This is a post-print version of the paper published:


Influence of internally and externally controlling teaching behaviors on students’ motivational outcomes in Physical Education: Is there a gender difference?
Abstract

**Purpose:** Grounded in self-determination theory (SDT), this study examined gender latent mean differences in students’ perceptions of externally and internally controlling teaching behaviors, basic psychological need (BPN) frustration, controlled motivation, amotivation, and oppositional defiance in the physical education (PE) context. Moreover, it analyzed the differentiated role that internally and externally controlling behaviors play on these SDT-related variables among girls and boys. **Method:** A sample of 1118 students (Mage=14.11±1.50; 50.9% girls) participated in this research. A multigroup structural equation modeling approach was performed to respond the research questions. **Results:** Analyses revealed that girls reported more maladaptive outcomes in most SDT-related variables than boys. Although externally and internally controlling behaviors from PE teachers were positively related to maladaptive outcomes, both relate differently to boys and girls. **Conclusion:** Findings highlight the importance of reducing externally controlling behaviors in boys and internally controlling behaviors in both genders, but particularly in girls. **Keywords:** self-determination theory, need-thwarting teaching, motivation, basic psychological needs, sex.
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Introduction

One of the main goals of Physical Education (PE) is to develop physically literate students who have the knowledge, skills, and confidence to participate in healthy physical activity throughout life (SHAPE America– Society of Health and Physical Educators, 2014). Students’ positive experiences in PE have been identified as a key factor of the physical activity performed in and out of school (White et al., 2021). In contrast, negative experiences in PE are one of the main reasons for disengagement in PE lessons (Beltrán-Carrillo et al., 2012). Grounded in self-determination theory (SDT; Ryan & Deci, 2017), an important social-contextual factor that may influence students’ motivational experiences is teachers’ motivating style (Curran & Standage, 2017). Most previous studies have focused on the relationship between need-supportive behaviors of PE teachers and students’ motivational experiences so far (Lochbaum & Jean-Noel, 2016; Vasconcellos et al., 2020). However, little attention has been paid to the impact of teachers’ controlling behaviors, more specifically of its internal and external faces (De Meyer et al., 2016), on students’ negative motivational experiences in PE. This pathway is known in SDT as the dark side of motivation (Bartholomew et al., 2011).

On the other hand, gender differences have been found in motivational variables in PE (Chu et al., 2019; Koka & Sildala, 2018; Shen, 2015). As girls are not engaged at the same level as boys in PE lessons (Mitchell et al., 2015; White et al., 2021), further studies should consider a gender perspective in the relationship between teachers’ motivating style and students’ motivational outcomes in PE. Due to the lack of previous research, there is a need to consider gender when analyzing the associations of teachers’ internally and externally controlling behaviors on students’ motivational outcomes in PE lessons. It will allow to theoretically deepen in whether the relationship between the
variables integrated in the dark side of motivation postulated by SDT are associated in a similar or different way in boys and girls. Moreover, the identification of the consequences associated with an internally and externally controlling behavior, on both boys and girls, might be particularly useful to refrain from adopting controlling strategies when teaching students in PE lessons. Based on SDT (Ryan & Deci, 2017), the current research aspires to expand previous evidence by examining gender differences in the relationships between the internal and external faces of controlling behaviors of the teachers and students’ motivational outcomes in PE.

**Self-Determination Theory and Teachers’ (De)Motivating Styles**

Central to SDT is the assumption that interpersonal styles from socializing agents (e.g., teachers) can enhance individuals’ (e.g., students) motivation, behavior, and wellbeing, depending on the fulfillment of three basic psychological needs (BPN) (Ryan & Deci, 2017). In the context of school PE, one of the most important social-contextual factors that influence students’ motivational experiences is the teachers’ motivating styles (Curran & Standage, 2017; Vasconcellos et al., 2020; White et al., 2021). Consistent with SDT, PE teachers can adopt simultaneously two differentiated types of (de)motivating styles in terms of need-supportive behaviors and controlling behaviors in PE lessons (Ryan & Deci, 2017; Vansteenkiste et al., 2020).

The present study pays particular attention to controlling behaviors, which, compared to need-supportive behavior, have been notably less explored in PE. They refer to those teaching behaviors aiming to use pressuring strategies toward students to participate in learning activities in the way prescribed by the teacher (Reeve, 2009).

More particularly, SDT-based research currently emphasizes that a controlling teaching style can be manifested in an internally way (i.e., seeming student indifference by appealing to their feelings of self-worth) and in an externally way (i.e., use of
controlling language, yelling, pressure, and threats to students) (De Meyer et al., 2016; Soenens et al., 2012). While internal controlling strategies are usually displayed in a non-verbal way (e.g., withdrawing a student's attention because he or she does not meet the teacher's expectations), external controlling strategies are usually clearly visible to others (e.g., using phrases such as "should" and "must"). Regardless of the consequences associated with controlling teaching behaviors, the assumptions of SDT (Ryan & Deci, 2017; Vansteenkiste et al., 2020), suggest that controlling teaching styles have been directly and positively related to the students' frustration of the BPN for autonomy (i.e., feelings of external or self-imposed pressures), competence (i.e., feelings of inefficacy and failure), and relatedness (i.e., feelings of loneliness and social exclusion) of students, which, in turn, has been positively related to controlled motivation (i.e. participation in an activity due to external reasons such as avoidance of feelings of guilt or shame or to obtained rewards) and amotivation (i.e., the complete lack of volition to participate in an activity) in PE lessons. Although there is still little evidence in PE, a growing body of research (Curran & Standage, 2017; Vasconcellos et al., 2020) has revealed positive associations between students’ perceptions of controlling styles from their teacher and their BPN frustration, controlled motivation, amotivation, and several maladaptive consequences, including oppositional defiance towards the PE teacher (i.e., a defensive and compensatory way by the students to do the opposite of what the teachers expect; Haerens et al., 2015).

