



The Role of Logical Consequences and Autonomy Support in Children's Anticipated Reactions of Anger and Empathy

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Abstract

Objectives Authority exertion in rule-breaking contexts represents both a considerable challenge and a unique opportunity for parents to foster their children's internalization process (i.e., children's process of understanding and abiding to the importance of various rules and their underlying values). In this study, we investigated the effects of two interpersonal rule-reminding climates (autonomy-supportive vs. controlling) and two constraint strategies (logical consequences vs. mild punishments) on two emotional precursors of internalization (empathy and anger). We also extended findings from a past study by looking at the association between these two emotions and children's acceptability beliefs regarding authority strategies.

Method 221 children ($M_{\text{age}} = 10.42$) read hypothetical rule-breaking scenarios, indicated their anticipated reactions in terms of anger and empathy, and rated the acceptability of the exerted authority strategies.

Results Autonomy-supportive climates and logical consequences elicited less anger and more empathy than respectively controlling climates and mild punishments. This emotional pattern was in turn associated with greater acceptability beliefs. Finally, significant indirect links from interpersonal climates and constraint strategies to acceptability beliefs, via anticipated emotions, were observed.

Conclusions These results highlight the potential relevance of using logical consequences in an autonomy-supportive climate, as this combination of strategies seems more effective in promoting emotional precursors of children's internalization process.

Keywords Logical consequences · Mild punishments · Autonomy support · Emotions · Internalization

As primary socialization agents, parents are entrusted with the responsibility of raising moral and caring children. In order to meet this responsibility, parents must often intervene in rule-breaking situations and exert some form of authority. Authority exertion in these contexts represents a substantial task for parents, as they are required to intervene in a way that may concomitantly foster two main

socialization goals—that is, children's compliance to the broken rules (so that they can become competent at emitting socially valued behaviors; Patterson and Fisher 2002) and internalization (so that they may integrate the values underlying the broken rules and thus emit socially valued behaviors even in the absence of external pressures; Grusec et al. 2017). Yet, by highlighting children's wrongdoings, interfering with their goals and requiring behavioral changes, parental authority is at high risk to elicit strong and negative reactions in children that may disrupt their internalization process (Hoffman 1994).

Theoretical writings on parenting have proposed that the propensity of an authority exertion strategy to promote internalization could be determined in part by children's acceptance of that strategy (e.g., Grusec and Goodnow 1994). Thus, the more children find their parents' intervention acceptable, the more they should be disposed to perceive, understand and internalize the values underlying this intervention (Grusec et al. 2017). Parenting experts have

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additionally proposed that children's emotional reactions to authority exertion could play a vital complementary role in their internalization process (e.g., Hoffman 1994). Given that bidirectional feedback loops between emotions and cognitions typically occur (e.g., Pessoa 2008), children's emotional states are indeed likely to play a role in their attention and information processing and thus could influence, at least in part, children's appraisals and acceptance of authority exertion strategies (e.g., Grusec and Goodnow 1994). While numerous emotions have been proposed as potential precursors of children's internalization (e.g., guilt, fear; Hoffman 1994), anger and empathy seem particularly important to consider in rule-breaking contexts, notably because both constructs (1) play predominant roles in children's internalization process (e.g., Roberts et al. 2014), (2) are argued to determine the impact that other emotions may have on internalization (e.g., empathy-based guilt; Hoffman 2008), and (3) provide valuable clues regarding children's willingness to be influenced by, or resist to, authority figures (Soenens et al. 2015).

Anger is a negative emotion that results from the perception that one's significant goal has been frustrated or that unfairness occurred (Dix 1991). In rule-breaking contexts, authority exertion is likely to generate feelings of anger in children, as the implementation and enforcement of rules in such settings often require behavioral changes and occasion goal obstruction (Ginott 1959). While children's experience of anger might be difficult to prevent in rule-breaking situations, parenting experts have nonetheless suggested that the intensity of this emotional reaction should be minimized because of its high propensity to interfere with the internalization process. Indeed, anger has been theorized to shift children's attention toward the experienced injustice rather than toward the importance and internalization of the message underlying parental interventions (Grusec and Goodnow 1994). Empirical research supports these propositions, showing notably that anger preempts children from taking their parents' perspective (Roberts et al. 2014) and negatively predicts prosocial behaviors across time (Rydell et al. 2003). Given the detrimental impact of anger on internalization, adopting authority exertion strategies that elicit lower anger levels would be preferable.

In addition to limiting anger, parental interventions arousing feelings of empathy should further promote children's internalization process (Hoffman 1994). A broad number of writings indeed suggests that empathy is key in the development of moral reasoning (Shen et al. 2013) and general value internalization of parental rules (Roe 1980). In the scientific literature, empathy has typically been defined as a multidimensional construct comprising both an affective and a cognitive component (see Cuff et al. 2016, for a review of the various definitions of empathy across the literature). The affective component of empathy (often called *empathic concern* or *sympathy*) refers to the

establishment of a connection between others' feelings and one's own. The cognitive component of empathy (often labeled *perspective-taking*) rather refers to one's disposition to connect with the perspective that others are trying to communicate (Davis 2018). Although both components are interrelated (e.g., Shen et al. 2013), they differ to a certain extent from one another. For instance, in rule-breaking settings, children's affective empathy has been intimately related to their internalization of values underlying moral issues (i.e., issues surrounding how their transgression may have affected others' welfare and rights; Kochanska et al. 2010; Smetana 2011). In comparison, children's ability to reflect on the impact of their misbehavior from their parents' perspective has been argued (e.g., Keller and Edelstein 1991) and shown (e.g., Pfeifer et al. 2009) to predict internalization in response to issues of various social domains (e.g., also to prudential issues, where children's own health or safety is at stake; Smetana 2011).

Research anchored in self-determination theory (Ryan and Deci 2017) has revealed that, in order to promote empathy and minimize anger in children in rule-breaking contexts, parents should discuss broken rules in an autonomy-supportive (AS) rather than controlling (CTL) way. According to this theoretical framework, parents create an AS interpersonal climate by (1) acknowledging children's feelings, (2) offering them an opportunity to actively participate in decision making or problem solving, and (3) emphasizing the importance of the broken rules through the provision of rationales (i.e., a form of reasoning that highlights the impact of the broken rules on others, children or the environment; Mageau et al. 2017). In contrast, parents instill a CTL climate by pressuring children to change their behaviors and internal states through rebukes and threats (Soenens and Vansteenkiste 2010). Parents using AS interventions tend to promote empathy in children (Kanat-Maymon and Assor 2010), notably by disposing and helping them to comprehend parents' point of view (Grusec and Goodnow 1994) and to assess non-defensively the impact of their misdeed on themselves and others (Krevans and Gibbs 1996). In contrast, CTL parental interventions tend to exacerbate children's feelings of anger (e.g., Assor et al. 2005), potentially because the external and internal pressures resulting from these practices can be experienced as unjust, slighting and demeaning (Lazarus 1991). While AS (vs. CTL) climates are likely to promote long-term internalization through increased empathy and minimized anger, research also shows that classic autonomy-supportive interventions such as the provision of rationales can lack effectiveness in prompting short-term compliance. Given that compliance also plays an important role in children's socialization process, authors have consequently argued that parents should enforce the reminded rules with constraints in persistent rule-breaking situations (Larzelere et al. 2013).

