



Prevention of school bullying: The important role of autonomy-supportive teaching and internalization of pro-social values

Guy Roth^{1*}, Yaniv Kanat-Maymon² and Uri Bibi³

¹Ben-Gurion University of the Negev, Israel

²Interdisciplinary Centre (IDC) of Herzliya, Israel

³Sapir College, Israel

Background. This study examined students' perceptions of autonomy-supportive teaching (AST) and its relations to internalization of pro-social values and bullying in class.

Aims. We hypothesized that: (1) teachers' AST, which involves provision of rationale and taking the student's perspective, would relate positively to students' identified internalization of considerateness towards classmates, and would relate negatively to external regulation (considerateness to obtain rewards or avoid punishments); (2) students' identified regulation would relate negatively to self-reported bullying in class, whereas external regulation would relate positively to bullying; and (3) the relation between teachers' AST and student bullying would be mediated by students' identification with the value of considerateness towards others.

Sample. The sample consisted of 725 junior high school students (50% females) in Grades 7 and 8 from 27 classes in four schools serving students from lower-middle to middle-class socioeconomic backgrounds.

Method. The participants completed questionnaires assessing the variables of interest.

Results. Correlational analysis supported the hypotheses. Moreover, mediational analyses using hierarchical linear modelling (HLM) demonstrated that identified regulation mediates the negative relation between AST and self-reported bullying in class. The mediational hypothesis was supported at the between-class level and at the within-class level.

Conclusions. The findings suggest that school policy aimed at bullying reduction should go beyond external control that involves external rewards and sanctions and should help teachers acquire autonomy-supportive practices focusing on students' meaningful internalization.

*Correspondence should be addressed to Guy Roth, PhD, Department of Education, Ben-Gurion University of the Negev, P.O. Box 653, Beer-Sheva, Israel, 84105 (e-mail: roth@bgu.ac.il).

In school bullying, youngsters repeatedly and systematically use power to dominate and harm their peers physically, socially, or emotionally (Frey *et al.*, 2005; Olweus, 1993). Research has increasingly shown that this social problem leads to complex outcomes for both bullies and their victims (Carney, 2000; Olweus, 1994), and numerous intervention programmes have been implemented to reduce both bullying and victimization (Olweus, 1993, 2004).

Olweus's (1993, 2004) pioneering research on comprehensive preventative interventions significantly influenced contemporary anti-bullying programmes (Merrell, Gueldner, Ross, & Isava, 2008). The main features of Olweus's programme entail class rules against bullying and improved supervision during recess, along with praise and sanctions (Olweus, 1993, 1994), thus creating quite a controlling socialization context in the schools. Olweus asserted that 'the best results are achieved through a combination of generous praise for positive activities and consistent sanctions for aggressive, rule breaking behavior' (1993, p. 86).

Research on such anti-bullying programmes' effectiveness revealed inconsistent outcomes. The dramatic success reported for the programme in Norway (Olweus, 1993) was not replicated elsewhere. In a meta-analysis of 14 reported interventions sharing core features of the original Olweus programme, Smith, Schneider, Smith, and Ananiadou (2004) found only a small number of positive outcomes, whereas most interventions revealed non-significant outcomes on measures of self-reported victimization and bullying. Another meta-analysis based on 40 intervention programmes unrestricted to the Olweus programme (Merrell *et al.*, 2008) reported meaningful positive results for only one-third of the outcome variables. Both Smith *et al.* (2004) and Merrell *et al.* (2008) suggested that, despite the mixed findings that emerged for anti-bullying interventions, researchers should not discontinue their efforts to design effective interventions but rather should undertake further inquiry into identifying specific success-promoting factors.