However, it is worth noting that the distinction between the internal and external faces of controlling behaviors from PE teachers has been rarely studied in PE. In this vein, one of the only two existing studies showed that while both controlling practices were strongly related to each other ($r = .54$), an empirical distinction between perceived internally and externally controlling teaching were identified as well. In particular, five
different profiles of perceived controlling teaching style were identified, with two
profiles being characterized by either high or low levels of externally and internally
controlling behaviors and other profiles displaying high or low levels of one of the types
of controlling teaching behaviors. These results support that, although PE teachers may
use both controlling practices in their instructional practice, it is also possible that only
one of them predominates in their lessons. In addition, these only two previous existing
studies also showed that, although both faces of controlling teaching behavior were
positively related to BPN frustration, controlled motivation, and amotivation, internally
controlling behaviors were more detrimental to students’ motivational outcomes
(Authors, xxxx; De Meyer et al., 2016). Further research is, therefore, required to
examine the consequences of these two faces of the controlling teaching style in boys
and girls.

Gender Differences in Students’ Motivational Processes Involved in PE Lessons

Previous SDT-research, conducted in the context of PE, has found inconsistent
results regarding the gender differences in students’ perceptions of teachers’ controlling
style and students’ motivational experiences. For instance, some prior studies reported
no differences between boys and girls in perceptions of controlling teaching (Behzadnia
et al., 2018; Koka & Sildala, 2018), BPN frustration (Haerens et al., 2015), controlled
motivation and amotivation (Behzadnia et al., 2018; Haerens et al., 2015; Ntoumanis,
2005). Conversely, other studies revealed that boys reported higher scores in controlling
teaching (Bartholomew et al., 2018; Burgueño & Medina-Casaubón, 2021; De Meyer et
al., 2014; Haerens et al., 2015), BPN frustration (Bartholomew et al., 2018; Behzadnia
et al., 2018), controlled motivation (Burgueño & Medina-Casaubón, 2021; De Meyer et
al., 2014; Ntoumanis, 2005), and oppositional defiance (Haerens et al., 2015). Girls, in
contrast, in other studies, reported higher values in amotivation (De Meyer et al., 2016;
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Johnson et al., 2011; Ntoumanis, 2005; Shen, 2015) and, more specifically, in competence need frustration (Burgueño & Medina-Casaubón, 2021).

Yet, SDT-based research examining the relationship of teachers’ controlling styles on motivational outcomes, considering the differentiated role of gender in this motivational process, is relatively scarce in PE. The Koka and Sildala's (2018) study was the only one found that analyzed the association of controlling behaviors from PE teachers and students’ amotivation in both boys and girls. Although this research did not consider the external and internal faces of controlling teaching (De Meyer et al., 2014), and only partially examined the dark side of motivation described by SDT (Ryan & Deci, 2017), it revealed that girls obtained a greater predictive effect in the relationships of two controlling teaching behaviors (i.e., perceive and conditional regard and intimidating behaviors) to amotivation, while boys showed a higher predictive capacity in the association of teachers’ controlling use of praise and amotivation (Koka & Sildala, 2018). Therefore, this previous study suggests that PE teachers' controlling behaviors could impact the motivational process of boys and girls differently.

However, there are no studies that have examined the extent to which internally and externally controlling behaviors from teachers may trigger different motivational processes between female and male students in the PE setting. From a theoretical perspective, examining the gender differences in the relationship between the variables integrated in the dark side of motivation, postulated by SDT, can help to better understand their functioning in boys and girls in PE. To obtain a better insight into the detrimental effects of internally and externally controlling teaching behaviors on boys’ and girls’ motivational experiences in PE, additional research is, therefore, required. This might help PE teachers to refrain from using controlling behaviors when teaching students, from a gender perspective.
Objectives and Hypotheses

To fill these gaps in the literature, the aim of this research is twofold. First, this study aims to identify any gender differences in students’ perceptions of internally and externally controlling behaviors from PE teachers, the frustration of the three BPNs, controlled motivation, amotivation, and oppositional defiance in PE. Due to inconsistent results regarding gender differences in SDT-related variables (i.e., internally and externally controlling behaviors, need frustration, controlled motivation, and amotivation), no hypothesis was formulated. Next, this study also aims to examine the extent to which internally and externally controlling teaching behaviors may have different effects on the frustration of each BPN (i.e., autonomy, competence, and relatedness), controlled motivation, amotivation, and oppositional defiance between girls and boys in PE lessons. We hypothesize that internally controlling behaviors will be more detrimental to students’ motivational outcomes than externally controlling behaviors (Authors, xxxx; De Meyer et al., 2016). In line with prior research (Koka & Sildala, 2018), we also postulate that the relationships of internally and externally controlling behaviors on students’ frustration of each BPN, controlled motivation, amotivation, and oppositional defiance towards their teacher in PE lessons would be different in boys and girls.

Methods

Participants and Setting

A convenience sample of 1153 coeducational secondary school students from five of the eight secondary schools in [details have been removed for peer review] (Spain) were invited to voluntarily participate in this cross-sectional study. After obtaining written informed consent from both adolescents and their parents, and removing invalid data (valid response rate: 97%), the final sample consisted of 1118
secondary school students ($M_{age}=14.11$, $SD=1.50$; 50.9% girls), who answered different validated questionnaires in PE. A paper-and-pencil survey was administered by the researchers in a quiet classroom environment without the presence of the PE teacher. The approximate time to complete the questionnaire was 15-20 minutes. Importantly, students' responses regarding internally and externally controlling behaviors were based on nine different PE teachers (eight men and one woman), in a range of approximately 125 students per teacher. Class size ranged from 20 to 32 students per class ($M=25$, $SD=2.85$). All students received two 50-minute coeducational lessons of PE per week. PE is a compulsory subject for all secondary school students in Spain. Generally, the PE teacher's annual program contains between 6 and 8 different teaching units per year. These teaching units correspond to different types of content (i.e., individual sports, cooperative games, outdoor activities, etc.), which are collected in the PE curriculum. Ethical approval for this study was obtained from the Ethics Committee of [details have been removed for peer review].

