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# Directly controlling teacher behaviors as predictors of poor motivation and engagement in girls and boys: The role of anger and anxiety

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## Abstract

We focused on potential effects of directly controlling teacher behaviors (DCTB), such as giving frequent directives, interfering with children's preferred pace of learning, and not allowing critical and independent opinions. We hypothesized that children's perceptions of their teachers as directly controlling would arouse anger and anxiety in children, and these emotions would enhance a-motivation and extrinsic motivation, which, respectively, would undermine intensive academic engagement and promote restricted engagement. Three hundred and nineteen Israeli 4th–5th graders completed questionnaires assessing the variables of interest. The extent to which children showed intensive academic engagement was assessed by their primary teachers. Path analyses supported the expected relations. DCTB appear particularly harmful because they lead to a-motivation that is intertwined with anger and anxiety.

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*Keywords:* Autonomy support; Control; Emotion; Motivation; Gender differences; Teachers' behavior; Engagement

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## 1. Introduction

Many theorists concerned with promoting students' learning and well-being have assumed that autonomy suppressing educator's behaviors have detrimental

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effects on children's development (e.g., Maehr & Midgley, 1996). According to self-determination theory (SDT, Ryan & Deci, 2000), the term need for autonomy refers to the striving to realize one's authentic self, as reflected in one's basic needs and self-chosen values, interests and goals. SDT in particular has emphasized the negative impact of controlling adult behaviors (e.g., Grolnick, Deci, & Ryan, 1997).

Experimental laboratory research guided by SDT has examined many controlling behaviors, and has demonstrated that controlling behaviors such as imposing deadlines, surveillance, and giving directives undermine intrinsic motivation (e.g., Deci, Ryan, & Williams, 1996). Non-experimental research on controlling behaviors of teachers and parents has typically combined various autonomy enhancing and suppressive practices into one composite variable named autonomy support (e.g., Skinner & Belmont, 1993; Vallerand, Fortier, & Guay, 1997). It has also contrasted the effects of autonomy enhancing versus controlling teachers on students (Deci, Nezlek, & Sheinman, 1981; Deci, Schwartz, Sheinman, & Ryan, 1981; Grolnick & Ryan, 1987; Reeve, 2002).

The treatment of autonomy enhancing and controlling teacher behaviors as reflecting different levels of autonomy support has yielded important findings (e.g., Deci et al., 1996). Yet, research by Assor and his colleagues (Assor & Kaplan, 2001; Assor, Kaplan, & Roth, 2002) suggests that children clearly distinguish between autonomy enhancing and directly controlling teacher behaviors, and these different types of behaviors tend to have very low (negative) correlations among them, as well as differential correlates in terms of student outcomes.

The term directly controlling teacher behaviors refers to explicit attempts to fully and instantly change the behaviors children presently engage in or the opinions they hold. This is in contrast to more implicit and subtle forms of control in which adults gradually influence children by offering or withdrawing material or emotional rewards (e.g., Assor, Roth, & Deci, 2004; Deci et al., 1996). The category of directly controlling teacher behaviors (DCTB) includes behaviors such as not letting children work at their preferred pace, continually giving directives to children, or not allowing children to voice opinions that differ from those expressed by the teacher. DCTB can stem from multiple sources, including controlling principal behavior or organizational context, students' behavior, and teachers' personal dispositions (e.g., Deci, Schwartz et al., 1981; Deci, Speigel, Ryan, Koestner, & Kauffman, 1982; Ryan & Deci, 2000).

Assor and Kaplan (2001) contrasted DCTB with autonomy supportive teacher behaviors involving the provision of choice, explanation of relevance and acceptance of criticism as predictors of student emotions while studying. They found that DCTB predicted mainly negative students' feelings during learning, whereas autonomy supportive behaviors predicted mainly positive feelings.

Given the paucity of research on the unique effects of naturally-occurring controlling teacher behaviors (as distinct from autonomy enhancing teacher behaviors) and the possibility that directly controlling behaviors might be particularly harmful to students, the aim of the present research was to explore potential student outcomes of DCTB. In particular, we were interested in the emotional and motivational processes through which DCTB affect students' academic behavior (i.e., students' mode of academic engagement).

Finally, given claims that girls are socialized to respond in a more accommodative way to parents' and teachers' directives than are boys (e.g., Lindsey, Mize, & Pettit, 1997; Maccoby, 1998) we compared the correlates of DCTB in boys and girls. As we consider the need for autonomy to be important for both boys and girls, we predicted that DCTB would have negative correlates across gender.