The present study answers this call for further inquiry from the perspective of self-determination theory (SDT; Deci & Ryan, 2008; Ryan & Deci, 2000), which distinguishes between a 'controlling' socializing context and an 'autonomy-supportive' socializing context and their outcomes. Controlling contexts are ones that pressure the child to think, feel, or behave in particular ways. For example, use of reward contingencies to prompt behaviours has, under most circumstances, been found to be controlling (Assor, Roth, & Deci, 2004; Deci, Koestner, & Ryan, 1999; Roth, 2008), as have threats (Deci & Cascio, 1972), deadlines (Amabile, DeJong, & Lepper, 1976), and pressuring locution (Ryan, 1982). In line with SDT, a large body of research over the last two decades has indicated that controlling socialization contexts predict only shallow internalization of values and limited behavioural enactment (Assor, Kaplan, Kanat-Maymon, & Roth, 2005; Deci, Eghrari, Patrick, & Leone, 1994; Roth, 2008; Roth, Assor, Niemiec, Ryan, & Deci, 2009; Vansteenkiste, Zhou, Lens, & Soenens, 2005). Moreover, Chapman and Zahn-Waxler (1982) have shown that controlling contexts predict children's attempts to avoid the socializing agent, and Roth *et al.* (2009) found that controlling parental practices predict resentment towards the parent and even defiance. This body of SDT-based findings deserves consideration when evaluating the aforementioned mixed results for anti-bullying interventions that focused on prevention by establishing a controlling school environment.

In contrast, autonomy-supportive contexts involve acknowledgement of the child's feelings, taking the child's perspective, providing rationale, allowing choice, and minimizing pressure. Such contexts were found to predict deeper internalization

of behaviours, values, and attitudes; better persistence; more flexible and creative behaviours; and enhanced well-being (Assor, Kaplan, & Roth, 2002; Deci *et al.*, 1994; Gagne, 2003; Grolnick, Deci, & Ryan, 1997; Grolnick & Ryan, 1987; Jang, 2008; Reeve, 2006; Reeve & Halusic, 2009; Roth, 2008; Roth *et al.*, 2009; Vansteenkiste *et al.*, 2005). It is important to note that in past research autonomy-supportive teaching (AST) was measured, with only few exceptions, by students' perceptions. Deci, Schwartz, Sheinman, and Ryan, (1981) measured teachers' orientations towards autonomy-support versus control and found positive and significant relation between teachers' autonomy-supportive orientations and students' perceptions. In addition, Reeve and Jang (2006) found positive and significant relations between students' perception of AST and teachers' autonomy-supportive behaviours based on coding of videotaped instructional episodes. Thus, although students' perceptions of AST and teachers' actual autonomy-supportive behaviours are two distinct phenomena, they were found to be positively and significantly related. It seems that the focus of past research on students' perceptions in relation to AST is not surprising given the unique character of autonomy-supportive practices. Thus, students' perceptions of the extent in which the teacher takes the student's perspective and provides relevance (rationale) seem especially important when studying student's scholastic outcomes (Assor *et al.*, 2002). Thus, the teacher may report on the extent in which he or she tries to take the child's perspective or/and provides relevance but the students' perspective regarding those teachers' behaviours seems valuable and complementary (i.e., the teacher may report on the extent in which he/she tries to take the student's perspective, and the student may report if the teacher succeeded in doing so). The present study focuses on students' perceptions of AST in relation to students' internalization of pro-social values as one activity that may undermine anti-social behaviours and thus could be pinpointed as a possibly important phenomenon for consideration by intervention programme planners and educational policy makers. The main argument to be tested in the present investigation is that students' perceptions of AST may promote lower aggression in school (bullying) by predicting deeper or more meaningful internalization of pro-social values.

The SDT of internalization

According to SDT (Deci & Ryan, 1985; Ryan & Deci, 2000), internalization can be differentiated into types along a relative autonomy continuum, based on the degree to which one internalizes behaviour's regulation and its accompanying value. When regulation of an activity is not internalized, regulation is said to be *external* because the child complies with specific environmental demands and contingencies (e.g., from parents, teachers, peers, etc.). Such non-internalized behaviour is considered to be controlled by those external contingencies rather than enacted autonomously or volitionally (Ryan & Connell, 1989).

The first and least effective type of internalization, referred to as *introjection*, involves taking in a value and regulation but not accepting it as one's own. Instead, one applies the contingencies of approval or worth to oneself that had previously been applied by others. Thus, one tends to feel an inner compulsion to behave, with one's self-esteem contingent upon behaviour. Such behaviour is considered to be controlled, even though the regulation is now within oneself because one feels compelled to perform the behaviour. A second, fuller type of internalization is referred to as *identified* regulation (ID). Here, one has identified with the importance of the activity for oneself, and thus one's motivation

to perform the behaviour is quite autonomous even though one does not find the activity interesting. Third, when that identification has been reciprocally assimilated with other aspects of the child's self, the regulation is considered *integrated*. Identified and integrated regulations are considered to be autonomously motivated forms of regulation. Considerable research (e.g., Assor *et al.*, 2004; Grolnick & Ryan, 1989; Ryan, Rigby, & King, 1993) has indicated that external and introjected regulations tend to be associated with negative psychological consequences, whereas identified and integrated regulation types tend to be associated with positive psychological consequences, such as higher well-being, more flexible and creative behaviours, and better persistence (Grolnick, 2003; Roth *et al.*, 2009; Vansteenkiste *et al.*, 2005).

