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Elements Contributing to Teachers' Role in Bullying

van Aalst, Danelien

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Chapter 3

Understanding Teachers' Likelihood to Intervene in Bullying Situations: Testing the Theory of Planned Behavior

This chapter is based on:

van Aalst, D., Huitsing, G., & Veenstra, R. (2021) Understanding Teachers' Likelihood to Intervene in Bullying Situations: Testing the Theory of Planned Behavior (*Preliminary accepted for a Special Issue of the International Journal of Bullying Prevention*)

Abstract

Despite the expanding body of research on school bullying and interventions, knowledge remains limited on what makes teachers intervene in bullying situations. Based on the Theory of Planned Behavior, a theoretical framework was developed that synergized the predictive elements contributing to teachers' likelihood to intervene. This study tested the main part of this framework empirically. The model used teachers' characteristics and behavior as predictors of their tendencies to identify, prevent, and reduce bullying. Survey data of 114 primary school teachers ($M_{age}=42$ years, 87% female, 10 schools) and 66 secondary school teachers ($M_{age}=40$ years, 44% female, 5 schools) were analyzed with multi-level regression models on all teacher elements of the framework. Teachers' attitudes (including perceived seriousness of bullying) and behavioral control (including attribution styles) were related to teachers' likelihood to intervene in six hypothetical bullying situations. Two other model elements (subjective norms, referring to collegial support, and knowledge on the distinguishing characteristics of bullying) were unrelated to the likelihood to intervene. The findings of this study emphasize the importance of teachers' attitudes and attribution styles on their likelihood to intervene. The findings can be emphasized in teacher training and anti-bullying programs to empower teachers more systematically and address the importance of attitudes and attribution styles in bullying interventions.

Key words: Teachers' anti-bullying interventions; Anti-bullying attitudes; Behavioral control; Theory of Planned Behavior;

Introduction

Already from the start of his extensive research on school bullying, Dan Olweus acknowledged the importance of classroom teachers for their ability to influence the classroom social climate by their behavior and attitudes toward bullying (Olweus, 1993a, 1996a). Olweus noted that teachers have difficulties to identify bullying (Olweus, 2013), while they are at the same time key agents regarding the effective implementation of the Olweus Bullying Prevention Program (OBPP; see also the recent special issue edited by Nickerson and Ostrov, 2021). Despite the expanding evidence on teachers' vital role in tackling school bullying including the implementation of interventions, there is limited knowledge on what affects teachers' tendencies to intervene in bullying situations. This study aimed to fill this gap through empirically testing a conceptual framework (van Aalst et al., 2021) based on the Theory of Planned Behavior (TPB, Ajzen, 1991, 2012) that synergized all potential elements contributing to teachers' likelihood to intervene in hypothetical bullying situations. In doing so, the novelty of our study is that it simultaneously tested the main elements of this framework as predictors of teachers' intervention behavior: teachers' anti-bullying attitudes, behavioral control, subjective norms, and knowledge on bullying.

Theory

Theory of Planned Behavior Explaining Intervening in Bullying Situations

The conceptual framework (van Aalst et al., 2021) was based on a systematic literature review and consisted of three elements; 1) teachers' attitudes toward behavior (here: anti-bullying attitudes), 2) behavioral control (e.g., teachers' self-efficacy and attribution styles), and 3) the perceived subjective norms from important others (e.g., colleagues, principal). These three elements guide human behavior according to the TPB. Teachers' attitudes,

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behavioral control, and subjective norms may influence their likelihood to intervene in bullying situations, which, according to the model, results in actual intervention behavior with specific strategies to prevent or tackle bullying (e.g., disciplining the bully, working with the group, or ignoring the incident).

First, teachers' attitudes refer to their attitudes toward bullying behavior, the extent to which they empathize with the victim, and how serious they take bullying incidents. Prior research found a higher likelihood to intervene for teachers with a more negative attitude toward bullying behavior, and for teachers with more empathy or when taking bullying more seriously (Dedousis-Wallace et al., 2014).