### 1.1. Processes mediating the effects of DCTB on students' academic engagement

#### 1.1.1. Intensive and restricted styles of engagement in learning

Based on SDT (Ryan & Deci, 2000), it can be assumed that directly controlling teacher behaviors (DCTB) have at least two types of effects on students' behavioral engagement in learning. First, because directly controlling practices undermine students' sense of autonomy, these practices tend to hinder intensive engagement in learning that is characterized by a great deal of effort and persistence. Second, because students exposed to DCTB might feel that it is too risky to openly resist the academic pressures of their highly controlling teachers, they might appear to comply and show some form of academic engagement, but this engagement would have a restricted and superficial quality. This restricted engagement style is manifested in students' inclination to invest effort and to study only subjects that are required by the teacher.

Fig. 1 presents a model of the emotional processes through which DCTB undermine intensive academic engagement, while, at the same time, promote restricted academic engagement.

The model is based on what is often termed a functional conception of emotion (e.g., Buck, 1988; Frijda, 1999; Lazarus, 1991; Saarni, Mumme, & Campos, 1998) and on SDT (Deci & Ryan, 2000) which posits that autonomy is a basic human need whose frustration generates strong negative emotions. Because the need for autonomy is assumed to be universal, we expected that the model would be replicated across different levels of perceived academic competence. We will now explain the constructs and the relations among them, as presented in Fig. 1.

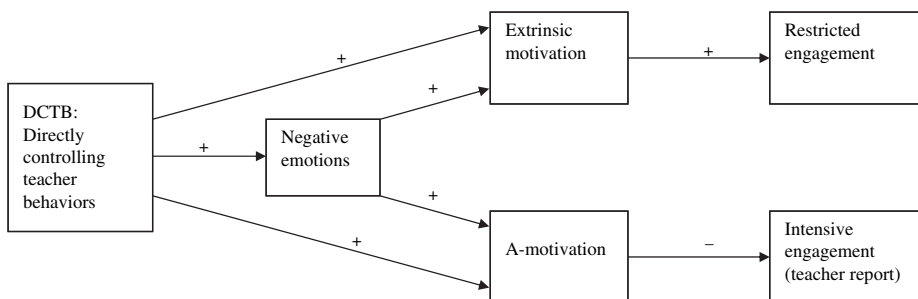


Fig. 1. Emotions and motivational orientations as mediators of the effects of directly controlling teacher behaviors on students' academic engagement.

### 1.1.2. Emotions as mediators of the effects of need gratification and frustration on motivational orientations and behavior

Buck (1988) posited that: “emotion is the readout of the motivational state — a running ‘progress report’ of the state of motivational systems that informs the appropriate response apparatus” (p. 23). Frijda (1999) states that “affect and arousal signal that a motivationally relevant event has occurred, and whether it appears relevant in a beneficial or harmful way” (pp. 203–204). Many other researchers also view emotions as providing important information regarding the extent to which a certain event, person or situation undermines or promotes the attainment of personally important goals or motivational states (e.g., Assor, Aronoff, & Messe, 1986; Lazarus, 1991; Saarni et al., 1998).

Following the view of emotions as conveying important motivational information, we assumed that directly controlling teacher behaviors (DCTB) arouse negative emotions in students, and these emotions then act as internal signals that enhance students’ tendency to develop extrinsic motivation or a-motivation, which in turn lead to poor engagement styles.

As will be explained later on, we do not posit that negative emotions must be experienced so that students develop extrinsic motivation or a-motivation in response to the directly controlling teachers. However, we do assume that these emotions greatly enhance the intensity of the thoughts and intentions characterizing extrinsic motivation and a-motivation, turning them from ‘warm’ (weak) cognitions into ‘hot’ (powerful and influential) ones.

In the present research, we tested the hypothesis that DCTB would evoke the negative emotions of anger and anxiety. Lazarus (1991) posits that threats against the self are likely to evoke anger or anxiety. When the threat is perceived as an unjust assault that interferes with one’s attempts to realize specific personal goals it is likely to arouse anger. When the threat is imminent but difficult to anticipate and is experienced as having negative, yet uncertain and diffuse, personal implications it is likely to arouse anxiety. Following Lazarus’ theory, we hypothesized that the explicit and intrusive demands for total and immediate submission characterizing DCTB are likely to cause children to experience these strategies as *unjust*, and therefore as evoking a great deal of anger while studying with directly controlling teachers. As for anxiety, because directly controlling teachers continually interfere with children’s preferred pace of action, children are likely to feel anxious that they will not be able to complete successfully the actions they are engaged in. In addition, the fact that children are working under a continual threat of disruptive teacher intervention further increases their sense of uncertainty and anxiety.<sup>1</sup>

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<sup>1</sup> It is possible that DCTB might arouse in students other negative emotions in addition to anxiety and anger. The specific emotions that such teacher behaviors evoke in students might depend on students’ primary and secondary appraisals and the specific answers that students formulate in relation to the specific questions raised as part of the appraisal process (e.g., Lazarus, 1991). For example, if students think that there is absolutely no hope of attaining some sense of autonomy in their studies with the controlling teacher, they are likely to feel sad. In the present study we did not include the emotion of sadness because we assumed that this emotion emerges only when teachers show extreme levels of direct control for extended periods of time, so that students lose any hope of autonomy.