In a recent study that was the first to explore the relevance of SDT conceptions for bullying at school, Roth and Bibi (2010) examined types of internalization for pro-social values and their links with bullying and with students' sense of relatedness or connection to the class. Specifically, this recent study explored the correlates of *external* and ID for the pro-social value of considerateness towards others in class. In line with SDT, results revealed that external regulation of considerateness correlated positively with bullying ($r = .28$; $p < .01$) and negatively with sense of relatedness ($r = -.16$; $p < .01$), whereas ID correlated negatively with bullying ($r = -.30$; $p < .01$) and positively with sense of relatedness ($r = .42$; $p < .01$).

The link found between external regulation and bullying was unsurprising because external supervision of student behaviour is always limited to specific times and places. External regulation involves instrumental behaviour enacted as a means to an end, and as such seems to promote behaviour only when behavioural engagement is viewed as achieving the desired end state. Thus, when pro-social behaviour and avoidance of bullying in school merely stem from external regulation, such behaviour might occur only under direct teacher supervision, when the desired end state is achievable (avoiding punishment or obtaining praise and rewards). Aggressive student behaviour might continue to be enacted in places and at times where supervision is absent, such as in the restroom, behind the school building, or on the way to and from school. In contrast, promoting identification with or integration of the value of being considerate towards others may predict less aggression and bullying because the regulation of the behaviour is not based on the existence of external contingencies, but rather on autonomous actions emanating from one's sense of self, so that one's true interests and values guide one's behaviours (Roth & Deci, 2009; Ryan, 1993).

Indeed, as a first stage in addressing bullying (and in line with Olweus approach), external control may be important in a chaotic school environment that lacks consistent guidelines and expectations for students' behaviour. However, to promote the deeper form of internalization that allows students to achieve self-regulation, external control may not suffice. As noted, substantial research has indicated that autonomy-support in varied domains leads to children's identified/integrated internalization, whereas in a controlling context the children are expected merely to act out of external pressure (Deci & Ryan, 2008; Grolnick, 2003). In a recent study, Roth (2008) examined young adults' internalization and pro-social orientations as linked with their perceptions of controlling versus autonomy-supportive parenting. Results indicated that controlling parenting predicted introjection that in turn predicted egoistic helping (whereby pro-social behaviours were enacted to boost the helper's self-esteem), whereas autonomy-supportive parenting predicted other-oriented helping by promoting ID.

The current study design and hypotheses

Unlike the Roth (2008) study, the current research does not focus on parenting and on general pro-social orientations but rather on anti-social behaviour, namely bullying in school. In addition, the present study goes beyond Roth and Bibi (2010) by exploring students' perceptions of teachers' behaviours that may predict deep internalization, which in turn may predict reduced bullying in class.

Following Roth (2008), Grolnick, Ryan, and Deci (1991), and Williams and Deci (1996), the present study focuses on two AST practices that appear relevant in promoting pro-social behaviour, namely, providing rationale (or relevance) and taking the student's perspective in relation to children's pro-social behaviours. Although theoretically these two AST activities can be treated as different types of behaviour, research has demonstrated that these behaviours tend to appear together, or at least are perceived by students as closely related (Assor *et al.*, 2002; Grolnick *et al.*, 1991; Roth, Assor, Kaplan, & Kanat-Maymon, 2007; Roth *et al.*, 2009). Providing rationale (or relevance) involves explaining how considerateness, helpfulness, and sensitivity towards others can contribute to students' personal goals, interests, and values. These explanations will benefit from the attempt to understand students' feelings and thoughts concerning social interactions and conflicts (i.e., taking the student's perspective). Thus, the present research examined the following hypotheses:

1. Student perceptions of teachers' AST (which involves provision of rationale and taking the student's perspective) focusing on the value of considerateness towards others will correlate negatively with students' self-reported bullying.
2. Student perceptions of teachers' AST will be positively correlated to students' identification with the importance of considerateness towards others (identified internalization of the value) and will be negatively correlated to students' external regulation of that behaviour (to obtain rewards or avoid punishments).
3. Students' ID of the value of considerateness towards classmates will correlate negatively with their bullying, whereas students' external regulation will correlate positively with their bullying.
4. Students' perceptions of AST will reduce the probability for bullying through ID. In other words, the relation between teachers' AST and students' self-reported bullying will be mediated by students' identification with the value of considerateness towards others.