**Instruments**

Students completed a paper-and-pencil survey measuring different SDT-related variables in the context of PE (i.e., internally and externally controlling teaching behaviors, BPN frustration, controlled motivation, amotivation, and oppositional defiance). Unless otherwise noted, students were asked to rate their agreement with the items on a 5-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

**Internally and externally controlling teaching behaviors**

Students’ perceptions of internally and externally controlling teaching behaviors from the PE teacher were assessed using the Spanish version (Authors, xxxx) of a previously questionnaire developed by De Meyer et al. (2016).
my teacher…” was followed by 8 items that assessed: internally controlling behaviors (four items; e.g., “Pays less attention to me when I disappoint him/her”) and externally controlling behaviors (four items; e.g., “Yells when I am not doing what (s)he wants me to do”). In this study, the confirmatory factor analysis (CFA) showed a good fit to the data ($\chi^2 [19] = 76.29, p < .001; \text{CFI} = .976; \text{TLI} = .966; \text{RMSEA} = .078$), and the Cronbach alphas for internally and externally controlling behaviors were .81 and .93, respectively.

**Basic psychological need frustration**

Students’ perceptions of the frustration of the three BPN in PE were assessed using the Spanish version (Zamarripa et al., 2020) of the Basic Psychological Need Satisfaction and Frustration Scale validated in an educational context (BPNSNF) (Chen et al., 2015). This scale includes 12 items (four per need) that assess autonomy frustration (e.g., “I feel pressured to do too many things”), competence frustration (e.g., “I feel disappointed with many of my performance”), and relatedness frustration (e.g., “I feel that people who are important to me are cold and distant towards me”). In the current study, the CFA showed a good fit to the data ($\chi^2 [51] = 190.641, p < .001; \text{CFI} = .984; \text{TLI} = .979; \text{RMSEA} = .050$), and Cronbach’s alphas for autonomy, relatedness and competence frustration were .85, .89, and .90, respectively.

**Controlled motivation and amotivation**

Students’ perceptions of controlled motivation and amotivation in PE were assessed using the Spanish version of the Perceived Locus of Causality Scale (PLOC) (Ferriz et al., 2015). From the 24 items of this scale, in this study, we only measured the items (four items per factor) that reflect introjected regulation (e.g., “Because I want the others to think that I’m good”), external regulation (e.g., “So that the teacher won’t yell at me”), and amotivation (e.g., “But I really feel I’m wasting my time in PE”).
Following the stem: “I engage in PE lessons…” students were asked to rate each item on a 7-point scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”). Based on SDT and previous studies in PE (e.g., Haerens et al., 2015), average values of introjected and external regulations were used to calculate a composite variable of controlled motivation. In the present study, the CFA showed a good fit to the data ($\chi^2_{[53]} = 293.971, p < .001; \text{CFI} = .971; \text{TLI} = .962; \text{RMSEA} = .065$), and the Cronbach’s alphas for controlled motivation and amotivation were .88 and .92, respectively.

**Oppositional defiance**

Students' perceptions of oppositional defiance towards the PE teacher were measured using the Spanish validated version (Authors, yyyy) of a previously scale developed in the PE context (Haerens et al., 2015). The stem “In PE lessons…” was followed by four items that reflected students' tendencies to reject PE teacher’s authority (i.e., oppositional defiance) (e.g., “I sometimes think about completely ignoring what the PE teacher asks me to do”). In the current study, the CFA showed a good fit to the data ($\chi^2_{[2]} = 3.199, p < .05; \text{CFI} = .999; \text{TLI} = .996; \text{RMSEA} = .023$), and the Cronbach’s alpha was .72.

**Data Analysis**

Prior to the main analyses, CFA and Cronbach's alpha reliability of the study variables were performed. In addition, we also examined discriminant validity between internally and externally controlling behaviors via the heterotrait-monotrait (HTMT) ratio of correlations (Henseler et al., 2015), which is acceptable with values under .90, and via the Fornell and Larcker's (1981) criterion, which is acceptable when square root of the average variance extracted (AVE) for a target variable is greater than its correlations among other variables. Regarding the first aim, a multigroup (i.e., boys and girls) analysis was performed to determine if the measurement model was invariant.
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across gender. First, the measurement model for each group (i.e., boys and girls) was conducted, verifying that it fit well to the data. Second, configural, metric (i.e., factor loadings), strong (i.e., factor loadings and intercepts), and strict (i.e., factor loadings, intercepts, and uniquenesses) models of invariance were performed (Putnick & Bornstein, 2016). Each model was compared to the previous model by considering changes in the fit indices (Δ). Greater decreases than .010 in the comparative fit index (CFI) and in the Tucker-Lewis Index (TLI), and greater increases than .015 in the root mean square error of approximation (RMSEA) show a lack of invariance (Putnick & Bornstein, 2016). Third, only after obtaining a strong invariance in the multigroup model, latent mean differences between gender were compared. Consistent with Kline (2016), to compare latent mean between genders, the boys’ group latent mean was constrained to 0 and the latent means of the girls’ group was free to estimate. To determine if there was a statistical significance between the latent means of boys and girls, the z statistic was used.

Regarding the second aim, to investigate gender differences in the relationship between internally and externally controlling teaching styles and SDT dark-side variables in PE, a multigroup structural equation modeling (SEM) was conducted. To evaluate the model fit, the CFI, TLI, and RMSEA were selected. Higher values of .90 and .95 for CFI and TLI indicate good and excellent fit, respectively, whereas values of .08 and .06 or less for RMSEA indicate adequate and excellent fit, respectively (Marsh et al., 2004). In addition, point estimates and the 95% bias-corrected bootstrap confidence intervals (95% CI_{BC}) with 5000 bootstrap samples were calculated and reported for each of the proposed direct and indirect pathways (Hayes, 2013). Finally, the standardized regression weights of direct effects, specific indirect effects, total indirect effects, and explained variance ($R^2$) were reported. All models (i.e., CFA,
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measurement invariance, and SEM) were conducted using the maximum likelihood
(ML) estimator. Analyses were carried out using the statistical programs SPSS v.25 and
Mplus v8.0.