Following the notion of emotions as carriers of important need-related information, students' anger and anxiety were expected to act as signals indicating that students' need for autonomy is being threatened or frustrated. Thereby, negative emotions promote two types of motivational orientations that according to SDT tend to emerge when people's need for autonomy is being thwarted: a-motivation and extrinsic motivation. The concept of motivational orientations toward studying refers to thoughts and intentions about studying. We will now explain those two orientations and how they might (temporarily) help students cope with the frustration or threat they experience to their need for autonomy.

### *1.1.3. A-motivation*

The concept of a-motivation (Deci & Ryan, 1985) refers to lack of any intention or volition to make an effort and engage in action (in our case – studying). Students' a-motivation in classes taught by directly controlling teachers can be construed as a defensive act of psychological withdrawal from a relationship that threatens students' sense of autonomy and competence. In addition, a-motivation might also be a product of loss of feelings of personal control when working with highly intrusive teachers. By minimizing their investment in classes taught by controlling teachers, students minimize the importance of these teachers and feel less hurt or disappointed in situations where they are exposed to controlling practices. However, it is important to note that, while a-motivation might, temporarily, help students to feel less hurt while exposed to controlling teacher practices, in most schools this orientation is not likely to be adaptive in the long run.

A-motivation may originate not only from feelings of anger or anxiety. Children may believe that it is not worthwhile to invest effort in classes taught by directly controlling teachers because it is very difficult to succeed with such teachers. For example, teachers who suppress independent opinions may cause children to suspect that their personal ideas and work would not be appreciated. Therefore, we hypothesized that coercive teacher behavior would also have a direct effect on a-motivation that is not mediated by anger or anxiety.

### *1.1.4. Extrinsic academic motivation*

Based on SDT, it can be assumed that when controlling teacher practices lead to some kind of engagement in action (rather than to a-motivation) they do so by activating a motivational orientation termed “extrinsic motivation”. In extrinsic motivation, individuals' actions are controlled by the desire to avoid punishments or to obtain material rewards, and are accompanied by a sense of coercion. Extrinsic motivation might protect students' sense of autonomy and competence through processes that are similar to those discussed in relation to a-motivation. Thus, students' perception of their studying as motivated by external coercion allows them to limit their investment in classes taught by controlling teachers. The limited psychological and academic investment then reduces, at least temporarily, students' negative emotions while sitting in the classes of controlling teachers, and might enable students to preserve and demonstrate some measure of autonomy.

Extrinsic motivation was also expected to be directly affected by DCTB. Thus, we hypothesized that students' perceptions of their teachers as highly coercive would cause them to think that the main reason that they study in classes taught by such teachers is to avoid the pressures and discomforts that directly controlling teachers may cause if one does not study.

We now turn to the two engagement styles and the ways in which the two motivational orientations are expected to influence them.

#### *1.1.5. Intensive academic engagement*

Students who are intensely engaged with their studies invest a great deal of effort in learning and show high levels of attention and persistence while studying. The two problematic motivational orientations that are assumed to result from DCTB clearly cannot be expected to promote intensive academic engagement. A-motivated students do not intend to invest any effort in their studies. Therefore, a-motivation can be hypothesized to undermine intensive academic engagement. Extrinsic motivated students are often willing to invest some effort in their studies. However, because they do not experience their studies as inherently valuable, they are not likely to develop a particularly intensive mode of academic engagement. Therefore, we did not expect extrinsic motivation to be positively related to intensive engagement.

#### *1.1.6. Restricted academic engagement*

In this type of academic engagement, students study only what is required to avoid unpleasant teacher responses or to secure decent grades. Theoretically, extrinsic motivation is assumed to lead to some action (rather than to inaction), yet it also involves considerable ambivalence towards and alienation from the action it promotes (Ryan & Deci, 2000). Therefore, it can be expected that while extrinsic motivation would lead to some academic engagement, this engagement would be relatively superficial, and of narrow intellectual breadth. We predicted, then, that extrinsically motivated students would only study what is mandatory and would not show any interest in subjects that are beyond the teacher's requirements. As for a-motivation, this orientation was not expected to lead to any kind of effort and engagement at all, not even to restricted engagement.