Method

Participants and procedures

The sample consisted of 725 Israeli junior high school students (50% females) in Grades 7 and 8 from 27 classes in four schools serving students from lower-middle to middle-class socioeconomic backgrounds. Mean age was 13.4 years ($SD = .64$).

Perceptions of teachers and perceptions of self were tapped in separate sessions to avoid the influence of participants' naïve inferences. In one session (lasting about 10 min), participants completed the scale assessing their perceptions of their teachers' AST, and in a separate session 2 weeks later (lasting about 20 min) they completed the questionnaire assessing external and identified internalization, together with the bullying questionnaire. Research assistants with special permission to work with students administered the questionnaires to students in their classrooms while teachers

were not present. Parental consent was obtained according to Ministry of Education guidelines.

Instruments

Students' perceptions of autonomy-supportive teaching

The 14-item scale assessing students' perception of the homeroom teacher autonomy-support is based on Assor *et al.* (2002), Roth *et al.* (2007), and the Learning Climate Questionnaire (LCQ; Williams & Deci, 1996). The LCQ has been widely used in investigations of autonomy-support (Hardre & Reeve, 2003; Williams & Deci, 1996). For the sake of the present research, the measure was modified to assess students' perceptions of teachers' autonomy-supportive behaviour specifically in relation to the value of being considerate and helpful towards classmates. The scale included nine items for teachers' perspective taking (e.g., 'The teacher makes sure to listen to both sides when intervening in a quarrel between kids') and five items for teachers' provision of rationale (e.g., 'The teacher explains to us why it is important to be considerate to one another'; 'The teacher explains to us how much a lack of consideration hurts and offends'). Factor analysis with varimax rotation was conducted on all 14 items, and one factor was extracted, accounting for 57% of the variance. Thus, the factor analysis indicates that the two sets of items (for provision of rationale and for taking the child's perspective) do not constitute distinctive sub-scales. Cronbach alpha was .92.

Internalization: External and identified regulations

This measure used by Roth and Bibi (2010) followed Ryan and Connell's (1989) and Roth, Assor, Kanat-Maymon, and Kaplan's (2006) assessment of internalization types by asking students to indicate the reasons for their pro-social actions. External reasons were those where behaviour was explained by reference to external authority, fear of punishment, or rule compliance, whereas identified internalization was captured by reasons involving acting from one's own values or goals. Participants rated their reasons for being considerate and helpful towards classmates on a 5-point Likert-type scale, ranging from 1 (*not true at all*) to 5 (*very true*). The external regulation scale consisted of three items (e.g., 'because I want to be praised for good behaviour'; 'because I don't want the teacher to be angry with me'), and the ID scale consisted of six items ('because being considerate towards others is an important value for me'; 'because it brings me great satisfaction'). Factor analysis with varimax rotation was performed using all nine items. As expected, two factors emerged with eigenvalues ranging from 2.30 to 3.84 and all items loading appropriately above .70. At least 66% of the variance was accounted for by the factors. Cronbach alpha was .76 for external regulation and .88 for ID. The correlation between the two scales was $-.17$ ($p < .01$).

Bullying

Rolider, Lapidot, and Levy's (2001) 12-item self-report measure was based on Olweus's (1993) definition of bullying as a repetitive intention and action to harm someone less powerful. Participants were asked to rate their frequency of aggressive behaviour towards classmates (e.g., threatened someone, made fun of someone, excluded a classmate, hit or pushed, spread false rumours) on a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*every day*). Cronbach alpha was .94.