Second, teachers should feel the ability to control their behavior and to change something about the bullying situation or prevent future bullying in order to take action. The findings were mixed for the relation of teachers' self-efficacy with intervening in bullying. Some studies found that 4% of the variance in teachers' likelihood to intervene could be explained by teachers' self-efficacy related to bullying intervention (Fischer & Bilz, 2019), but others did not find evidence for this relation (Yoon et al., 2016). Other studies focused on the locus of control, which is the extent to which teachers attribute causes of bullying internally (i.e. within their power) or externally (e.g., to student characteristics or contextual factors). Findings indicated that teachers who scored higher on internal attribution were more likely to intervene (Begotti et al., 2017), whereas teachers with higher levels of external attribution had higher victimization rates in their classroom (Oldenburg et al., 2015).

The third element of the model, subjective norms, refers to support from important others, such as colleagues and other school staff. All teachers function in a team working together on the academic and social development of their students, often in cooperation with their management, including the principal. If bullying situations are challenging, it is important

that teachers feel they are not responsible for solving the situation by themselves. Teacher perceptions of being supported by colleagues and the management is important to their intention and actual behavior when being confronted with bullying situations. Staff connectedness and principal support were both positively related to teachers' self-efficacy (O'Brennan et al., 2014; Skinner et al., 2014), suggesting that feeling supported could also affect the likelihood to intervene indirectly. Collegiality, referring to regular interaction, sharing ideas and creating a common understanding of goals, was positively related to individual and organizational effectiveness (Durlak & DuPre, 2008; Shah, 2012). In teams with more perceived collegiality, there is a greater willingness to seek and give help (Shah, 2012). Receiving more support from the principal or management in terms of (firm) leadership and the perception that ideas are heard or acknowledged (shared-decision making), were found to contribute positively to teachers' commitment and willingness to implement changes, such as implementing anti-bullying programs (Geijsel et al., 2001; Meyer et al., 2020). Although general support by teachers and management is not equal to their specific norms on intervening in bullying situations, it is important that teachers feel supported by colleagues when facing difficult bullying situation, which could also be seen as the subjective norms.

The TPB-model was complemented with a fourth element: knowledge about bullying, which refers to the basic features introduced by Dan Olweus to assess whether a situation concerns bullying; aggressive, harmful behavior, repetition, and power imbalance (Olweus, 1993a), later complemented by goal directedness as a fourth feature (Kaufman et al., 2020; Volk et al., 2014). Teachers need to be able to interpret several types of negative behavior, of which bullying is one form, in order to distinguish and decide whether or how to intervene in different situations that occur in their classroom. Training teachers and teaching them about bullying was shown to improve teachers' ability to detect bullies and victims, to select suitable

strategies to deal with bullying, and to increase their self-perceived ability to intervene (Benítez et al., 2009; Boulton, 2014).

The Current Study

We aimed to test a theoretical framework explaining teachers' likelihood to intervene in bullying. Teachers were provided with six vignettes describing bullying scenarios, and were asked how likely they were to intervene in each of these situations. The advantage of this approach is that it provides participating teachers with a more realistic context of the bullying situation described, compared to asking teachers a general question about what they tend to do in case of bullying. Previous research using similar methods to estimate teachers' likelihood to intervene indicated that teachers' anti-bullying attitudes were associated with their likelihood to intervene (e.g. Dedousis-Wallace et al., 2014; Yoon, 2004). Other studies explained differences in teachers' intervention behavior depending on the type of bullying or differences between pre- and in-service teachers (e.g. Begotti et al., 2017; Yoon & Kerber, 2003).

We hypothesized that teachers' likelihood to intervene in bullying situations would be higher for teachers with more anti-bullying attitudes (H1a), more empathy with the victim (H1b), and who take bullying situations more seriously (H1c). Further, we expected that teachers would be more likely to intervene in bullying when they experienced more behavioral control, which was measured with self-efficacy (H2a) and internal attribution styles, i.e. factors within their control (H2b). In addition, concerning the supportive subjective norms, we expected that teachers' likelihood to intervene in bullying would be higher when they perceived higher levels of collegiality and collective efficacy (H3a) and when they were more positive about leadership and shared decision-making of the management (H3b). Finally, we expected that teachers' likelihood to intervene would be higher for teachers who had more

knowledge about bullying (H4), and thus acknowledged the features of a harmful impact, the power imbalance, and its systematic and intentional nature.