### *1.2. Gender differences in the effects of directly controlling teacher behaviors on emotions, motivation and engagement in students*

It has been reported that girls are often socialized to respond in a less assertive and more accommodative way to their parents' demands than are boys (e.g., Lindsey et al., 1997). Moreover, research suggests that, relative to boys, girls are more compliant to their teachers and parents (Maccoby, 1998), and women tend to be somewhat less assertive than men do (Feingold, 1994). While there are intense debates concerning the robustness and magnitude of gender differences and the appropriate ways to assess these differences (e.g., Ruble & Martin, 1998), it is nevertheless interesting to examine the correlates of DCTB across gender. Thus, one

might claim that as girls are more used to accept directives from adults, DCTB would have less harmful effects on their motivation and engagement than they do on boys. SDT (Ryan & Deci, 2000) is not likely to accept the view that controlling behaviors are less harmful for girls because the need for autonomy is a basic need for both girls and boys. Based on this theory, we therefore hypothesized that DCTB would have similar negative effects for both girls and boys.

### 1.3. Hypotheses

Our major hypothesis was that DCTB would have substantial negative effects on emotions, motivational orientations, and academic engagement styles across gender and across different levels of perceived competence. Fig. 1 summarizes our specific predictions concerning the role of negative emotions as a direct outcome of directly controlling teacher behaviors (DCTB) and a major mediator of the effects of DCTB on student's motivation and engagement.

## 2. Method

### 2.1. Participants and procedure

The sample consisted of 319 Israeli–Jewish elementary school students from four schools (147 boys and 158 girls) from 4th and 5th grades and their primary teachers. Students completed questionnaires assessing their perceptions of their teacher's DCTB, anxiety and anger, a-motivation and extrinsic motivation, and restricted and intensive engagement while studying in the teacher's classes. The questionnaire also assessed several other variables that are unrelated to this research. Research assistants administered the students' questionnaire while teachers were not present in the classroom. Students indicated their responses to the various items using a 4-point scale extending from strongly disagree to strongly agree.

Each primary teacher assessed all her students with regard to the extent of their intensive academic engagement in her classes. Teachers indicated how frequently students manifested the behaviors of interest using a 5-point scale (1 – never, 5 – most of the time). Teachers did not complete a measure of restricted engagement because a pilot study showed that the teachers in our study did not think that they have enough information on this attribute.

### 2.2. Instruments

*Directly controlling teacher behavior (DCTB)*. This construct was assessed by four items (e.g., “Teacher does not let me work in my own pace”, “Teacher is willing to listen only to opinions that fit her views”). Cronbach's alpha was 0.60. This scale included the best items used in Assor and Kaplan's (2001) intrusiveness and criticism suppression sub-scales.

*Negative emotions in teacher's class – anger and anxiety.* The scale included three items: one item assessed anger: “In Teacher's classes, I feel angry”. A second item assessed anxiety: “In Teacher's classes, I feel anxious and worried”. A third item assessed nervousness: “In Teacher's classes, I feel nervous”. Cronbach's alpha was 0.77.

*Academic a-motivation.* Three items measured lack of motivation (e.g., “I do not even try to succeed in the subjects the teacher teaches”). Cronbach's alpha was 0.60.

*Extrinsic academic motivation.* Based on Kaplan, Assor, and Roth (2003), extrinsic academic motivation was measured by three items (e.g., “When I do the assignments in teacher classes – it is because I do not want her to yell at me”). Cronbach's alpha was 0.73.

*Perceived academic competence.* Based on Kaplan et al. (2003), this scale included five items (e.g., “If I want – I can do very well in tests and assignments given by our teacher”). Cronbach's alpha was 0.66.

*Restricted academic engagement.* This scale included three items (e.g., “In teacher's classes I study only what is required to get a good grade”). Cronbach's alpha was 0.53.

*Intensive academic engagement (teacher reported).* Primary teachers were asked to assess the intensity of their students' academic engagement using four items (e.g., “This student shows persistence as she/he works on assignments”). Cronbach's alpha was 0.95. Intensive engagement was also assessed via students' reports. However, given the advantage of using multiple sources of information, we present the path analyses using the teacher-based measure. It is important to note that analyses conducted with the student-based measure produced results that are very similar to those obtained with the teacher-based measure.