Table 1. Correlations among the study variables

	1	2	3	4
1 Perceived autonomy-supportive teaching	–	–.03	.47*	–.39*
2 External regulation	–.11**	–	–.20	.31
3 Identified regulation	.41**	–.17**	–	–.64**
4 Bullying	–.26**	.28**	–.30**	–

Note. Zero order correlations appear under the diagonal, and correlations based on aggregated variables appear above the diagonal.

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

Results

To test whether perceived autonomy-support from teachers regarding students' considerateness towards classmates would decrease the probability for bullying in school through ID, a multi-level analysis approach was required because the participating 725 students were nested within 27 classrooms. This section first presents the correlations among the research variables and then presents a more rigorous mediational analyses test using hierarchical linear modelling (HLM; Raudenbush & Bryk, 2002).

Table 1 presents two sets of correlations among the research variables in line with the multi-level structure of the data: zero order correlations and aggregated correlations. Inspection of Table 1 revealed that, as expected, perceived AST correlated positively with ID and negatively with external regulation (the latter correlation was non-significant at the class level). In addition, perceived AST and ID were negatively related to students' self-reported bullying in school, whereas external regulation was positively related to bullying.

Following Krull and MacKinnon (1999, 2001), we tested the mediation hypothesis for the two levels: within class level (students' level) and between class level. Thus, we tested the role of ID as a mediator of the relation between perceptions of AST and bullying while measuring all variables at the students' level, and then again with the initial variable and the mediator (all based on students' perceptions) measured at the group level.

First, we computed a fully unconditional HLM analysis, analogous to an analysis of variance (ANOVA), with the perceptions of AST and identified internalization as the dependent variables, and with classroom as the grouping variable. This analysis enabled computation of the interclass correlations (ICC), which allowed an estimation of the within-class homogeneity of aggregated group-level constructs. Values of 5% or above can be regarded as support for a variable's adequate group level properties, warranting aggregation (e.g., Gavin & Hofmann, 2002). Results indicated that the current ICCs were 9% and 6% for AST and ID, respectively.

In all stages of the mediation analyses for both levels, sex was controlled¹. We first tested the relation between perceived AST and bullying, which was found to be significant at both levels ($\beta = -.21, p < .01$ for Level 1; and $\gamma = -.33, p < .05$ for Level 2). In the next step, we tested whether the independent variable (AST) was related to the mediator (ID) at each of the two levels. Results revealed significant relations at both levels ($\beta = .42, p < .01$ for Level 1; and $\gamma = .41, p < .01$ for Level 2).

¹ Social desirability was measured using a shorthand version of Crowne and Marlowe (1964). There was no relation between social desirability and bullying, thus controlling for social desirability was not justified.

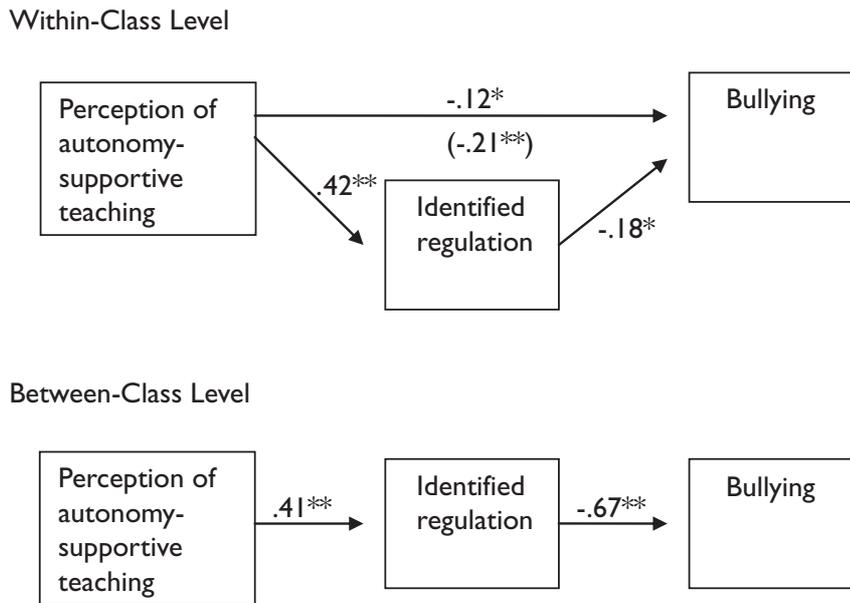


Figure 1. Multilevel analyses for the relations between students' perceptions of autonomy-supportive teaching, identified internalization, and bullying. The coefficient in parenthesis is the value of the direct path between autonomy-support and bullying, without controlling for identified regulation. * $p < .05$; ** $p < .01$.