In parent-child interactions, constraints refer to behavioral limitations used by parents to stop or elicit specific behaviors in their children. These interventions range from the withdrawal of privileges (e.g., prohibiting playing video games) to the imposition of tasks (e.g., requiring a clean bedroom) and include limitations such as time outs (Grusec et al. 2017). While constraints may induce compliance effectively, their impact on internalization remains uncertain, with some scholars considering their emission as an essential aspect of optimal parenting (e.g., Baumrind 2013) and others finding negative and non-significant links between constraints and various indicators of internalization (e.g., Gershoff et al. 2010). Offering one potential explanation for these conflicting findings, Mageau et al. (2018) proposed that the effect of constraints on internalization may depend on the presence of a logical link between the *problem* induced by children's transgression and the exerted *constraint* (*problem-constraint link*).

Most research on constraints have focused on a strategy called mild punishment, without considering its problem-constraint linkage. Mild punishments refer to non-physical constraints imposed on children with the objective of making them live a sufficiently aversive experience so that they avoid reproducing the problematic behavior (Dadds and Salmon 2003). Because mild punishments are focused on aversiveness, they are often unrelated to the transgression-induced problem and hence tend to have a weak problem-constraint link (Mageau et al. 2018). Take the example of children who are allowed to watch television provided that their homework is done, but nevertheless persistently turn the TV on prior to completing their work. In this situation, an example of a mild punishment could be to withdraw children's privilege to see their friends on a given occasion. Such constraint, although unrelated to the problem underlying the misbehavior (i.e., the fact that TV is being watched prior to homework completion), would indeed reach its goal of being unpleasant and could be successful in preventing a repeated offense.

Research shows that mild punishments are indeed effective to induce compliance (i.e., more so than AS interventions such as reasoning; Larzelere et al. 2013). However, and potentially because of their weak problem-constraint link, there is evidence that mild punishments risk hampering internalization. For instance, empirical studies (e.g., Padilla-Walker 2008b) and clinical writings (e.g., Faber and Mazlish 2012) suggest that the aversive aspect of this constraint strategy can elicit feelings of anger and related negative emotional experiences such as hate and contempt. Not only may mild punishments encourage anger, they could also hinder empathy. Experts in parenting indeed argue that the frustrating aspect of mild punishment, in addition to modeling a lack of empathy, could drift children's attention away from parents' perspective (Faber

and Mazlish 2012). Research has supported this position, showing negative relations between children's anger and empathic disposition (Strayer and Roberts 2004) as well as direct negative associations between mild punishments and children's empathy (e.g., Krevans and Gibbs 1996). Given the potentially harmful impact of mild punishments on internalization through the emotional reactions they elicit, finding another way to use constraints seems warranted.

According to clinical writings anchored in a humanistic framework consistent with self-determination theory (i.e., Ginott 1965), one promising alternative to mild punishments would be to emit *logical consequences*. Logical consequences are constraints which, rather than being imposed with the underlying objective of creating sufficient aversiveness to elicit compliance, specifically focus on addressing the problem created by children's misbehavior. Constraints under the form of logical consequences thus typically require children to participate actively in solving the problems created by their misdeeds (e.g., reparation of a broken object; changing an undesirable behavior) or subject them to the changes implemented to stop their misbehavior (e.g., removal of a misused object until children have made it clear that they will not repeat the harmful behavior; Mageau et al. 2018). Consequently, logical consequences are inherently related to transgression-induced problems and hence naturally possess a strong problem-constraint link. In the rule-transgression situation mentioned above, an example of a logical consequence could be to turn the TV off and require children to do their homework before watching it again. This constraint would directly address the problem created by the transgression (i.e., the fact that TV is being watched before homework completion) and make children take responsibility for their actions (i.e., by doing their homework), thereby creating a strong and logical problem-constraint link (see Mageau et al. 2018, for a more detailed description of logical consequences).

Clinical writings also suggest that the mechanisms through which logical consequences operate to induce compliance could foster children's internalization to a greater extent than what mild punishments can achieve, notably by eliciting a different emotional experience in children. For example, because they focus on solving the problems created by transgressions, logical consequences are not theorized to necessitate eliciting aversiveness (as mild punishments do) in order to prompt compliance. As a result, parents may dampen this aspect of constraints when emitting logical consequences and remain more easily in touch and behaviorally congruent with their own empathic feelings, thereby minimizing children's feelings of anger and modeling empathy (Ginott 1965). Also, by leading children to experience the consequences related to their misdeed, logical consequences are thought to contain valuable experiential information regarding parents'

message and point of view, which should promote children's empathy (Faber and Mazlish 2012). From a self-determination theory perspective, logical consequences could be expected to foster internalization to a greater extent than mild punishments due to their arguably better aptitude to support children's need for autonomy (Ryan and Deci 2017). Indeed, by (1) allowing parents to remain empathic towards their children's feelings while providing the constraint, (2) requiring children to actively participate in solving the problem created by their behavior, and (3) offering children an experiential opportunity to understand the importance of the broken rule, logical consequences seem to contain the three main ingredients theorized to render a behavior autonomy-supportive (Mageau et al. 2017).

While the relevance of differentiating logical consequences from mild punishments has been largely discussed in the clinical literature on parenting (e.g., Dreikurs and Grey 1968; Faber and Mazlish 2012; Gilbert 1986; Ginott 1965), only one empirical study to this day has examined the specific impact of the problem-constraint link on children's reactions to constraints (i.e., Mageau et al. 2018). This research was rooted in several related studies which, although not documenting the specific effect of logical consequences on children's internalization process, pointed to the importance of a logical link between transgression-induced problems and ensued parental interventions. For instance, studies anchored in social-domain theory (Smetana 2011) have suggested that reasoning could foster internalization more effectively when related to the issues underlying the transgressions (e.g., discussing the welfare of others following a moral transgression; Nucci 1984), but never reported whether such findings could be transposed to constraint strategies. As another example, applied research has revealed that parenting programs teaching logical consequences, as part of an arsenal of authority exertion strategies, were effective in fostering children's socialization process (e.g., Joussemet et al. 2014; Leijten et al. 2019), but never looked at the unique effect of logical consequences on internalization.

To examine the specific impact of the problem-constraint link on children's internalization process, Mageau et al. (2018) relied on an experimental vignette methodology and compared, inter alia, the effectiveness and acceptability of logical consequences to that of mild punishments. The authors found that logical consequences (who were evaluated as having a stronger problem-constraint link than mild punishments) were rated by children and their mothers as at least as effective as mild punishments in eliciting future compliance, but more acceptable. They also found that the impact of parents' interpersonal rule-reminding climates was additive to (rather than interacting with) the problem-constraint link factor for children. Specifically, results showed that relying on AS (vs. CTL) rule-reminding was

evaluated as more acceptable, independently of whether a logical consequence or a mild punishment ensued. Thus, although this study neglected children's emotional reactions while examining internalization, it nevertheless suggests that logical consequences emitted in an autonomy-supportive climate could represent a preferable combination of strategies to foster this process.

In an effort to pursue the work currently conducted on authority exertion in rule-breaking contexts, we extended Mageau et al.'s (2018) study and examined the role of the problem-constraint link (logical consequences vs. mild punishments) and interpersonal climates (autonomy-supportive vs. controlling) on children's anticipated reactions of anger and empathy. Additionally, we investigated whether children's anticipated emotional reactions could mediate Mageau et al.'s (2018) reported effects of interpersonal climates and constraint strategies on children's acceptability beliefs (Grusec and Goodnow 1994).