The hypotheses were tested among 114 primary school and 66 secondary school teachers before they received training in an anti-bullying program. We used multi-level regression models to examine what characteristics and behavior of teachers are related to their likelihood to intervene in bullying. We controlled for teachers' gender, job experience, personal victimization history, and whether teachers worked at primary or secondary school. A recent study found that secondary school teachers reported lower scores on different elements representing school culture (van Aalst, et al., 2021). For that reason, we performed additional explorative analyses to examine whether some of the effects of our TPB framework were moderated by whether teachers worked in secondary rather than in primary education.

Methods

Procedure and participants

We used data collected in the Netherlands among primary and secondary school teachers who filled in a survey prior to their training as part of an anti-bullying program at their school. At the beginning of the school year 2019-2020, 46 primary schools started with the KiVa anti-bullying program, of which 36 were trained during or right after the summer holidays. These 36 schools were approached to participate in the study. Ten schools agreed to participate, after which teachers received an information letter about the teacher study. The teacher-questionnaires were sent to the school, distributed and recollected by the contact person. Every teacher received an informed consent letter, a questionnaire, and an empty envelope to return the questionnaire anonymously. Teachers could opt-out at any point during the study or return an empty questionnaire. In total, 193 questionnaires were

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sent to the schools, of which 136 were filled out by teachers (71%). However, 22 teachers (11%) did not sign the consent form that allowed us to use their information in the study, resulting in 114 primary school teachers who were included in the final sample (final response rate 59%; 87.4% female, $M_{age} = 42.29$).

In secondary schools, a pilot study on the development and implementation of a new anti-bullying program called GRIPP started in the school year 2019-2020. Four secondary schools started the pilot in 2019 and one secondary school started the pilot in 2020. Teachers (mainly homeroom teachers), management and support staff who were involved in the first and second classes were invited to participate prior to the training (183 total). In total, 92 teachers filled out the questionnaire. However, 26 teachers did not sign the consent form, and therefore only answers to 66 questionnaires were used in the analyses (response rate of 36%, 43.5% female, $M_{age} = 40.18$). Both data collections and the questionnaires were approved by the university's Internal Review Board (ECS-190418, ECS-190521).

Measurements

Likelihood to intervene. Teachers' likelihood to intervene in bullying situations was measured by teachers responses to six hypothetical bullying vignettes, depicting two physical, two verbal, and two relational bullying situations (see Appendix A). The hypothetical vignettes had been used before (Yoon, 2014), and were adjusted for the Dutch educational setting including allowing differences between primary and secondary schools. Teachers responded to a 5-point Likert-type scale (0=totally disagree, 4= totally agree) to the statement "I would intervene in this situation". The scores for the 6 items formed a reliable scale and were averaged ($\alpha = .69$).

Anti-bullying attitudes. We used a 6-item scale about common misunderstandings about bullying (Englander, 2020) to measure *teachers' anti-bullying attitudes*. Teachers

responded on a 5-point Likert-type scale (0=totally disagree, 4=totally agree) to items such as “Children who say they are being bullied are exaggerating”. Confirmatory factor analysis indicated that one item did not fit with the other items, which was therefore removed from the final scale. The scores for the 5 items formed a reliable scale and were reversed and averaged ($\alpha = .65$). A higher score indicated a more negative attitude toward bullying behavior.

Empathy. We used a 10-item scale, derived from the Empathy Quotient (EQ) scale (Groen et al., 2015) to measure teachers' *empathy*. Teachers responded to a 5-item Likert-type scale (0=totally disagree, 4= totally agree) to items such as “I find out quickly what someone else prefers to talk about”. Four items were excluded because they were more focused on caring for others or on personal emotions, and did not fit on one scale with the other items. The average of the remaining six items formed a reliable scale ($\alpha = .77$).

Perceived Seriousness of bullying. *Perceived seriousness of bullying* was measured by answering a question after each of the six bullying vignettes, describing bullying scenarios (based on Yoon et al, 2004). Teachers answered on a 5-point Likert-type scale (0=totally disagree, 4= totally agree) to the question “I rate this situation as being serious”. The answers to the six vignettes formed a reliable scale and were averaged ($\alpha = .76$).

Self-efficacy. Teachers' *self-efficacy* was measured by answering a question after each of the six bullying vignettes (based on Yoon et al, 2004). Teachers answered on a 5-point Likert-type scale (0=totally disagree, 4= totally agree) to the question “I find it hard to intervene in a situation like this”. The scores of the six answers were reversed and averaged and formed a reliable scale ($\alpha = .84$).