In the third step, we tested the predictions of AST and ID simultaneously on bullying at both levels. At Level 1, both variables significantly predicted bullying, $\beta_{[AST]} = -.12$, $p < .05$; $\beta_{[ID]} = -.18$, $p < .01$, and the path between AST and bullying decreased from $\beta = -.20$ to $\beta = -.12$ when controlling for ID (the mediator). At Level 2, only ID predicted bullying, $\gamma_{[ID]} = -.67$, $p < .01$, and the effect of AST (the independent variable) became non-significant, $\gamma_{[AST]} = -.009$, $p = .94$. In addition, the Sobel test was significant at both levels, $z = 4.18$, $p < .01$ for Level 1 and $z = 2.30$, $p < .05$ for Level 2. The final results for the two levels are presented in Figure 1.

Although we did not hypothesize that external regulation would mediate the relation between perceived AST and bullying, the correlations at the within-class level suggested it was possible. Therefore, we tested this possibility, but the results did not support it. Thus, while controlling one for the other, AST was related to bullying, whereas external regulation (the possible mediator) was not.

Discussion

The present research revealed two important findings. First, acting considerately towards others in order to obtain praise or avoid punishment (external regulation) positively correlated with students' self-reported bullying towards classmates; in contrast, behaving considerately towards others because students valued that activity (ID) was correlated negatively with repetitive acts of bullying. Second, students' perceptions of teachers' autonomy-supportive behaviour were negatively related to bullying by predicting ID.

These results replicate and expand on past research outcomes. The relations between the regulation types and bullying replicate Roth and Bibi's (2010) findings and support past research demonstrating that ID predicts better behavioural persistence (Vansteenkiste *et al.*, 2005). The current results also appear to support Roth's (2008)

findings in which autonomy-supportive parenting predicted ID and other-oriented pro-social helping.

The current findings expand on past research by focusing on students' perceptions of teaching behaviours in relation to bullying and may advocate that in order to promote the effectiveness of anti-bullying programmes; school policy should implement procedures that go beyond external control and attempt to facilitate profound internalization (identified/integrated regulation) in students. The present study specifically examined students' perceptions of teachers' autonomy-supportive activities as an important factor that may predict students' deeper internalization and reduced bullying of peers. The findings indicated that students' perceptions of teachers' provision of rationale and relevance, together with perceptions of the teachers' attempts to take the student's perspective in relation to pro-social and anti-social student behaviours in class, appeared to reduce self-reported bullying by supporting students' development of identification with the pro-social value of acting considerately towards classmates. No doubt, provision of rationale and taking the student's perspective in tense situations ensuing from students' transgressions is not an easy task for teachers, but the present results suggest that these actions are advisable.

The current research findings may suggest that external control, which past research showed as promoting external regulation (Assor *et al.*, 2005; Ryan & Deci, 2000), may not suffice for bullying reduction in class. In as much as external regulation involves instrumental behaviour enacted to obtain rewards or avoid sanctions by socializing agents, students' aggressive behaviour is liable to continue in places and times where supervision is absent. Furthermore, mere expectations of student obedience to external rules and demands do not coincide with educators' deeper educational goals for their students like profound internalization of considerateness and anti-bullying behaviours. Given that teachers' justification and explanation of pro-social behaviours and attitudes (involving provision of rationale and taking the other's perspective) is straightforward and accessible, an autonomy-supportive context appears feasible. The present findings demonstrate the importance of students' perceptions of AST that enabled them to identify with values and expectations and integrate them. Thus, according to SDT, when the behavioural regulation is based on identification and integration external monitoring and external control are no longer needed (Deci & Ryan, 2008).

As mentioned earlier, some daily circumstances in school settings may require a reliance on external controls for immediate attenuation of school bullying and restoration of a secure environment. External authority may be necessary to furnish firm guidelines and regulations in disorganized or violent settings where children feel physically and emotionally unsafe. However, in line with SDT, the current research outcomes suggest that given the limited impact of external regulation alone, such external controls should be implemented only as a first stage and should be consistently followed by school policies promoting better internalization. It appears that application of AST to advance profound internalization in students may elicit long-term effects, but this possibility should be investigated by future research.