Based on past research, our main hypotheses were that AS interpersonal climates and logical consequences would independently elicit less anticipated anger and more anticipated empathy than respectively CTL interpersonal climates and mild punishments. Our secondary hypotheses were that stronger anticipated reactions of empathy and weaker anticipated reactions of anger would be associated with higher acceptability beliefs regarding the employed authority exertion strategies, such that significant indirect links from interpersonal climates and constraint strategies to acceptability beliefs, via anticipated emotions, would be observed. Given that the effects of interpersonal climates and constraint strategies on acceptability beliefs were reported in Mageau et al. (2018) using the same dataset, no hypothesis was formulated for these relations.

Method

Participants

A total of 221 children participated in the present study. Participants were aged between 9 and 12 years old ($M_{\text{age}} = 10.42$, $SD = 0.07$) and were evenly distributed in terms of gender (53% girls). Their mothers were generally well-educated, with 82% of them reporting post-secondary education, and were primarily from a middle-class socioeconomic background. Indeed, only 14% of the families had an annual income below \$30,000, while the rest earned between \$30,000 and \$100,000 (50%) or over \$100,000 (36%). Information on children's ethnic background was indirectly obtained by asking mothers to indicate their ethnic origins. The majority of mothers were French Canadians (86.9%), while the others originated from Europe (5.3%) or other countries around the globe (7.8%).



Fig. 1 Comic strip for the logical consequence in the AS climate condition in the bedtime scenario

Procedure

We recruited participants through 12 public elementary schools in a Canadian city. After obtaining parental consent, we met interested children during regular school hours in a designated classroom, where they completed a questionnaire with the help of a research assistant. Completion time was 25 min or less (see Mageau et al. 2018, for further information on the recruitment procedure).

Participation rate

Out of 1725 sent invitations, 221 children (12.8%) ended up participating. This low participation rate is mostly due to the fact that recruitment originally targeted mother-child dyads, as part of a larger research project on parenting. Thus, only children whose mothers had agreed to participate were offered the opportunity to do so as well. Of these children, some could not participate because of the impossibility to meet during school hours despite their interest for the study. Nonetheless, once invited, all children were willing to participate.

Comic strips

The questionnaire consisted of comic strips illustrating mother-child interactions in two persistent rule-breaking situations. One situation pertained to non-compliance, where children's bedtime was being delayed because they

refused to brush their teeth (bedtime scenario—prudential issue). The other situation referred to a transgression of parental values, where children damaged their parents' tools (damaged tool scenario—moral issue). We specifically chose these two situations because, in addition to representing realistic and typical transgressions, they are established as being under parental jurisdiction at the age of the participants (Smetana 2011). For each rule-breaking situation, we created four comic strips, with each one illustrating a different combination of parental interventions. We asked children to read all the comic strips and indicate how the depicted combination of interventions would make them feel in terms of empathy and anger, as well as how acceptable they believed them to be. Figure 1 presents an example of a comic strip for the bedtime scenario; Table 1 presents the text of the other comic strips for that scenario.

Experimental manipulation

The four different combinations of parental interventions originated from the crossing of two experimental manipulations of authority exertion strategies in the comic strips. First, we manipulated the interpersonal climate (autonomy-supportive; controlling) by changing how mothers discussed broken rules with children in the first three images of the stories (Mageau et al. 2018). In these images, mothers depicted as autonomy-supportive showed consideration for children's feelings by acknowledging their perspective

Table 1 Stories for bedtime scenario: Victor does not want to brush his teeth before going to bed

Condition	Story
Logical consequence in AS climate	<p>Image 1—Mother: Victor, we brush our teeth before going to bed. Child: No, I don't want to...</p> <p>Image 2—Mother: I see that you'd rather not brush your teeth now that you are already in bed. Child: Yes...</p> <p>Image 3—Mother: It's important to brush your teeth every night in order to have nice white teeth.</p> <p>Image 4—Later...</p> <p>Mother: Victor, we brush our teeth before going to bed. With all this time spent discussing teeth brushing, there is no more time for a bedtime story.</p>
Mild punishment in AS climate	<p>Image 1—Mother: Victor, we brush our teeth before going to bed. Child: No, I don't want to...</p> <p>Image 2—Mother: I see that you'd rather not brush your teeth now that you are already in bed. Child: Yes...</p> <p>Image 3—Mother: It's important to brush your teeth every night in order to have nice white teeth</p> <p>Image 4—Later...</p> <p>Mother: Victor, we brush our teeth before going to bed. Since you don't listen, you won't be able to go to your friend's house tomorrow.</p>
Logical consequence in CTL climate	<p>Image 1—Mother: Victor, we brush our teeth before going to bed. Child: No, I don't want to...</p> <p>Image 2—Mother: It's always the same with you... You never listen to me!</p> <p>Image 3—Mother: If you don't go right away, you'll regret it...!</p> <p>Image 4—Later...</p> <p>Mother: I said go now! (pause) With all this time spent discussing teeth brushing, there is no more time for a bedtime story.</p>
Mild punishment in CTL climate	<p>Image 1—Mother: Victor, we brush our teeth before going to bed. Child: No, I don't want to...</p> <p>Image 2—Mother: It's always the same with you... You never listen to me!</p> <p>Image 3—Mother: If you don't go right away, you'll regret it...!</p> <p>Image 4—Later...</p> <p>Mother: I said go now! (pause) Since you don't listen, you won't be able to go to your friend's house tomorrow.</p>

(e.g., for the damaged tool scenario: “I understand that you were so thrilled to have completed your birdhouse that you forgot the tools outside.”) and gave a rationale for their demands (e.g., “The tools need to be stored properly to avoid being damaged.”). In contrast, controlling mothers deliberately induced guilt through rebukes (e.g., “You haven't picked up the tools yet? It's impossible to trust you, you always disappoint me!”), and threatened children (e.g., “If you are unable to pick up your things, I won't lend you anything else!”).

Second, we manipulated the constraint strategy (logical consequence; mild punishment) in the last image of the comic strips by changing how mothers responded to their children's persistent rule-breaking behavior. In the mild punishment condition, mothers exerted their authority in a way that was unrelated to children's misdeeds and rather aimed at making children live an aversive experience (e.g.,

“Since you're not being careful, you can't go out tonight.”). In the logical consequence condition, mothers exerted their authority in order to make children take responsibility for their misdeeds and experience the resulting logical consequences (i.e., When children damaged their parents' tools, they were required to repair them: “Now what these tools need is to be cleaned with this product that removes rust.”; When the problem was going to bed late because of not wanting to brush teeth, mothers made routine changes to respect bedtime: “With all this time spent discussing teeth brushing, there is no more time for a bedtime story.”). In sum, crossing the interpersonal climates (AS vs. CTL) with the constraint strategies (mild punishments vs. logical consequences) yielded a 2 × 2 design and resulted in four experimental conditions to which participants were exposed twice (i.e., once through the damaged tool scenario and once through the bedtime scenario).

In order to improve the likelihood that participants' anticipated reactions would correspond to their actual reactions in real-life settings, we followed Aguinis and Bradley's (2014) recommendations for improving the realism and validity of experimental vignette methodologies. Notably, we (1) created a repeated measure design (where all participants were exposed to all conditions) so that differences between experimental conditions could be examined while controlling for stable individual differences across participants, (2) increased participants' identification to the depicted children by matching their sex, (3) used well-established theoretical frameworks to operationalize both the transgressions (i.e., social domain theory; Smetana 2011) and parents' reactions to these transgressions (e.g., self-determination theory; Ryan and Deci 2017), and (4) limited the number of scenarios and questions in order to prevent information overload and fatigue in the respondents.