Results

Preliminary Results

Table 1 shows HTMT values less than .85 between internally and externally
controlling behaviors in boys and girls. Additionally, scores regarding square root of the
AVE were higher than the correlation in question in boys and girls. Taken together,
these results gathered evidence supporting discriminant validity between internally and
externally controlling behaviors.

<PLEASE, INSERT TABLE 1 ABOUT HERE>

The measurement model of the study variables showed acceptable fit to the data
both in boys ($\chi^2 = (630, n = 549) = 1886.324, p < .001; CFI = .905; TLI = .901$
RMSEA = .060; 90% CI = .057 – .063) and girls ($\chi^2 = (630, n = 569) = 1676.687, p <
.001; CFI = .932; TLI = .921; RMSEA = .054; 90% CI = .051 – .057$).

Subsequently, multigroup analysis of invariance revealed that the model was invariant
across gender since invariance assumptions were meet (see Table 2). Particularly, all
measurement invariance models indicated acceptable fit indices and none of the four
steps fell below the recommended guidelines ($\Delta$CFI and $\Delta$TLI > .010; $\Delta$RMSEA ≥
.015).

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Gender Differences in Study Variables

Based on the establishment of the full strong invariance across gender, we can
compare the latent mean differences between boys and girls in study variables. As
observed on the left part of Table 3, findings of the latent mean comparisons between

genders showed girls obtained significantly higher scores than boys in autonomy need
frustration, competence need frustration, controlled motivation, and amotivation. No
significant differences in students' perceptions of internally and externally controlling
teaching style, in relatedness need frustration, nor in oppositional defiance were found.

Gender Differences in the Associations of Internally and Externally Controlling
Behaviors on Students’ Motivational Outcomes

A multigroup SEM including indirect paths from internally and externally
controlling behaviors, through the frustration of the three BPN, toward controlled
motivation, amotivation, and oppositional defiance, was estimated, displaying good fit
to the data ($\chi^2 (1328, n = 1118; 549 \text{ boys}) = 4132.75, p < .001; \text{CFI} = .903; \text{TLI} = .900;$
RMSEA = .061; 90% CI = .059 – .064). Additionally, a direct path from internally and
externally controlling behaviors to oppositional defiance was included in that model
after observed high modification indices. All these directs and indirect effects and their
bias-corrected bootstrap confidence intervals are reported in Table 4, and are shown
graphically in Figure 1.

As observed in Figure 1, the independent variables of the model (i.e., internally
and externally controlling behaviors) were positively correlated with each other in both
genders. Internally controlling behaviors positively predicted autonomy, competence,
relatedness frustration, and oppositional defiance for both girls and boys. Importantly,
all these direct effects were higher for girls. In contrast, externally controlling behaviors
positively predicted autonomy, competence, and relatedness frustration only for boys,
and oppositional defiance only for girls. The relationships between BPN frustration and
controlled motivation, amotivation, and oppositional defiance, were slightly different between boys and girls. Autonomy frustration positively predicted amotivation in both genders. Yet, only for girls, autonomy frustration positively predicted controlled motivation. In addition, competence frustration positively predicted controlled motivation and amotivation in boys, but only positively predicted controlled motivation in girls. Relatedness frustration positively predicted controlled motivation in boys and amotivation in girls. Finally, competence frustration positively predicted oppositional defiance only for boys.

With regard to indirect effects, internally controlling behaviors displayed indirect effects on controlled motivation through autonomy and competence frustration in girls. Yet, these indirect effects were not found for boys. In addition, in both genders, no indirect effects were found between externally controlling teaching style and controlled motivation. Moreover, internally controlling behaviors displayed indirect effects on amotivation through autonomy frustration in both genders, and through competence frustration only for boys. As occurred with controlled motivation, no indirect effects were found between externally controlling teaching style and amotivation in both genders. Finally, no indirect effects were found between internally and externally controlling style and oppositional defiance in both genders.

**Discussion**

The purpose of this research was twofold. Grounded in SDT, the first of them was to identify any gender differences in students’ perceptions of internally and externally controlling behaviors from their PE teacher, the frustration of the three BPN, controlled motivation, amotivation, and oppositional defiance in PE. The second and main objective of this study was to examine the differentiated role that internally and
externally controlling behaviors play on SDT-related variables between girls and boys in PE. The main findings of this study revealed that 1) while no gender differences in students’ perceptions of internally and externally controlling behaviors were found, the consequences of using both demotivating styles were differently associated in boys and girls; 2) internally controlling behaviors were more detrimental to maladaptive motivational outcomes, especially in girls; 3) although externally controlling behaviors seem to have relatively less detrimental direct effects on students’ need frustration, it is important that PE teachers avoid these practices in boys; 4) autonomy frustration was the most closely and positively BPN related to controlled motivation and amotivation in girls, while competence frustration was in boys; and 5) students’ tendency to oppose the teacher’s authority was a more direct outcome of perceiving controlling behaviors, especially internally controlling behaviors.