The present study did not explore teachers' actual practices but students' perceptions of teachers' autonomy-supportive behaviours. Although teachers' reports of AST and students' perceptions were found to be positively correlated (Deci *et al.*, 1981; Reeve & Jang, 2006), future research should explore both perceptions in relation to school bullying. However, students' perceptions of the extent in which the teacher takes the students' perceptions and provides rationale that is relevant to the students' goals, aspirations, interest, and understanding, seems to be crucial in studying teachers' effects

on students' behaviours. Thus, a teacher can report on her/his attempts to take the child's perspective but only the student can report if the teachers succeed in doing so. Future research will do well to measure teachers' and students' reports simultaneously; furthermore, observations of teacher-student interaction in class seem valuable in this sense. In addition, given the likelihood that self-reported bullying would involve a strong social desirability bias, it seems important to control for this bias. In the present research, we used the Crowne and Marlowe (1964) measure and found no relation with bullying, but future research should use other (more recent) measures that were developed specifically for adolescents.

Future research should also explore additional autonomy-supportive practices that may facilitate ID. For example, past research demonstrated that, together with provision of rationale and taking the student's perspective, AST also involves encouraging criticism and independent thinking (Assor *et al.*, 2002). Thus, encouraging students' criticism and independent thinking may help teachers provide a more convincing rationale for their expectations, a rationale that relates directly to students' responses and criticisms.

In addition to enhancing effective practices, teachers should also carefully attempt to decrease some of their ineffective practices, specifically their controlling behaviours and attitudes, which were found to predict students' shallow internalizations, lack of motivation, and negative feelings (Assor *et al.*, 2002, 2005; Grolnick *et al.*, 1997; Roth *et al.*, 2009). Internalization at a shallow level (external and introjected regulations) was also found to predict bullying and poor relatedness (Roth & Bibi, 2010). As already noted, when the learning environment is overly chaotic or aggressive, controlling teaching methods may be enacted, but they should gradually be followed by a more autonomy-supportive and less controlling approach that aims to transfer the commitment and responsibility for behavioural regulation from teachers to students (Assor *et al.*, 2002, 2005; Reeve, Bolt, & Cai, 1999).

The present study did not explore long-term effects of AST on school bullying or on students' internalization levels. Future research would do well to explore those effects over time. Moreover, further study should explore those relations prospectively by working with teachers on their socialization practices and measuring the long-term effects of teachers' implementation of autonomy-supportive practices in relation to children's pro-social and anti-social behaviours. This research should not be restricted to teachers' autonomy-supportive responses to child behaviour, but rather should evaluate implementation of educational programmes that initiate class simulations and discussions related to pro-social behaviours in an autonomy-supportive manner.

The present research has several limitations that are important to discuss. First, the current analyses were based on cross-sectional self-reports. This raises the possibility that the correlations were in part a function of method variance. However, exploring the discussed relations at the between-class level (in addition to the students' level) offered an advantage. Thus, using a HLM as the analytical approach allows us to go beyond individuals' reports by computing an aggregation of the individuals' reports. The aggregation reflects a mean of class' perception of each teacher, which partially helps to overcome the self-reports' bias (Raudenbush & Bryk, 2002). Yet, additional studies using multiple reporters and behavioural observations would be very helpful in confirming the present results. Second, the cross-sectional data do not allow causal interpretations. It is therefore important to test the hypotheses with prospective longitudinal research.

In sum, the present outcomes demonstrated that students' perceptions of AST minimizes students' bullying in school by predicting students' deep internalization of considerateness as a societal value in relating to others. Coinciding with Roth and Bibi

(2010), the current findings showed that external regulation of pro-social behaviours does not reduce bullying of peers, but rather predicts it. In contrast, identified/integrated regulation minimizes bullying. Altogether, these results may suggest that schools should encourage teachers to implement autonomy-supportive practices with their students, to promote identified/integrated regulation of pro-social values and behaviours. Although research has not yet explored long-term effects of students' profound internalization, the current findings suggest the merit of these conceptions for school policy and intervention programme design. Moreover, the current research calls for further study on the comparative effectiveness of different teacher practices as well as the long-term effects of such practices on students' internalization and pro-social behaviour.

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