Measures

Anticipated emotions

After reading each comic strip, children indicated their anticipated emotional reactions to the depicted authority exertion strategies with two items, one for anger and one for empathy. More specifically, after each story, children read the description of the emotional states of anger and empathy and evaluated the extent to which each would describe their own internal state if they had been the character in the stories, using a four-point scale (1 = Not at all true for me; 4 = Really true for me). The item for anticipated *anger* was: "If my mother acted this way with me, I would be angry". Correlations, computed from the two stories of each condition, varied between 0.64 and 0.73 across the four conditions. For anticipated *empathy*, we assessed children's disposition to establish a connection with the parent's internal state in this rule-breaking situation, without differentiating between the affective or cognitive nature of this connection ("If my mother acted this way with me, I would understand why she would react this way"). Correlations, computed from the two stories of each condition, varied between 0.60 and 0.78 across the four conditions. Higher scores on these scales indicate that children believe they would experience higher levels of empathy and anger. In line with previous findings (e.g., Roberts et al. 2014), anticipated reactions of anger and empathy negatively correlated, $\beta = -0.33$, $p < 0.001$, suggesting good validity.

Acceptability beliefs

As reported in Mageau et al. (2018), children evaluated the acceptability of the employed parental authority exertion

strategies in each comic strip by indicating their level of agreement with the following statement: "According to you, what the mother said and did in the comic strip was okay", using a 4-point scale (1 = Not okay to 4 = Totally okay). Correlations, computed from the two stories of each condition, varied between 0.57 and 0.80 across the four conditions. Higher scores on this scale indicate that children believe the authority exertion strategies to be more acceptable.

Data Analyses

As stated in Mageau et al. (2018), we first validated the experimental manipulation of constraint strategies by ensuring in a pilot study that logical consequences were perceived as having a stronger problem-constraint link than mild punishments. We then verified that data were missing at random and imputed missing observations using a multiple imputation-aggregation procedure. We tested our main model using a lower level multilevel path analysis (1-1-1 mediated model; Krull and MacKinnon 2001) with the maximum likelihood robust estimator available with the MPlus 7.3 software. This analytical approach allowed us to concomitantly (1) evaluate the impact of interpersonal climates (i.e., autonomy-supportive vs. controlling) and constraint strategies (i.e., logical consequences vs. mild punishments) on children's anticipated emotions (i.e., anger and empathy), (2) assess the relation between children's anticipated emotions and acceptability beliefs, and (3) test the indirect associations from interpersonal climates and constraint strategies to acceptability beliefs, via children's anticipated emotions, while (4) controlling for the nested nature of our data (i.e., responses for the four experimental conditions nested within participants; participants themselves nested within 12 different schools). To investigate the impact of our experimental manipulations, we created two within-subject dummy codes (one for the interpersonal climates manipulation and one for the constraint strategies manipulation). We included these dummy codes in the lower level multilevel path analysis to compare children's emotional scores across the different experimental conditions. In these analyses, scores across the two rule-breaking situations are merged. Finally, we created an interaction term by multiplying the two dummy codes to test the existence of an interaction effect between interpersonal climates and constraint strategies when predicting children's anticipated emotions.

Relying on a multilevel analysis has the advantages of (a) creating a path analysis model that takes into account the intra- and interindividual variability found in repeated measure designs (Krull and MacKinnon 2001), (b) estimating beta coefficients while taking into account potential deviations from normality (Hox et al. 2017), and (c)

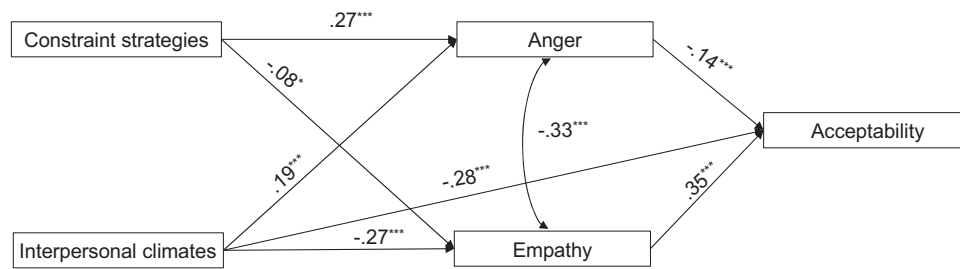


Fig. 2 Lower-level multilevel path analysis of constraint strategies' and interpersonal climates' impact on children's empathy, anger and acceptability beliefs. For constraint strategies, 0 = Logical consequence and 1 = Mild punishment. For interpersonal climate, 0 = AS

climate and 1 = CTL climate. Indirect effect of constraint strategies and interpersonal climates to children's acceptability beliefs through anticipated emotions are respectively: $\beta = -0.03$, $p < 0.001$, $\beta = -0.06$, $p < 0.001$. * $p < 0.05$, *** $p < 0.001$

Table 2 Means (SD) of children's acceptability, anger and empathy beliefs in response to the different authority exertion strategies

	Logical consequence in AS climate	Mild punishments in AS climate	Logical consequences in CTL climate	Mild punishments in CTL climate
Anger	1.58 (0.91)	1.89 (1.05)	1.80 (1.00)	2.04 (1.09)
Empathy	3.14 (0.94)	3.09 (0.99)	2.90 (1.03)	2.79 (1.11)
Acceptability	3.11 (0.89)	2.92 (0.90)	2.65 (1.00)	2.58 (1.02)

comparing the empirical fit of our data across different theoretical models. To verify whether the most parsimonious model adjusted to our data was a full-mediation model, we relied on the Bayesian information criterion (BIC; Raftery 1995). We then evaluated the adjustment of the retained model to the data using the comparative fit index (CFI; Bentler 1990), the root mean square error of approximation (RMSEA; Browne and Cudeck 1992) and the standardized root mean square residual (SRMR; Hu and Bentler 1999). Also, to avoid estimation problems created by random slopes, and because no cross-level interactions were considered in the present study, we used fixed slopes (Krull and MacKinnon 2001; Hox et al. 2017). Finally, to test the indirect associations between both manipulations (interpersonal climates and constraint strategies) and children's acceptability beliefs through children's anticipated emotions, we relied on Pituch et al.'s (2005) proposition and calculated 95% confidence intervals of the estimated indirect effects.

Results

As reported in Mageau et al. (2018), we conducted a pilot study among a convenience sample of 70 undergraduate students to validate that the constraints operationalized as logical consequences had a stronger problem-constraint link than those operationalized as mild punishments. Participants in the pilot study read each scenario and rated the extent to which the employed constraint was logically related to the transgression. Paired *t*-tests established that

the operationalized logical consequences are indeed perceived as more logical than the mild punishments, $t(65) = 10.08$, $p < 0.001$.

Regarding missing data, the Little MCAR test suggested that missing values (5.1% per variable or less) were completely at random, $\chi^2(944) = 996.77$, $p = 0.115$. We nevertheless imputed the missing observations using multiple imputations based on the expectation-maximization estimation procedure, which we then aggregated in a single data set in order to proceed with the main analyses.

For our main analyses, we first tested whether the effects of interpersonal climates and constraint strategies were additive or interactive. As expected, results revealed no significant interaction between the interpersonal climates and the constraint strategies on any variable, all $p \geq 0.122$. We thus proceeded by focusing on the main effects.