### 3. Results

#### 3.1. Examining the correlates of DCTB in boys and girls: zero order correlations

We firstly tested the hypothesis that, across gender, DCTB would be associated positively with a-motivation, extrinsic motivation, restricted engagement, and negative emotions, and would relate negatively to intensive engagement as rated by teachers. Inspection of Table 1 indicates that the results clearly and consistently support the hypothesis. Fisher's *Z* tests assessing the significance of the difference between parallel correlation coefficients in boys and in girls showed that the correlations between DCTB and other variables did not differ significantly as a function of gender. Overall, then, the correlations supported the hypothesis that DCTB would have similar problematic correlates for both girls and boys.

#### 3.2. Testing a model of negative emotions as mediators of the effects of DCTB

Path analysis and tests of mediation examined the proposed model. Figs. 2 and 3 present the results of the path analysis separately for girls and boys.



Table 1

Correlations among directly controlling teacher behaviors (DCTB), negative emotions, motivational orientations, and engagement styles

	DCTB	Negative emotions	A-motivation	Extrinsic motivation	Restricted engagement	Intensive engagement <sup>a</sup>
DCTB		0.48**	0.51**	0.51**	0.17*	-0.18*
Negative emotions	0.53**		0.43**	0.38**	0.22**	-0.12
A-motivation	0.48**	0.57**		0.33**	0.21**	-0.28**
Extrinsic motivation	0.36**	0.48**	0.46**		0.36**	-0.02
Restricted engagement	0.32**	0.33**	0.39**	0.41**		-0.07
Intensive engagement <sup>a</sup>	-0.25**	-0.28**	-0.36**	-0.34**	-0.20**	

Note: correlations for males are above the diagonal and for females below the diagonal. \* $p < 0.05$ ; \*\* $p < 0.01$ .

<sup>a</sup> Teacher report.

Inspection of Fig. 2 indicates that the proposed model was fully supported for girls. Fit indices were satisfactory, chi-square = 11.35,  $df = 6$ ,  $p < 0.08$ , chi-square/ $df = 1.89$ , NFI = 0.99, RMSEA = 0.072, CFI = 0.99, NNFI = 0.99. The path analysis also revealed an unpredicted positive effect of a-motivation on restricted engagement and an unpredicted negative effect of extrinsic motivation on intensive engagement. With regard to boys, Table 1 has already indicated that the proposed model was not fully supported for males because negative emotions did not have a significant negative correlation with intensive engagement. Therefore, the path analysis did not include the variable of intensive engagement (see Fig. 3). However, except for this component, the proposed model was confirmed also for boys,<sup>2</sup> chi-square = 8.05,  $df = 5$ ,  $p < 0.15$ , NFI = 0.99, RMSEA = 0.06, CFI = 0.99, NNFI = 0.99.

While the path analyses are entirely consistent with the proposed model for girls and mostly consistent for boys, the hypothesis concerning the mediating roles of negative emotions and motivational orientations must be examined by additional tests.

### 3.2.1. Negative emotions as mediators of the effects of DCTB on a-motivation and extrinsic motivation

Following procedures outlined by Kenny, Kashy, and Bolger (1998), we first confirmed that there are significant associations between DCTB and the two motivational orientations across gender. Second, we confirmed that there are significant relations between negative emotions and the two motivational orientations

<sup>2</sup> Initial path models for females also included direct paths from DCTB and from negative emotions to the two engagement styles. However, those paths were non-significant, and hence were dropped. Initial path models for males also included direct paths from DCTB, negative emotions and a-motivation to superficial engagement. However, those paths were omitted from the final model because they were non-significant. The males' model does not include a path from a-motivation to intensive engagement because, although the correlation is significant, the inclusion of such a path in the model creates the misleading appearance that a-motivation mediates the relation between negative emotions and intensive engagement.

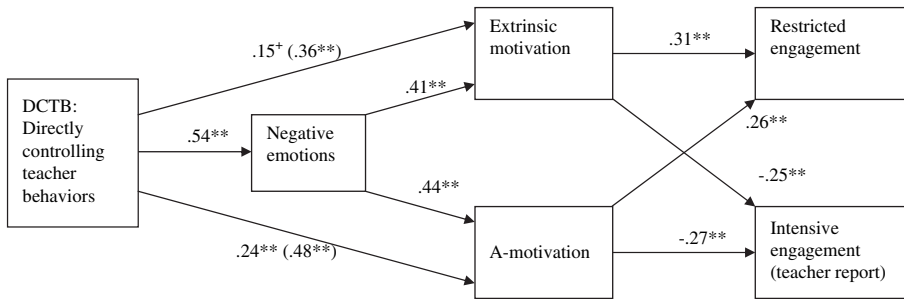


Fig. 2. Emotions and motivational orientations as mediators of the effects of directly controlling teacher behaviors on students’ academic engagement – female sample.