Regarding the first objective, our results showed no gender differences in students’ perceptions of internally and externally controlling behaviors from the PE teachers. However, girls reported significantly higher perceptions of autonomy and competence frustration, controlled motivation, and amotivation than boys. Consistent with our results, Koka and Sildala (2018) found no gender differences in controlling teaching behaviors, but higher values of amotivation were perceived by girls. Yet, with the exception of the study of Koka and Sildala (2018), our results are not completely in line with the few existing previous studies in PE. Contrary to our findings, Bartholomew et al. (2018), De Meyer et al. (2016), and Haerens et al. (2015) reported that boys perceived significantly higher values in controlling teaching behaviors than girls. Nevertheless, it should be noted that all the aforementioned studies, with the only exception of De Meyer et al. (2016), had either measured controlling behaviors from PE teachers in an undifferentiated way or had focused on one particular feature of
controlling style (i.e., externally controlling behaviors or internally controlling behaviors). Further qualitative studies are required to find out more about why some studies found gender differences in students’ perceptions of controlling behaviors from their PE teacher and others not. Contrary to our results, Burgueño and Medina-Casaubón (2020), De Meyer et al. (2016), and Haerens et al. (2015) reported that boys perceived significantly higher values in controlled motivation, while Bartholomew et al. (2018) showed that girls perceived less need frustration and amotivation than boys in PE. One finding that was common among most of the previous studies (De Meyer et al., 2016; Haerens et al., 2015; Koka & Sildala, 2018) and the present research was that girls reported significantly higher values in amotivation than boys in PE. A possible explanation of these findings could be that girls, compared to boys, usually perceive lower values of competence (Mitchell et al., 2015), provide a lower value for the tasks, and have less interest in PE activities (Shen, 2015), which are factors closely linked with the concept of amotivation proposed by SDT (Ryan & Deci, 2017).

Regarding the second aim, our results are consistent with previous literature in the context of PE, indicating that the exposure to controlling teaching environments is associated with experiences of need frustration among students which, in turn, relates to less self-determined forms of motivation and maladaptive outcomes (Bartholomew et al., 2018; Behzadnia et al., 2018; Haerens et al., 2015). It must be noted that although both controlling practices were strongly related to each other in this study ($r = .64$), a distinction between perceived internally and externally controlling teaching were found across evidence of discriminant validity. Consistent with De Meyer et al. (2016), this result suggests that although some teachers may use both controlling practices in their instructional practice, others use only one of the two controlling behaviors predominantly. Perhaps internally controlling behaviors could emerge in PE teachers
when externally controlling behaviors do not work with students and, therefore, it is common for some PE teachers to use them in combination. Moreover, our results are in line with a previous study conducted by De Meyer et al. (2016), which showed that, although both faces of controlling style are associated with students’ maladaptive outcomes in PE lessons, internally controlling behaviors from PE teachers are more detrimental. A possible justification would rest on the fact that when students perceive that their teacher more frequently adopts covert ways of internally controlling behaviors (e.g., guilt-induction, withdrawal of attention, or facial and verbal expressions of disappointment) than overt ways of externally controlling behaviors (e.g., yelling, threats or coercive language), they will likely feel more pressured to participate in the lessons (i.e., autonomy frustration), more inefficient to perform the activities (i.e., competence frustration), and more socially excluded from their peer group (i.e., relatedness frustration).

With regard to gender inspection, consistent with our research, Koka and Sildala (2018) also found that the different faces of teachers’ controlling behaviors were related to girls’ and boys’ amotivation differently. Several explanations could be given to explain these gender differences. Firstly, as boys reported more disruptive behaviors than girls in PE lessons (Garn et al., 2011; Granero-Gallegos et al., 2020), externally controlling behaviors provided by PE teachers to all class members could be more internalized in boys and, consequently, lead to the frustration of their BPN. However, girls may interpret externally controlling strategies in a relatively less straightforward manner because they know that these practices are particularly related to boys’ misbehavior. This justification should be interpreted with caution because externally controlling behaviors were also significantly and positively related to oppositional defiance in girls. Secondly, the fact that PE teachers interact more with boys than girls
Controlling teaching behaviors in PE could explain those internally controlling behaviors may be slightly more detrimental to girls. Withdrawal of attention from PE teachers could mean that girls feel more ignored, invisible, and unvalued compared to boys (Mitchell et al., 2015; Shen, 2015). Given gender differences in personality traits could play an important role in girls’ and boys’ perceptions of internally and externally controlling strategies (Lippa, 2010; Thomas et al., 2020), future studies should include students’ personality traits in the hypothetical model.

Furthermore, the findings of this research also align with the previous studies in the PE setting (Bartholomew et al., 2018; Behzadnia et al., 2018; Haerens et al., 2015), in the sense that the students’ perception of BPN frustration was primarily related to controlled motivation and amotivation, although gender differences were firstly reported. Particularly, in our study, autonomy frustration was the most closely and positively BPN related to controlled motivation and amotivation in girls, while competence frustration was in boys. A plausible explanation might lie in the fact that boys and girls have distinct conceptualizations that differentially guide their motivational processes in PE (Corr et al., 2019; Garn et al., 2011). While boys are more likely to understand PE as a subject to display competence and physical superiority, girls tend to conceive PE as a choice for learning and socialization (Garn et al., 2011). This would suggest that when boys perceived their competence as being frustrated, they would participate in PE lessons by controlled reasons (e.g., getting good grades) or for any intrinsic or extrinsic reason (e.g., not valuing the subject). Instead, girls would adopt behaviors guided by controlled or amotivated reasons in the PE lesson, when they perceive autonomy as frustrated.

In addition, our results are in line with previous studies in the PE context (Haerens et al., 2015), demonstrating that students’ tendency to oppose the teacher’s
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authority was a more direct outcome of perceiving controlling teaching behaviors, especially the internal face. There are several plausible explanations for these findings. Firstly, teachers’ externally controlling behaviors were only associated with oppositional defiance in girls, suggesting that they were more likely to rebel against their PE teacher when (s)he makes use of a controlling language, threats, and shouts. Instead, boys seem to have well-normalized externally controlling teaching behaviors in PE lessons, which could explain why this type of controlling strategies was not related to oppositional defiance in boys. Indeed, boys could interpret that the teachers who used externally controlling behaviors are more involved because they make greater efforts into the lesson and are more engaged with the teaching and learning process. Secondly, internally controlling behaviors were more strongly associated with oppositional defiance both in boys and girls. Maybe as internally controlling behaviors (e.g., withdrawal of attention, facial or verbal display of deception, or being less friendly) are less normalized in PE lessons, they could have a greater tendency to oppose their teacher’s authority by feeling personally rejected or disapproved by their teacher.