Relying on the BIC to select the most parsimonious model adjusted to our data, we found evidence that adding a direct link from interpersonal climates to acceptability beliefs (BIC = 14 198.97) would improve model fit, compared to a full-mediation model (BIC = 14 237.18; Raftery 1995). We thus added this link to our model (see Fig. 2, for the final proposed model). This amended model had an excellent fit (CFI = 0.998, RMSEA = 0.017, SRMR = 0.009), suggesting good consistency with the data. Although our manipulations were dummy coded to enter the path analysis (constraints: logical consequences = 0, mild punishments = 1; interpersonal climates: autonomy-supportive = 0; controlling = 1), we nevertheless present, for ease of interpretation, the means and standard deviations of all variables across experimental conditions in Table 2.

Table 3 Beta coefficients between each pair of endogenous variables

	Acceptability	Empathy	Anger
Acceptability	–		
Empathy	0.44***	–	
Anger	–0.29***	–0.33**	–

To calculate bivariate relations using multilevel analyses, we modeled each pair of variables individually

** $p < 0.01$; *** $p < 0.001$

We also present the bivariate relations among the endogenous variables in Table 3; these relations refer to the beta coefficients between each individual pair of endogenous variables calculated through multilevel analyses.

Results showed that children believed that mild punishments would elicit significantly more anger, $\beta = 0.13$, $p = 0.001$, and less empathy, $\beta = -0.04$, $p = 0.010$, than logical consequences. Concerning the impact of interpersonal climates on anticipated emotions, children believed that controlling climates would result in significantly more anger, $\beta = 0.09$, $p < 0.001$, and less empathy, $\beta = -0.13$, $p < 0.001$, than autonomy-supportive climates. We also found significant associations between anticipated emotions and acceptability beliefs. Specifically, the less anger, $\beta = -0.15$, $p < 0.001$, and the more empathy, $\beta = 0.37$, $p < 0.001$, children believed they would feel, the more acceptable they perceived the authority exertion strategies to be.

Finally, with regards to the indirect effects, we found a significant indirect link between constraint strategies and children's acceptability beliefs through children's anticipated emotions, $\beta = -0.03$, $p < 0.001$. Thus, inasmuch as constraint strategies affected children's anticipated feelings of anger and empathy, they impacted children's perceptions of acceptability of authority exertion. Decorticating this effect suggested that logical consequences were considered more acceptable than mild punishments through their lower elicited amount of anger, indirect $\beta = -0.02$, $p < 0.001$, and higher elicited amount of empathy, indirect $\beta = -0.01$, $p = 0.015$. We also found a significant indirect link between interpersonal climates and children's acceptability beliefs through children's anticipated emotions, $\beta = -0.06$, $p < 0.001$, although children's anticipated emotions only partially explained the relation between interpersonal climates and children's acceptability beliefs, leaving an unexplained significant direct link between these two variables, $\beta = -0.15$, $p < 0.001$. Thus, according to the assessed model, children perceived controlling climates as significantly less acceptable than autonomy-supportive ones, partly because these climates increased their anticipated feelings of anger, indirect $\beta = -0.01$, $p < 0.001$, and impeded their anticipated feelings of empathy, indirect $\beta = -0.05$, $p < 0.001$, and partly because of other mechanisms not included in the present study.

Discussion

In this study, we extended Mageau et al.'s (2018) investigation of the role played by interpersonal climates (autonomy-supportive vs. controlling) and constraint strategies (logical consequences vs. mild punishments) in children's internalization process. We used Mageau et al.'s (2018) children sample and experimental vignette methodology and examined the effects of these two factors on children's anticipated reactions of anger and empathy, as well as verified whether these anticipated emotional reactions mediated the previously documented effect of interpersonal climates and constraint strategies on children's acceptability beliefs regarding the employed authority exertion strategies.

Constraint Strategies

Coherently with past results on acceptability beliefs (Mageau et al. 2018), the effects of constraint strategies and interpersonal climates on children's anticipated emotional reactions were found to be additive rather than interactive. This adds further empirical support to the idea that constraint strategies and rule-reminding have independent effects on children's anticipated reactions to parental authority. Specifically, children anticipated that they would feel angrier and less empathic in response to logical consequences than to mild punishments, whether parents reminded the rule in an autonomy-supportive or in a controlling way. These results are important because they provide complementary evidence for the relevance of the problem-constraint link in fostering internalization. While Mageau et al. (2018) had previously shown that logical consequences were perceived as more acceptable than mild punishments, research had yet to provide information on children's emotional responses to these strategies. By documenting children's anticipated reactions of empathy and anger, the present results helped providing such information, thereby contributing to the literature on the negative emotional correlates of mild punishments (e.g., Krevans and Gibbs 1996; Padilla-Walker 2008b), and supporting clinical writings arguing in favor of differential effects between logical consequences and mild punishments (e.g., Faber and Malzish 2012; Ginott 1965).

Concerning the indirect impact of constraints on acceptability beliefs, the model fit indices indicated that this effect could be fully mediated by children's anticipated reactions of anger and empathy. This result suggests that inasmuch as logical consequences generate an emotional state fostering internalization more effectively than mild punishments, they may also facilitate children's cognitive disposition to internalize. However, it is important to temper this conclusion by pointing out that, due to our cross-sectional assessment of emotional reactions and

acceptability beliefs, it is not possible to make actual directionality inferences between these two outcomes. Thus, while the fit indices of the assessed model did not reject the possibility that children's anticipated emotions could mediate the relation between authority exertion strategies and acceptability beliefs, it nevertheless remains possible that acceptability beliefs would also have an influence on children's anticipated emotions (see Padilla-Walker 2008b, for such a theoretical proposition). What seems clear, however, is that children's anticipated emotional reactions and cognitive appraisals are related to one another and are both affected by variations in authority exertion strategies. Additional research is needed to clarify the interplay between emotional and cognitive precursors of children's internalization.

Interpersonal Climates

Regarding rule-reminding, the proposition that interpersonal climates would affect children's reactions of anger and empathy was also supported. Specifically, children believed that they would experience less anger and more empathy in response to autonomy-supportive rule-reminding than they would in response to controlling rule-reminding. These results provide further support to the literature discussing the beneficial effects of autonomy-supportive interventions and the adverse impact of controlling parenting on children's internalization process and general development (Ryan and Deci 2017).

Finally, results revealed that anticipated feelings of anger and empathy could not fully account for the influence of AS vs. CTL rule-reminding on children's acceptability beliefs. Observing that feelings of empathy and anger were not sufficient to explain the effect of interpersonal climates on children's acceptability beliefs may imply that other mechanisms, or perhaps other emotions specifically triggered by AS vs. CTL parenting, are at play in this relation. For instance, some controlling interventions (e.g., threats of punishments) have been argued to induce feelings of fear in children (Mageau et al. 2015). While children's temperamental inclination toward fearfulness has been positively related to their moral reasoning and their propensity to adopt prosocial behaviors (Grusec et al. 2017), experts in parenting have argued that parental interventions intentionally generating fear could hinder children's acceptability beliefs and general internalization process, notably by increasing the salience of external attributions for compliance (Lepper 1983) and by redirecting children's cognitive resources toward emotional regulation rather than toward the understanding and acceptance of the message underlying these interventions (Grusec and Goodnow 1994). Future research could thus look at complementary emotional reactions in order to uncover other potential

mechanisms through which interpersonal rule-reminding climates may relate to children's acceptance of their parents' interventions.