while controlling for the effect of DCTB. Based on [Kenny et al.’s \(1998\)](#) approach, negative emotions can be considered as a mediator of the relation between DCTB and a certain motivational orientation only if the introduction of negative emotions results in a significant reduction of that relation. As predicted, the association of DCTB with a-motivation was significantly reduced when negative emotions were introduced as a mediator (for boys: from  $\beta = 0.51, p < 0.01$  to  $\beta = 0.39, p < 0.01$ ; for girls: from  $\beta = 0.48, p < 0.01$  to  $\beta = 0.24, p < 0.01$ ). The Sobel test (see [Kenny et al., 1998](#)) indicated that the drop was significant for both boys,  $z = 3.90, p < 0.01$ , and girls,  $z = 4.81, p < 0.01$ . However, it should be noted that, for both girls and boys, the relation between DCTB and a-motivation was still significant even after introducing negative emotions as a mediator, indicating that the mediation is only partial.

The relations between DCTB and extrinsic academic motivation were also significantly reduced when negative emotions were introduced as a mediator (for boys:  $\beta = 0.51, p < 0.01$  vs.  $\beta = 0.43, p < 0.01$ ;  $z = 2.26, p < 0.05$ ; for girls:  $\beta = 0.36, p < 0.01$  vs.  $\beta = 0.15, p < 0.06$ ;  $z = 4.25, p < 0.01$ ). Results showed partial mediation for boys but nearly perfect mediation for girls.

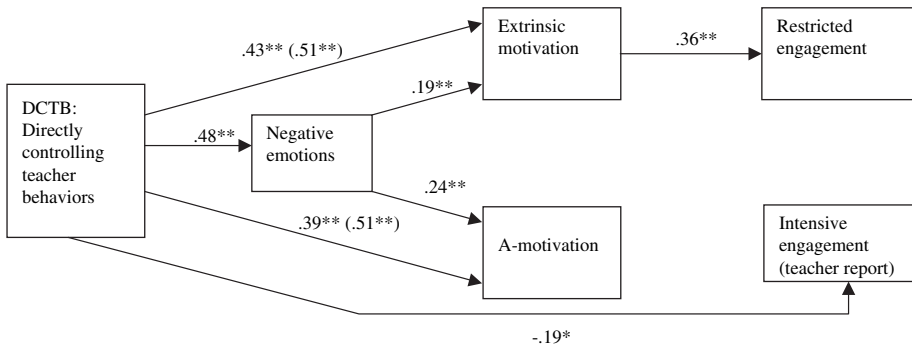


Fig. 3. Emotions and motivational orientations as mediators of the effects of directly controlling teacher behaviors on students academic engagement – male sample, \* $p < 0.05$ , \*\* $p < 0.01$ . Note: beta coefficient prior to the introduction of the mediator is presented in parenthesis.

### 3.2.2. *Extrinsic motivation and a-motivation as mediators of the effects of negative emotions on restricted engagement and intensive engagement*

Examination of the basic conditions of mediation analyses for a-motivation revealed satisfactory results concerning girls but not boys. Therefore, the mediation analysis was conducted only for girls. Results indicated that, for girls, the relation between negative emotions and intensive engagement was significantly reduced when a-motivation was introduced ( $\beta = -0.28$ ,  $p < 0.01$  vs.  $\beta = -0.11$ , n.s.;  $z = 3.06$ ,  $p < 0.01$ ). Similarly the relation between negative emotions and restricted engagement was significantly reduced when a-motivation was introduced ( $\beta = 0.33$ ,  $p < 0.01$  vs.  $\beta = 0.15$ , n.s.;  $z = 3.31$ ,  $p < 0.01$ ). These results suggest that a-motivation acts for girls as a perfect mediator.

Examination of the basic conditions for the mediation effect of extrinsic academic motivation showed that for girls, the basic conditions for mediation were met for both types of engagement, whereas for boys this was the case only for the relations between negative emotions and restricted engagement. Results for both boys and girls indicated that the association of negative emotions with restricted engagement was significantly reduced when extrinsic motivation was introduced as a mediator (for boys: from  $\beta = 0.22$ ,  $p < 0.01$  to  $\beta = 0.09$ , n.s.; for girls: from  $\beta = 0.33$ ,  $p < 0.01$  to  $\beta = 0.14$ , n.s.). The Sobel test indicated that the drop was significant for boys,  $z = 3.02$ ,  $p < 0.01$  and girls,  $z = 3.63$ ,  $p < 0.01$ . The drops from significant to non-significant  $\beta$  suggest that, for both boys and girls, extrinsic motivation is acting as a perfect mediator of the relations between negative emotions and restricted engagement.