Although this direct relationship would suppose an impulsive desire to oppose the teacher in boys and girls, boys also developed a more reflective process via need frustration. This process would imply that, particularly, boys decide to rebel against their teacher, in a relatively conscious way, after being exposed for a long time of internally controlling practices, entailing an accumulation of autonomy frustration experiences.

Implications for Practice

The results from the present research suggest that when PE teachers adopt externally and, more particularly, internally controlling behaviors, their students’ will experience a frustration of their BPN, which, in turn, will be associated with
maladaptive outcomes such as controlled motivation, amotivation, and oppositional
defiance. In light of our results, there is a primary need to develop continuous training
programs that help in-service teachers reduce their internally and externally controlling
practices to their students during PE lessons. Given previous studies have suggested that
need-supportive behaviors do not act as a buffer against the detrimental effects of this
type of controlling behaviors (Haerens et al., 2018), it is important to make teachers
aware of the detrimental effects of controlling practices on students’ motivational
experiences to reduce or avoid them. Some of the internally and externally controlling
behaviors that can be commonly observed in PE are identified below so that teachers
can avoid their use. The teacher who uses externally controlling behaviors adopt
strategies such as: 1) punishment for misbehavior, 2) threatening to give bad grades or
sanctions when the proposed tasks are not performed well, 3) threatening with a more
monotonous or boring type of activities, 4) yelling, and 5) using a controlling language
with phrases such as "you should” and “you must” (De Meyer et al., 2016). The teacher
who uses externally controlling behaviors adopt strategies such as: 1) showing an
apathetic or distant attitude, 2) withdrawal of attention, 3) making the student feel
guilty, and 4) showing visible feelings of disappointment (De Meyer et al., 2016). In
addition, it seems also recommendable that teachers reflect deeply upon how their
teaching behaviors might be perceived by students. In this sense, although teachers do
not intentionally use neither internally nor externally controlling behaviors, they might
be perceived as controlling by students, fostering maladaptive motivational experiences
in PE lessons. To illustrate, there are class dynamics such as the creation of groups for
an activity, where the teacher can use different controlling strategies. For example, the
PE teacher establishes a deadline to have made four groups and counts down aloud
(externally controlling behaviors), while students are creating the groups, making them
feel their autonomy frustrated and their behavior motivated in a controlled way.

Similarly, the PE teacher does not assign some students to any group because they perceive that they are not going to work. By ignoring them and withdrawing their attention (internally controlling behaviors), these students would likely feel their BPNs as more frustrated.

Considering gender differences in the association of controlling behaviors and maladaptive outcomes, PE teachers should reduce internally controlling behaviors in both genders, but particularly in girls, and externally controlling behaviors in boys.

Understanding the male and female students’ motivational processes involved in PE lessons could help teachers not only to refrain from using controlling strategies, especially the strategies that are most detrimental to each gender, but also to be more need-supportive toward boys and girls through the use of teaching behaviors such as the use of an informational and noncontrolling language, the creation of opportunities for students input and initiative, enough time for self-paced learning, and the acknowledgment of expression of negative affect in the PE lesson (Reeve, 2009).

**Limitations and Directions for Future Research**

It should be noted that this research has a number of limitations. Firstly, the use of a non-probabilistic sampling method suggests that the results should be taken with caution and, therefore, these findings cannot be generalized. Future studies are, thus, needed to investigate whether the relationships of controlling teaching behaviors with boys’ and girls’ motivational experiences would vary across other educational levels, as well as other social and cultural contexts. A second limitation may be the only use of a self-reported questionnaire to measure internally and externally controlling behaviors from PE teachers. Complementary observational measures to self-reported questionnaires should be required to provide a better insight into the relationships of the
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two faces of teachers’ controlling behaviors with male and female students’ bright (i.e., BPN satisfaction, autonomous motivation) and dark (i.e., BPN frustration, controlled motivation and amotivation) motivational experiences in PE (De Meyer et al., 2014). As a third limitation, this research relied on the theoretical distinction between the internal and external faces of teachers’ controlling behaviors proposed by SDT (Reeve, 2009; Ryan, 1982; Ryan & Deci, 2019); there might be, however, another approaches to measuring teachers’ controlling behaviors (e.g., Koka & Sildala, 2018). A fourth limitation would be that, although the hypothetical model was based on the SDT’s tenets, causal inferences cannot be made given the cross-sectional nature of this study. Further longitudinal and experimental research is required to confirm the direction of causality between these SDT-related variables.

Conclusions

This study adds evidence to a very small body of research in the PE field, demonstrating that, although no gender differences in students’ perceptions of internally and externally controlling behaviors were found, the consequences of using both controlling behaviors could differently affect boys’ and girls’ maladaptive motivational experiences in PE. Taking together, the results of this study suggested that, although both faces of controlling teaching style were related to students’ maladaptive motivational experiences in PE, the internal face of controlling style was more strongly associated with BPN frustration, controlled motivation, amotivation, and oppositional defiance, particularly in girls. Results also suggest that, although externally controlling behaviors seem to have relatively less detrimental direct effects on students’ need frustration, it is important that PE teachers avoid these practices in boys. Broadly speaking, the findings recommend that both initial education programs for preservice PE teachers and continuous professional development programs for in-service teachers
Controlling teaching behaviors in PE

should train teachers to become less controlling towards their students (Reeve, 2009).

Indeed, these findings suggest that PE teachers should be aware of the risks associated
with internally and externally controlling behaviors on boys’ and girls’ maladaptive
motivational experiences in PE lessons.

References

Authors (xxxx).

Authors (yyyy).