Limitations and Future Research Directions

This study contains important limitations that should be considered when interpreting the results. First, because we used an experimental vignette methodology to test our hypotheses, children could only indicate their anticipated emotions in response to hypothetical situations, leaving unknown the actual emotional reactions they would experience if their parents would exert similar forms of authority. Although our experimental design was in line with Aguinis and Bradley's (2014) best practice recommendations to enhance the external validity of the results, real-life investigation is still needed to acquire an in-depth understanding of children's emotional reactions to parental authority exertion as well as their relations with children's cognitive appraisals and ensued behaviors. Also, because we solely compared logical consequences to mild punishments (rather than also to a control condition where no authority is exerted), only their relative impact on children's emotional reactions could be examined. To address these limitations, future research could use a diary design, where children would report their daily interactions with their parents as well as their reactions to authority exertion (or lack thereof).

Another important limitation to take into consideration when interpreting our results relates to the presence of potential confounded variables in our experimental manipulation. Specifically, because we presented different constraints for the logical consequence and the mild punishment conditions, it is possible that, beyond problem-constraint link differences, a number of other parameters related to each unique constraint (e.g., familiarity to the child, harshness) may have played a role in the observed results. Future research should therefore consider these potential confounds, but also keep in mind that some of them may naturally vary as a function of the problem-constraint link strength (e.g., because logical consequences are oriented toward problem-solving, they may come across as less harsh than mild punishments; Ginott 1965). To better isolate the effect of the problem-constraint link, researchers could exert a methodological control by crossing two constraints with two rule-breaking contexts, so that (1) each constraint would be in turn considered a logical consequence and a mild punishment, and that (2) each rule-breaking context would be in turn presented in the logical consequence and the mild punishment conditions.

Some issues regarding the generalizability of the findings should also be considered when interpreting the results. First, using a convenience sample and having a low

participation rate imply that selection biases could exist. For instance, the participants were primarily from European American ethnicity and had a rather high socioeconomic status; the results may thus not apply to the entire population. Also, only mothers were depicted in the comic strips, such that it is not clear whether the impact of the assessed authority exertion strategies on children would differ when emitted by fathers. Future research should thus evaluate the role of interpersonal climates and the problem-constraint link on a sample more representative of the general population, in addition to examining if the observed effects of authority exertion strategies vary when fathers are intervening.

Another limitation surrounding generalizability is related to the depicted rule-breaking scenarios. In our study, all the presented transgressions are commonly perceived by 9- to 12-year-old children as being under parental jurisdiction, as they involve moral or prudential issues. Yet, according to social domain theory (Smetana 2011), children appraise their parents' interventions differently when their transgressions are considered as being under their personal jurisdiction. Consequently, the present findings should not be generalized to personal issues. Based on past research anchored in social domain theory, one could hypothesize that all constraint strategies exerted in response to transgressions perceived as regarding personal issues would trigger equivalent suboptimal emotional responses regardless of their problem-constraint link, as all constraining forms of authority would be perceived by children as unacceptable in such situations (e.g., Padilla-Walker 2008a; Smetana 2011). Thus, in order to provide a more comprehensive understanding of the role played by the assessed authority exertion factors in children's internalization process, future research would do well to examine rule-breaking situations involving behaviors perceived as related to personal issues.

Some last limitations that seem particularly relevant to mention pertain to our measurement of emotional reactions. First, we used single items, which may have hindered the validity of the findings. Indeed, not only do single items sometimes fail to measure psychological constructs reliably, they may not always grasp all of the constructs' subtle nuances (Diamantopoulos et al. 2012). This limitation has particular implications for our assessment of empathy. Indeed, using one broader item to evaluate empathy could not differentiate between the affective and cognitive component of this construct. Yet, although these two components are related, they are nevertheless distinct. For instance, the affective component of empathy has been extensively discussed and shown to be elicited in responses to moral issues, but less so in response to other issues such as prudential ones. Consequently, differentiating between

the affective and cognitive components of empathy, and testing whether they are elicited to different degrees depending on the types of issues underlying the broken rules, could yield more specific findings.

Second, our items were inspired, rather than taken, from previously validated scales. Although the expected associations between anger, empathy and acceptability beliefs were found, and even if our theoretically grounded hypotheses were confirmed, our items may nevertheless have lacked some validity. As an example, asking children whether they "understand why the depicted mothers would react this way" may not have measured empathy as directly as we desired. Indeed, children could understand why their behaviors would need to be constrained in a given situation without actually experiencing empathy toward their parent (e.g., by merely relying on what occurred in past similar experiences). Validated and more comprehensive measures of children's emotions (e.g., multi-item scales, physiological responses or facial expressions; Gerdes et al. 2010) should thus be useful in future research aiming to clarify the role of logical consequences and autonomy-supportive rule-reminding in children's internalization process.

Another avenue for future research that could be relevant to consider would be to examine how different variables may moderate children's reactions to the assessed authority exertion strategies. According to research on parenting, numerous variables may exert such an influence, including socio-contextual factors (e.g., children's cultural background; Soenens et al. 2015), parental characteristics (e.g., their parenting style; Grusec and Goodnow 1994) and children's specific attributes (see Grusec et al. 2017, for a review of such child characteristics). Among all these potential moderators, one that may particularly influence the impact of parental authority exertion strategies on children's emotional reactions and internalization process is children's temperament (Rothbart and Bates 2006). Indeed, research has shown that children with certain temperamental traits (e.g., negative emotionality) are particularly sensitive to the impact of parents' choice of authority exertion strategies (Stright et al. 2008), while children with other traits (e.g., callous-unemotionality) are rather indifferent to any form of parental interventions (Wootton et al. 1997). Based on these studies, one could expect that the differences observed in children's anticipated emotional reactions to constraint strategies would hold true (or be even more pronounced) for children prone to negative emotionality, but may be reduced (or inexistent) for callous-unemotional children. Including such temperamental traits in future research may help provide information on how to adjust authority exertion strategies to each child.

In addition to assessing children's emotional and cognitive reactions to authority exertion, future research could

also examine how logical consequences and other strategies affect children's compliance motivations. According to self-determination theory, children may follow rules for different reasons, varying along a continuum from highly controlled motivations (e.g., because they are afraid to lose privileges) to highly autonomous ones (e.g., because they have integrated the rules to their own value system; Ryan and Deci 2017). The more children follow rules for autonomous reasons (rather than for controlled ones), the more these rules are internalized (Ryan and Deci 2017). Based on the present study's results and past findings, we could expect the combination of logical consequences and autonomy-supportive climate (which elicits the most acceptance, empathy, and lack of anger) to foster the most autonomous motivations to comply. Indeed, previous research has suggested that higher empathy (Pavey et al. 2012), lack of anger (Assor et al. 2005) and higher acceptance (Grusec and Goodnow 1994) could relate to more autonomous (vs. controlled) motivations. In addition, studies have found that autonomy-supportive parenting was related to more autonomous and less controlled compliance than controlling parenting (Vansteenkiste et al. 2014), and that mild punishments were associated with lower levels of autonomous compliance than alternative forms of strategies (Kremer et al. 2010). Future studies, perhaps in real-life settings, could test this additional hypothesis, either by directly investigating compliance motivations or by assessing behaviors that require value internalization, such as the spontaneous emission of prosocial behaviors (e.g., Eisenberg et al. 2015) or the absence of antisocial behaviors (e.g., Patterson and Fisher 2002).

Finally, it would be important to investigate whether replacing mild punishments with logical consequences is possible in all rule-breaking situations. There may be times when problems created by children's misbehavior are more difficult to identify or solve, and times where more than one problem arises from a single transgression. Investigating how parents reflect on their children's transgressions in such situations, and how they can generate ways to solve different transgression-induced problems, could represent a fruitful research avenue. Such knowledge could render logical consequences more accessible to parents, notably by identifying specific logical consequences and documenting how they can be best applied in different rule-breaking situations.