Finally, for girls, the relation between negative emotions and intensive engagement was significantly reduced when extrinsic motivation was introduced ( $\beta = -0.28$ ,  $p < 0.01$  vs.  $\beta = -0.13$ , n.s.;  $z = 2.96$ ,  $p < 0.01$ ). The drop in the beta suggests that extrinsic motivation acted as a perfect mediator of the relation between negative emotions and intensive engagement.

### 3.3. *Examining gender differences in mediation processes*

Results of the zero order correlations presented in [Table 1](#) indicate that negative emotions correlated significantly with intensive engagement for girls, but not for boys. Therefore, to allow comparison across gender, we created for girls a model that includes the same components as in the boys' path model presented in [Fig. 3](#). Following [Bollen \(1989\)](#), equivalence across samples was tested by performing a set of hierarchically organized comparisons based on the sequential imposition of constraints. Differences in chi-square were used to compare free and constrained models as suggested by [Little \(1997\)](#). Tests of model equivalence suggested that the male and female models differed significantly,  $\Delta\chi^2 = 26.45$ ,  $df = 7$ ,  $p < 0.05$ , only in the path leading from DCTB to extrinsic motivation, in which the beta was higher for boys.

### 3.4. *Examining model fit across different levels of perceived academic competence*

To examine the robustness of the proposed model across different levels of perceived competence, we divided the male and female samples into high- and low-competence sub-samples, using a median split on the competence score. Model equivalence was tested separately for boys and girls. Results showed that, for both boys and girls, the high- and low-competence models did not differ significantly.

## 4. Discussion

Overall, the results of the present study are consistent with the notion that directly controlling teacher behaviors have negative effects on the emotions, motivational orientations, and engagement styles of both girls and boys. The results also suggest that the emotions of anger and anxiety act as partial mediators of the harmful effects of DCTB on students' academic motivation and engagement. A particularly strong finding of the present research is the negative relation between directly controlling teacher behavior and intensive academic engagement according to teacher's report. This finding indicates that the negative association between directly controlling teacher behavior and intensive academic engagement cannot be ascribed to a general self-report bias or self-construal process underlying all the measures completed by the same child.

The discussion focuses mainly on four issues. First, we discuss the contribution of the findings to our understanding of the harmful effects of DCTB, and point to potential implications of the findings in terms of educational policy. Second, we examine the possibility that the negative emotions evoked in response to DCTB might not be very adaptive in large school systems, and discuss potential parenting and educational implications. Third, we discuss gender differences in the effects of DCTB. Finally, we consider the methodological limitations of the present research.

### 4.1. *DCTB as a harmful practice that extends beyond the elementary school years*

Directly controlling practices such as interfering with students' preferred pace, giving frequent directives and not allowing too much open critical discussion in class might not appear very extreme or harmful to many people because they do not involve use of physical violence, insults, or shaming. Because DCTB is likely to have significant negative effects on students, it is of interest to discuss what might be its most problematic correlates, consider the prevalence and impact of this harmful practice beyond the elementary school years, and examine institutional conditions that enhance the use of DCTB.

#### 4.1.1. *A-motivation and negative emotions as particularly negative correlates of DCTB*

While the present research has indicated that DCTB is associated with a number of negative correlates, two of those potential outcomes seem particularly

problematic: a-motivation and the emotions of anger and anxiety. Past research on the effects of controlling adult practices on children's motivational orientations has focused mostly on decreased intrinsic motivation and enhanced extrinsic and introjected motivations as outcomes (e.g., Deci et al., 1996; Grolnick et al., 1997; Reeve, 2002). Unlike most previous studies in this domain, the present study also focused on a-motivation as an outcome of controlling adult behavior, demonstrating that directly controlling teacher behaviors are associated not only with extrinsic motivation but also with a-motivation. As a-motivation is associated with more negative academic and emotional outcomes than extrinsic and introjected motivations (Ryan & Deci, 2000), the results might be interpreted as indicating that DCTB are a particularly harmful form of autonomy-suppressive teacher behavior.

The tendency of a-motivation to be closely intertwined with the emotions of anger and anxiety might make it rather difficult for students to suppress the development of this orientation within themselves also in contexts where a-motivation is clearly harmful to the student. In future research, it would be interesting to examine if teacher behaviors involving more indirect and subtle forms of control such as offering conditional praise (e.g., Assor et al., 2004) also lead to a-motivation.

Given the negative correlates of DCTB, it appears important to consider the prevalence and effects of this problematic practice beyond the elementary school ages.