Bartholomew, K. J., Ntoumanis, N., Mouratidis, A., Katartzi, E., Thogersen-Ntoumani,
investigation of controlling teaching and student motivational experiences.
Learning and Instruction, 53, 50–63.
https://doi.org/10.1016/J.LEARNINSTRUC.2017.07.006

determination theory and diminished functioning: The role of interpersonal control
and psychological need thwarting. Sport & Exercise Psychology Review, 7(2), 23–
27.

between students’ perceptions of physical education teachers’ interpersonal styles
and students’ wellness, knowledge, performance, and intentions to persist at
physical activity: A self-determination theory approach. Psychology of Sport and
Exercise, 39, 10–19. https://doi.org/10.1016/j.psychsport.2018.07.003

When physical activity participation promotes inactivity: Negative experiences of
Spanish adolescents in physical education and sport. Youth and Society, 44(1), 3–
27. https://doi.org/10.1177/0044118X10388262
Controlling teaching behaviors in PE


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Controlling teaching behaviors in PE

support and control: identifying the most optimal motivating style. Physical Education and Sport Pedagogy, 23(1), 16–36.

https://doi.org/10.1080/17408989.2017.1346070


https://doi.org/10.1007/s11747-014-0403-8


https://doi.org/10.1123/jtpe.30.3.281


https://doi.org/10.1123/jtpe.2017-0199


https://doi.org/10.1111/j.1751-9004.2010.00320.x

Controlling teaching behaviors in PE

226–244. https://doi.org/10.5232/ricyde2016.04302


Reeve, J. (2009). Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive. Educational Psychologist, 44(3), 159–175. https://doi.org/10.1080/00461520903028990

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https://doi.org/10.7202/1041847ar


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Table 1

Discriminant validity between internally and externally controlling behaviors

<table>
<thead>
<tr>
<th></th>
<th>Girls</th>
<th></th>
<th></th>
<th></th>
<th>Boys</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AVE</td>
<td>√AVE</td>
<td>1</td>
<td>2</td>
<td>AVE</td>
<td>√AVE</td>
<td>1</td>
</tr>
<tr>
<td>1. Internally controlling behaviors</td>
<td>.54</td>
<td>.73</td>
<td>-</td>
<td>.64</td>
<td>.64</td>
<td>.80</td>
<td>-</td>
</tr>
<tr>
<td>2. Externally controlling behaviors</td>
<td>.61</td>
<td>.78</td>
<td>.73</td>
<td>-</td>
<td>.67</td>
<td>.82</td>
<td>.77</td>
</tr>
</tbody>
</table>

Note: AVE = Average variance extracted; Numbers above diagonal display correlations, while bold numbers below diagonal show heterotrait-monotrait (HTMT) ratio of correlations
### Table 2

**Multigroup invariance across gender of the measurement model**

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$ (df)</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA [90% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1. Configural invariance</td>
<td>3563.32 (1260)</td>
<td>0.920</td>
<td>0.911</td>
<td>0.057 [0.055-0.060]</td>
</tr>
<tr>
<td>M2. Weak invariance</td>
<td>3636.24 (1290)</td>
<td>0.919</td>
<td>0.911</td>
<td>0.057 [0.055-0.059]</td>
</tr>
<tr>
<td>M3. Strong invariance</td>
<td>3686.50 (1320)</td>
<td>0.916</td>
<td>0.912</td>
<td>0.057 [0.055-0.059]</td>
</tr>
<tr>
<td>M4. Strict invariance</td>
<td>4071.35 (1360)</td>
<td>0.907</td>
<td>0.903</td>
<td>0.060 [0.058-0.062]</td>
</tr>
</tbody>
</table>

*Note: $\chi^2$=Scaled chi-square test of exact fit; df=Degrees of freedom; CFI=Comparative fit index; TLI=Tucker-Lewis index; RMSEA=Root mean square error of approximation; RMSEA [90% CI]=90% Confidence interval of the RMSEA; CM=Comparison model; $\Delta$=Change in fit information relative to the CM.*
### Table 3

Latent mean differences and latent correlations between study variables by gender

<table>
<thead>
<tr>
<th></th>
<th>Mean boys (n = 549)</th>
<th>Mean girls (n = 569)</th>
<th>Difference</th>
<th>z-value</th>
<th>p</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Internally controlling</td>
<td>1.98</td>
<td>1.99</td>
<td>-0.01</td>
<td>1.27</td>
<td>.202</td>
<td>-</td>
<td>.64</td>
<td>.39</td>
<td>.32</td>
<td>.30</td>
<td>.34</td>
<td>.38</td>
<td>.61</td>
</tr>
<tr>
<td>2. Externally controlling</td>
<td>2.09</td>
<td>2.17</td>
<td>-0.08</td>
<td>0.28</td>
<td>.776</td>
<td>.74</td>
<td>-</td>
<td>.33</td>
<td>.27</td>
<td>.29</td>
<td>.29</td>
<td>.25</td>
<td>.49</td>
</tr>
<tr>
<td>3. Autonomy frustration</td>
<td>2.31</td>
<td>2.56</td>
<td>-0.25</td>
<td>3.70***</td>
<td>.001</td>
<td>.55</td>
<td>.45</td>
<td>-</td>
<td>.47</td>
<td>.46</td>
<td>.24</td>
<td>.43</td>
<td>.36</td>
</tr>
<tr>
<td>4. Competence frustration</td>
<td>1.76</td>
<td>2.16</td>
<td>-0.40</td>
<td>6.04***</td>
<td>.001</td>
<td>.46</td>
<td>.39</td>
<td>.67</td>
<td>-</td>
<td>.54</td>
<td>.31</td>
<td>.42</td>
<td>.38</td>
</tr>
<tr>
<td>5. Relatedness frustration</td>
<td>1.52</td>
<td>1.58</td>
<td>-0.06</td>
<td>1.00</td>
<td>.313</td>
<td>.34</td>
<td>.29</td>
<td>.49</td>
<td>.60</td>
<td>-</td>
<td>.27</td>
<td>.37</td>
<td>.34</td>
</tr>
<tr>
<td>6. Controlled motivation</td>
<td>3.31</td>
<td>3.73</td>
<td>-0.42</td>
<td>2.58**</td>
<td>.010</td>
<td>.41</td>
<td>.37</td>
<td>.45</td>
<td>.44</td>
<td>.37</td>
<td>-</td>
<td>.26</td>
<td>.36</td>
</tr>
<tr>
<td>7. Amotivation</td>
<td>1.79</td>
<td>2.37</td>
<td>-0.58</td>
<td>6.34***</td>
<td>.001</td>
<td>.57</td>
<td>.49</td>
<td>.65</td>
<td>.54</td>
<td>.46</td>
<td>.37</td>
<td>-</td>
<td>.48</td>
</tr>
<tr>
<td>8. Oppositional defiance</td>
<td>1.86</td>
<td>1.97</td>
<td>-0.11</td>
<td>1.61</td>
<td>.107</td>
<td>.60</td>
<td>.57</td>
<td>.41</td>
<td>.39</td>
<td>.25</td>
<td>.31</td>
<td>.43</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note: Latent correlations for boys are shown above the diagonal and correlations for girls are shown below the diagonal. All correlations were significant at the level p<.001.*
### Table 4