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the study. GAM: collaborated with the design, data analyses and writing of the study.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval University of Montreal's ethic committee provided approval for this study.

Informed Consent Participants gave their informed consent prior to their participation.

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References

- Aguinis, H., & Bradley, K. J. (2014). Best practice recommendations for designing and implementing experimental vignette methodology studies. *Organizational Research Methods, 17*, 351–371. <https://doi.org/10.1177/1094428114547952>.
- Assor, A., Kaplan, H., Kanat-Maymon, Y., & Roth, G. (2005). Directly controlling teacher behaviors as predictors of poor motivation and engagement in girls and boys: the role of anger and anxiety. *Learning and Instruction, 15*, 397–413. <https://doi.org/10.1016/j.learninstruc.2005.07.008>.
- Baumrind, D. (2013). Is a pejorative view of power assertion in the socialization process justified? *Review of General Psychology, 17*, 420–427. <https://doi.org/10.1037/a0033480>.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*, 238. <https://doi.org/10.1037//0033-2909.107.2.238>.
- Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research, 21*, 230–258. <https://doi.org/10.1177/0049124192021002005>.
- Cuff, B. M. P., Brown, S. J., Taylor, L., & Howat, D. J. (2016). Empathy: a review of the concept. *Emotion Review, 8*, 144–153. <https://doi.org/10.1177/1754073914558466>.
- Dadds, M. R., & Salmon, K. (2003). Punishment insensitivity and parenting: temperament and learning as interacting risks for antisocial behavior. *Clinical Child and Family Psychology Review, 6*, 69–86. <https://doi.org/10.1023/A:1023762009877>.
- Davis, M. H. (2018). *Empathy: a social psychological approach*. New York, NY: Routledge. <https://doi.org/10.4324/9780429493898>.
- Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilczynski, P., & Kaiser, S. (2012). Guidelines for choosing between multi item and single item scales for construct measurement: a predictive validity perspective. *Journal of the Academy of Marketing Science, 40*, 434–449. <https://doi.org/10.1007/s11747-011-0300-3>.
- Dix, T. (1991). The affective organization of parenting: adaptive and maladaptive processes. *Psychological Bulletin, 110*, 3–25. <https://doi.org/10.1037//0033-2909.110.1.3>.
- Dreikurs, R., & Grey, L. (1968). *Logical consequences: a new approach of discipline*. Oxford, England: Meredith Press.
- Eisenberg, N., Spinrad, T. L., & Knafo-Noam, A. (2015). Prosocial development. In M. E. Lamb & R. M. Lerner (Eds), *Handbook of child psychology and developmental science: socioemotional processes* (pp. 610–656). Hoboken, NJ: John Wiley & Sons. <https://doi.org/10.1002/9780470147658.chpsy0311>.

- Faber, A., & Mazlish, E. (2012). *How to talk so kids will listen and listen so kids will talk*. New York, NY: Scribner.
- Gerdes, K. E., Segal, E. A., & Lietz, C. A. (2010). Conceptualizing and measuring empathy. *British Journal of Social Work, 40*, 2326–2343. <https://doi.org/10.1093/bjsw/bcq048>.
- Gershoff, E. T., Grogan-Kaylor, A., Lansford, J. E., Chang, L., Zelli, A., Deater-Deckard, K., & Dodge, K. A. (2010). Parent discipline practices in an international sample: associations with child behaviors and moderation by perceived normativeness. *Child Development, 81*, 487–502. <https://doi.org/10.1111/j.1467-8624.2009.01409.x.Parent>.
- Gilbert, J. I. (1986). Logical consequences: a new classification. *Individual Psychology, 42*, 243–254.
- Ginott, H. G. (1959). The theory and practice of “therapeutic intervention” in child treatment. *Journal of Consulting Psychology, 23*, 160–166. <https://doi.org/10.1037/h0046805>.
- Ginott, H. G. (1965). *Between parent and child: new solutions to old problems*. New York, NY: Macmillan.
- Grusec, J. E., Danyliuk, T., Kil, H., & O’Neill, D. (2017). Perspectives on parent discipline and child outcomes. *International Journal of Behavioral Development, 41*, 465–471. <https://doi.org/10.1177/0165025416681538>.
- Grusec, J. E., & Goodnow, J. J. (1994). Impact of parental discipline methods on the child’s internalization of values: a reconceptualization of current points of view. *Developmental Psychology, 30*, 4–19. <https://doi.org/10.1037/0012-1649.30.1.4>.
- Hoffman, M. L. (1994). Discipline and internalization. *Developmental Psychology, 30*, 26–28. <https://doi.org/10.1037/0012-1649.30.1.26>.
- Hoffman, M. L. (2008). Empathy and prosocial behavior. In M. Lewis, J. M. Haviland-Jones & L. Barr Fedlmanett (Eds), *Handbook of Emotions*. 3rd edition (pp. 440–455). New York, NY: Guilford Press.
- Hox, J. J., Moerbeek, M., & Schoot, Van de, R. (2017). *Multilevel analysis: techniques and applications*. New York, NY: Routledge. <https://doi.org/10.4324/9781315650982>.
- Hu, L.-t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55. <https://doi.org/10.1080/10705519909540118>.
- Joussemet, M., Mageau, G. A., & Koestner, R. (2014). Promoting optimal parenting and children’s mental health: a preliminary evaluation of the how-to parenting program. *Journal of Child and Family Studies, 23*, 949–964. <https://doi.org/10.1007/s10826-013-9751-0>.
- Kanat-Maymon, M., & Assor, A. (2010). Perceived maternal control and responsiveness to distress as predictors of young adults’ empathic responses. *Personality and Social Psychology Bulletin, 36*, 33–46. <https://doi.org/10.1177/0146167209347381>.
- Keller, M., & Edelstein, W. (1991). The development of socio-moral meaning making: domains, categories, and perspective-taking. In W. M. Kurtines & J. L. Gewirtz (Eds), *Handbook of moral behavior and development 2*, (89–114). Hillsdale, NJ: Erlbaum.
- Kochanska, G., Koenig, J. L., Barry, Ra, Kim, S., & Yoon, J. E. (2010). Children’s conscience during toddler and preschool years, moral self, and a competent, adaptive developmental trajectory. *Developmental Psychology, 46*, 1320–1332. <https://doi.org/10.1037/a0020381>.
- Kremer, M., Smith, A. B., & Lawrence, J. A. (2010). Family discipline incidents: an analysis of parental diaries. *Journal of Family Studies, 16*, 251–263. <https://doi.org/10.5172/jfs.16.3.251>.
- Krevans, J., & Gibbs, J. C. (1996). Parents’ use of inductive discipline: Relations to children’s empathy and prosocial behavior. *Child Development, 67*, 3263–3277. <https://doi.org/10.1111/j.1467-8624.1996.tb01913.x>.
- Krull, J. L., & MacKinnon, D. P. (2001). Multilevel modeling of individual and group level mediated effects. *Multivariate Behavioral Research, 36*, 249–277. https://doi.org/10.1207/s15327906mbr3602_06.
- Larzelere, R. E., Cox, R. B., & Mandara, J. (2013). Responding to misbehavior in young children: how authoritative parents enhance reasoning with firm control. In R. E. Larzelere, A. S. Morris, A. W. Harrist, (Eds), *Authoritative Parenting: Synthesizing Nurture and Discipline for Optimal Child Development*. (pp. 89–111). Washington, DC: American Psychological Association Press. <https://doi.org/10.1037/13948-005>.
- Lazarus, R. S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *American Psychologist, 46*, 819–834. <https://doi.org/10.1037//0003-066x.46.8.819>.
- Leijten, P., Gardner, F., Melendez-Torres, G. J., van Aar, J., Hutchings, J., Schulz, S., & Overbeek, G. (2019). Meta-Analyses: key parenting program components for disruptive child behavior. *Journal of the American Academy of Child and Adolescent Psychiatry, 58*, 180–190. <https://doi.org/10.1016/j.jaac.2018.07.900>.
- Lepper, M. R. (1983). Extrinsic reward and intrinsic motivation: implications for the classroom. In J. M. Levine & M. C. Wang (Eds), *Teacher and Student Perceptions: Implications for Learning* (pp. 281–317). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Mageau, G. A., Lessard, J., Carpentier, J., Robichaud, J. M., Joussemet, M., & Koestner, R. (2018). Effectiveness and acceptability beliefs regarding logical consequences and mild punishments. *Journal of Applied Developmental Psychology, 54*, 12–22. <https://doi.org/10.1016/j.appdev.2017.11.001>.
- Mageau, G. A., Ranger, F., Joussemet, M., Koestner, R., Moreau, E., & Forest, J. (2015). Validation of the Perceived Parental Autonomy Support Scale (P-PASS). *Canadian Journal of Behavioural Science, 47*, 251–262. <https://doi.org/10.1037/a0039325>.
- Mageau, G. A., Sherman, A., Grusec, J. E., Koestner, R., & Bureau, J. S. (2017). Different ways of knowing a child and their relations to mother-reported autonomy support. *Social Development, 26*, 630–644. <https://doi.org/10.1111/sode.12212>.
- Nucci, L. P. (1984). Evaluating teachers as social agents: students’ ratings of domain appropriate and domain inappropriate teacher responses to transgressions. *American Educational Research Journal, 21*, 367–378. <https://doi.org/10.3102/00028312021002367>.
- Padilla-Walker, L. M. (2008a). Domain-appropriateness of maternal discipline as a predictor of adolescents’ positive and negative outcomes. *Journal of Family Psychology, 22*, 456–464. <https://doi.org/10.1037/0893-3200.22.3.456>.
- Padilla-Walker, L. M. (2008b). “My mom makes me so angry!” Adolescent perceptions of mother-child interactions as correlates of adolescent emotions. *Social Development, 17*, 306–325. <https://doi.org/10.1111/j.1467-9507.2007.00426.x>.
- Patterson, G. R., & Fisher, P. A. (2002). Recent developments in our understanding of parenting: Bidirectional effects, causal models, and the search for parsimony. In M. H. Bornstein (Ed.), *Handbook of parenting volume 5 practical issues in parenting*. 2nd edn (pp. 59–88). Mahwah NJ: Lawrence Erlbaum Associates.
- Pavey, L., Greitemeyer, T., & Sparks, P. (2012). “I help because I want to, not because you tell me to”: empathy increases autonomously motivated helping. *Personality and Social Psychology Bulletin, 38*, 681–689. <https://doi.org/10.1177/0146167211435940>.
- Pessoa, L. (2008). On the relationship between emotion and cognition. *Nature Reviews Neuroscience, 9*, 148–158. <https://doi.org/10.1038/nrn2317>.
- Pfeifer, J. H., Dapretto, M., Borofsky, L. A., Fuligni, A. J., Masten, C. L., & Lieberman, M. D. (2009). Neural correlates of direct and reflected self-appraisals in adolescents and adults: when social