#### *4.1.2. The prevalence and impact of DCTB in middle schools and high schools*

Studies in the US (Eccles & Midgley, 1989) and in Israel (Kaplan et al., 2003) indicate that, in general, the frequency of DCTB increases in middle schools and high schools relative to elementary schools. Therefore, the findings concerning the negative effects of DCTB, which were obtained in elementary schools, become even more relevant for older ages. It may be argued that as children grow older they become more resilient to need frustrating teacher practices. However, results obtained by Kaplan et al. (2003) and Assor et al. (2002) suggest that this is not the case, and DCTB has negative effects on motivation and grades also in middle- and high school.

The fact that the harmful effects of DCTB are likely to be found across a wide range of ages makes it particularly important to identify educational policies and contexts that enhance teachers' tendency to use this problematic practice.

#### *4.1.3. Conditions promoting the use of DCTB by teachers*

Research by Deci et al. (1982) has shown that the use of controlling practices increases when instructors are under pressure, for example when instructors are evaluated on students' achievement level. Given these findings, it is possible that systems using frequent comparative achievement tests might be pushing their teachers to rely on directly controlling practices. In view of the potential link between comparative achievement pressure and DCTB, it appears important that educational policy makers and parents would understand that DCTB cannot be considered benign educational practices, and have significant emotional and educational costs for students. Of course, the lack of student engagement or

achievement may be a source for teachers' frustration or anger that lead to DCTB regardless of teachers' pressure due to evaluation.

The findings of the present study also raise an interesting theoretical question concerning the extent to which negative emotions that are aroused in response to controlling teacher practices are adaptive.

#### *4.2. Negative emotions as catalysts of a-motivation and extrinsic motivation – are these emotions adaptive?*

According to the functional views, emotions mobilize people to think and act in ways that promote attainment of desired motivational states and minimize the occurrence of undesired states (e.g., Buck, 1988). Consistent with these views, as noted in the first part of this article, the emotions of anger and anxiety might have a temporary adaptive value in situations where students are exposed to controlling teachers. This is so because in these situations students' anger and anxiety promote a-motivation and extrinsic motivation, which in turn help students to protect their sense of autonomy. In educational contexts that are egalitarian and empathic to children's needs, the emergence of negative feelings, poor motivation and deficient engagement might cause adults to understand that they have been too controlling, and consequently adults might loosen their control over the child.

However, it appears that in most public schools, such empathic and reflective teacher response is not very likely, particularly in crowded classes. Consequently, it is possible that students' a-motivation and extrinsic motivation (i.e., the orientations that were catalyzed by anger and anxiety) would lead many teachers to respond in ways that only further undermine students' adaptation and development. For example, teachers might react by acting in an even more controlling way or by completely withdrawing from the student. Thus, while during the encounter with the controlling teacher students' anxiety and anger might help them to respond in ways that protect their sense of autonomy, in the long run, these emotions – and the problematic motivations they promote – only undermine students' development.

Of course, it would be best if teachers refrained from using DCTB. However, in school systems where this does not appear feasible, parents and school counselors can help children to cope with DCTB by developing modes of emotional regulation that reduce the maladaptive effects of the negative emotions evoked by DCTB.

#### *4.3. Gender differences in the correlates and effects of directly controlling teacher behaviors*

The results suggest that controlling teacher behaviors are as harmful for girls as they are for boys. Interestingly, research by Assor and Eiloi (2001) on Israeli children showed no gender difference in conformity or autonomy values. Taken together, those findings suggest that Israeli–Jewish girls do not tolerate autonomy suppression more easily than boys.

#### 4.4. Methodological limitations

The present study has a number of limitations and therefore the findings should be interpreted cautiously. First, it is quite possible that DCTB might arouse in students other negative emotions in addition to anxiety and anger. A second limitation involves the correlational nature of the design. Thus, although the findings of the path analyses were consistent with our causal predictions, more convincing evidence should be obtained by using longitudinal correlational designs. A third limitation is the reliance on students' reports as a single source of information in assessing teacher behaviors. In future studies it is important to rely on additional sources such as classroom observations.

### 5. Summary

Overall, this study indicates that directly controlling teacher behaviors such as interfering with students' preferred rhythm and suppressing criticism have a wide range of negative correlates in both boys and girls. The fact that students' a-motivation is closely intertwined with students' anger and anxiety might make it particularly difficult for students' to restrain their tendency to respond to DCTB with a-motivation, and to learn more adaptive ways of dealing with directly controlling teachers. Thus, although directly controlling teacher behaviors do not involve use of extreme and harsh practices such as physical violence, insults or shaming, teachers should still try to avoid those behaviors as much as possible.

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