Direct and indirect effect of internally and externally controlling behaviors and autonomy, competence, and relatedness frustration on motivational outcomes

<table>
<thead>
<tr>
<th></th>
<th>β-coefficient (SE)</th>
<th>p-values</th>
<th>[95% Cl Inc]</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
</tr>
<tr>
<td>Direct effects on autonomy frustration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internally controlling</td>
<td>.31 (.07)</td>
<td>.48 (.07)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Externally controlling</td>
<td>.14 (.07)</td>
<td>.12 (.07)</td>
<td>.058</td>
</tr>
<tr>
<td>Direct effects on competence frustration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internally controlling</td>
<td>.27 (.07)</td>
<td>.41 (.07)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Externally controlling</td>
<td>.12 (.07)</td>
<td>.12 (.08)</td>
<td>.067</td>
</tr>
<tr>
<td>Direct effects on relatedness frustration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internally controlling</td>
<td>.20 (.07)</td>
<td>.29 (.07)</td>
<td>.009</td>
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<tr>
<td>Externally controlling</td>
<td>.16 (.07)</td>
<td>.08 (.09)</td>
<td>.029</td>
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<tr>
<td>Direct effects on controlled motivation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy frustration</td>
<td>.08 (.07)</td>
<td>.26 (.12)</td>
<td>.026</td>
</tr>
<tr>
<td>Competence frustration</td>
<td>.21 (.06)</td>
<td>.22 (.16)</td>
<td>.005</td>
</tr>
<tr>
<td>Relatedness frustration</td>
<td>.14 (.06)</td>
<td>.12 (.09)</td>
<td>.043</td>
</tr>
<tr>
<td>Direct effects on amotivation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy frustration</td>
<td>.27 (.07)</td>
<td>.50 (.11)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Competence frustration</td>
<td>.25 (.07)</td>
<td>.14 (.15)</td>
<td>.001</td>
</tr>
<tr>
<td>Relatedness frustration</td>
<td>.11 (.07)</td>
<td>.12 (.08)</td>
<td>.153</td>
</tr>
<tr>
<td>Direct effects on oppositional defiance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internally controlling</td>
<td>.59 (.10)</td>
<td>.54 (.09)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Externally controlling</td>
<td>.03 (.09)</td>
<td>.18 (.09)</td>
<td>.717</td>
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<tr>
<td>Autonomy frustration</td>
<td>.01 (.07)</td>
<td>-.02 (.11)</td>
<td>.683</td>
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<tr>
<td>Competence frustration</td>
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<td>.12 (.16)</td>
<td>.074</td>
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<tr>
<td>Relatedness frustration</td>
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<td>-.04 (.09)</td>
<td>.386</td>
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<td>Indirect effects of internally controlling style on controlled motivation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total indirect</td>
<td>.10 (.03)</td>
<td>.25 (.05)</td>
<td>.001</td>
</tr>
<tr>
<td>Autonomy frustration</td>
<td>.02 (.02)</td>
<td>.13 (.06)</td>
<td>.316</td>
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<td>.09 (.08)</td>
<td>.052</td>
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<td>Relatedness frustration</td>
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<td>.162</td>
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<td>Indirect effects of externally controlling style on controlled motivation</td>
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<tr>
<td>Total indirect</td>
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<td>.07 (.04)</td>
<td>.031</td>
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<tr>
<td>Autonomy frustration</td>
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<td>.02 (.01)</td>
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<tr>
<td>Relatedness frustration</td>
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<td>.01 (.01)</td>
<td>.155</td>
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<tr>
<td>Indirect effects of internally controlling style on amotivation</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total indirect</td>
<td>.17 (.04)</td>
<td>.33 (.06)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Autonomy frustration</td>
<td>.08 (.03)</td>
<td>.24 (.07)</td>
<td>.020</td>
</tr>
<tr>
<td>Competence frustration</td>
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<td>.06 (.07)</td>
<td>.035</td>
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<tr>
<td>Relatedness frustration</td>
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<td>.303</td>
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<td>Indirect effects of externally controlling style on amotivation</td>
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<td>Total indirect</td>
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<tr>
<td>Relatedness frustration</td>
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<tr>
<td>Indirect effects of internally controlling style on oppositional defiance</td>
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<tr>
<td>Total indirect</td>
<td>.06 (.02)</td>
<td>.02 (.03)</td>
<td>.028</td>
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<td>-.01 (.05)</td>
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<td>.04 (.07)</td>
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<tr>
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<td>.425</td>
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<tr>
<td>Indirect effects of externally controlling style on oppositional defiance</td>
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<td>.01 (.01)</td>
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<tr>
<td>Relatedness frustration</td>
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<td>-.01 (.01)</td>
<td>.462</td>
</tr>
</tbody>
</table>

Note: 95% Cl Inc = 95% biased-corrected bootstrap confidence intervals. SE = Standard error. Significant effects are highlighted in bold. ** p < .01; * p < .05; † p > .05 but 95% Cl Inc but do not contain 0.