climate of competition has emerged in her class, her students are more and more anxious about their grades.

There is also this other challenge that today’s youth must face, namely hypersexualization. When people talk about this phenomenon, they refer to the fact everything in society leads children to take shortcuts into adulthood. How sexuality appears in children’s lives sooner and sooner, as years go by is becoming more and more disturbing. When it comes to material goods, everything that targets young people today is extremely sexed and sexual. “We even sell strings for four-year old!”: says sexologist Jocelyne Robert, who recognized, at the end of an interview, how extreme this problem has become.

Incentives of a sexual nature are everywhere, ranging from clothing fashion to media and internet content such as music videos and easily accessible pornography. As early as preadolescence, young people are thus plunged head first in a world flooded with sexual references. And today, with the omnipresence of computers in our lives, anyone can have access to sites offering porn pictures and movies in just a few clicks, whether it is voluntary or accidental. Alexis Durand-Brault, film director of the Quebec film “Ma fille mon Ange” testifies:

“When I was 12 years old, bringing a Playboy to class was the big deal. Today young people have access to anything on the internet. We are really witnessing a sexual revolution for young people, and it’s not necessarily positive as it really trivializes their sexuality.” End of quote.

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Very often listened to by preteens, music videos and tele-realities represent environments where the trivialization of sexuality is omnipresent, says Mrs. Pierrette Bouchard, researcher at Laval University. Still according to this specialist, more and more young people have a distorted view of sexuality. They often go so far as to think that it is normal to participate in blowjob competitions in the schoolyard. As soon as the age of 12, both girls and boys consume pornography and these images colour their perception of sexuality. Moreover, according to research reported in McLeans magazine, the very young girls find in these blowjobs' competitions, a way to become the equals of boys. What they find so easily on the internet becomes their representation of what society is like. Their initiation to sexuality is thus often miles away from what their parents experienced. They in turn often remain unaware of what their teenagers are going through.

Meanwhile, the education system does not seem to protect young people from this trivialization of sexuality being itself in profound change. Julie Davidson, a mother of two children, condemns this situation, highlighting that this setback in sexuality education in schools is absolutely unacceptable given that the need for this kind of information is stronger than ever.

In fact, when the school reform was set in motion in 2001, it required parents to adapt to several changes. Even now, many parents are still overwhelmed when trying to understand some of the changes that were included in the reform. According to many, these changes only created problems. Michèle Giroux, herself a teacher in Secondary 1 testifies:

“With this skill-oriented reform, my children are learning differently, but they know far less than before the reform. Considering the time my children spend in school, I find the consequences of the reform very worrying.” End of the quote.

The portrait of our times is troubling indeed: children exposed to new social problems,

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parents simply overwhelmed by what their children are experiencing and an education system that is not adapted to either the children or their parents' needs. One thing is for certain: today more than ever before, the social context of young children has become, and for good reasons, very worrisome for parents.

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### Factor loadings for the exploratory factor analysis with oblique (oblimin) rotation on coded controlling and autonomy-supportive maternal practices

Coded practices	Components	
	1 (CTL)	2 (AS)
Invalidation of rhythm	<b>.89</b>	-.04
Intrusive guidance	<b>.79</b>	.04
Invalidation of frame of reference	<b>.43</b>	-.01
Judgmental feedback	<b>.39</b>	.02
Informational guidance	-.01	<b>.81</b>
Respect of rhythm	.03	<b>.45</b>
Descriptive feedback	.12	<b>.43</b>
Acknowledging of frame of reference	-.15	<b>.41</b>

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### Mean (SD) scores of the main variables across experimental conditions.

	Control condition	Threat condition
1. Coded controlling practices	0.40 (.19) <sub>a</sub>	0.42 (.21) <sub>a</sub>
2. Perceived controlling practices	1.23 (.41) <sub>a</sub>	1.52 (.50) <sub>b</sub>
3. Autonomous Motivation	3.52 (.92) <sub>a</sub>	3.43 (.96) <sub>a</sub>
4. Controlled Motivation	1.72 (.78) <sub>a</sub>	1.80 (.76) <sub>a</sub>
5. Amotivation	1.51(.69) <sub>a</sub>	1.58 (.69) <sub>a</sub>

*Note.* For each row, means with different subscripts differ significantly at  $p < .05$ .