- perspective-taking informs self-perception. *Child Development*, 80, 1016–1038. <https://doi.org/10.1111/j.1467-8624.2009.01314.x>.
- Pituch, K. A., Whittaker, T. A., & Stapleton, L. M. (2005). A comparison of methods to test for mediation in multisite experiments. *Multivariate Behavioral Research*, 40, 1–23. https://doi.org/10.1207/s15327906mbr4001_1.
- Raftery, A. E. (1995). Bayesian model selection in social research. *Sociological Methodology*, 25, 111–163. <https://doi.org/10.2307/271063>.
- Roberts, W., Strayer, J., & Denham, S. (2014). Empathy, anger, guilt: emotions and prosocial behaviour. *Canadian Journal of Behavioural Science*, 46, 465–474. <https://doi.org/10.1037/a0035057>.
- Roe, K. V. (1980). Early empathy development in children and the subsequent internalization of moral values. *Journal of Social Psychology*, 110, 147–148. <https://doi.org/10.1080/00224545.1980.9924238>.
- Rothbart, M. K., & Bates, J. E. (2006). Temperament. In W. Damon & R. M. Lerner (Series Eds) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3: Social, emotional, and personality development* (pp. 99–166). New York: Wiley.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory. Basic psychological needs in motivation, development and wellness*. New York, NY: Guilford Press. <https://doi.org/10.7202/1041847ar>.
- Rydell, A. M., Berlin, L., & Bohlin, G. (2003). Emotionality, emotion regulation, and adaptation among 5- to 8-year-old children. *Emotion*, 3, 30–47. <https://doi.org/10.1037/1528-3542.3.1.30>.
- Shen, Y. L., Carlo, G., & Knight, G. P. (2013). Relations between parental discipline, empathy-related traits, and prosocial moral reasoning: a multicultural examination. *Journal of Early Adolescence*, 33, 994–1021. <https://doi.org/10.1177/0272431613479670>.
- Smetana, J. G. (2011). *Adolescents, families, and social development: how teens construct their worlds*. West Sussex, UK: Wiley-Blackwell. <https://doi.org/10.1002/9781444390896>.
- Soenens, B., & Vansteenkiste, M. (2010). A theoretical upgrade of the concept of parental psychological control: proposing new insights on the basis of self-determination theory. *Developmental Review*, 30, 74–99. <https://doi.org/10.1016/j.dr.2009.11.001>.
- Soenens, B., Vansteenkiste, M., & Van Petegem, S. (2015). Let us not throw out the baby with the bathwater: applying the principle of universalism without uniformity to autonomy-supportive and controlling parenting. *Child Development Perspectives*, 9, 44–49. <https://doi.org/10.1111/cdep.12103>.
- Strayer, J., & Roberts, W. (2004). Empathy and observed anger and aggression in five-year-olds. *Social Development*, 13, 1–13. <https://doi.org/10.1111/j.1467-9507.2004.00254.x>.
- Stright, A. D., Gallagher, K. C., & Kelley, K. (2008). Infant temperament moderates relations between maternal parenting in early childhood and children's adjustment in first grade. *Child Development*, 79, 186–200. <https://doi.org/10.1111/j.1467-8624.2007.01119.x>.
- Vansteenkiste, M., Soenens, B., Van Petegem, S., & Duriez, B. (2014). Longitudinal associations between adolescent perceived degree and style of parental prohibition and internalization and defiance. *Developmental Psychology*, 50, 229–236. <https://doi.org/10.1037/a0032972>.
- Wootton, J. M., Frick, P. J., Shelton, K. K., & Silverthorn, P. (1997). Ineffective parenting and childhood conduct problems: the moderating role of callous-unemotional traits. *Journal of Consulting and Clinical Psychology*, 65, 301–308. <https://doi.org/10.1037/0022-006X.65.2.292.b>.