Internal attributions. We used a 14-item scale derived from the Internal Causal Attribution Scale (Van Hattum, 1997, Oldenburg et al., 2015) to measure the extent to which teachers attribute the causes of bullying internally, i.e. being in their own power to prevent or

reduce it, or externally, i.e. being caused by students' background or behavior or characteristics. Teachers responded on a 5-point Likert-type scale (0=totally disagree, 4=totally agree) to items finishing the sentence "If the victimization rate in the classroom is high, this is caused by..", such as "the bully coming from a difficult family", or "the teacher having more important issues to devote attention to". A confirmatory factor analysis showed that all but one item could be taken together into one scale based on factor loadings larger than 0.4. The scores for these thirteen items were all recoded into the same direction before being averaged, with a higher score reflecting more internal attribution, and formed a reliable scale ($\alpha = .86$).

Collegiality and Collective Efficacy. We used an 8-item scale derived from the Organizational Climate Index (Hoy et al., 2002) to measure *collegiality*. Teachers answered on a 5-item Likert-type scale (0=totally disagree, 4= totally agree) to items such as "Staff at our school support and help each other". The scores for the 8 items formed a reliable scale and were averaged ($\alpha = .78$).

A comparable 4-item scale measured *collective efficacy*. Teachers answered on a 5-item Likert-type scale (0=totally disagree, 4= totally agree) to items such as "As a team, we are able to create a nice school". The scores for the four items formed a reliable scale and were averaged ($\alpha = .81$).

Leadership and Shared Decision-Making. In addition to teachers' perceptions of colleagues and the work floor, participants also answered statements reflecting perceptions of the school management or principal. We used a 6-item scale to measure *leadership*. Teachers answered on a 5-item Likert-type scale (0=totally disagree, 4= totally agree) to items such as "The management accepts questions from staff and takes them seriously". The six items formed a reliable scale and were averaged ($\alpha = .85$). *Shared-decision making* was

measured with three items. Teachers answered on a 5-item Likert-type scale (0=totally disagree, 4= totally agree) to items such as “Our management includes employees in their decision making”. The items were averaged and formed a reliable scale ($\alpha = .71$).

Knowledge on bullying. Knowledge about bullying was assessed by asking teachers the open question ‘How would you describe bullying?’ Their written answers were transcribed. Three researchers discussed the key words for every aspect of the definition of bullying (bullying being *harmful*, reflecting a *power imbalance*, being *repetitive* and the bully having the *intention* to achieve status or gain attention) and thereafter after assigned a score of 0 (not mentioned) or 1 (mentioned) for each aspect. The scores on the four elements were summed and formed an index for knowledge on bullying.

Control variables. Teachers provided general information, such as their *gender* (female=1), *educational experience*, referring to the years of being a teacher, and personal experience with victimization as a student (Oldenburg et al., 2015). This *victimization history* was assessed by three items; whether teachers were victimized as a student in 1) primary school; 2) in secondary school; and 3) after secondary education. Teachers answered on a 3-point scale (0=no, 1= a little bit, 2=yes). A dummy variable was created where teachers were assigned score 1 if they answered yes or a little bit on the question of being victimized as a student, and score 0 if they answered no to all three questions. *School type* was included as a dummy variable to indicate whether teachers worked in primary (0) or secondary education (1).

Statistical Analysis

Missing data imputation. One primary school teacher did not fill out any item for likelihood to intervene, and was therefore excluded from further analyses, resulting in 179 teachers included in the analyses. From these teachers, 48 (26.8%) had missing information

on one or more predictor variables. We imputed missing data to be able to use all information. We first estimated simple *t*-tests on teachers' likelihood to intervene to investigate for systematic missing patterns. We found that teachers with missing data on the predictor variables did not significantly differ from teachers without missing values, except for shared decision-making, where the likelihood to intervene was slightly higher in respondents with missing values on shared decision-making ($M_{\text{missing}}= 3.43$; $M_{\text{nonmiss}}= 3.24$; $t=2,23$, $p=.01$). We next used the *mi-impute mvn* command in Stata applying multivariate normal regression imputation (see for more information: Multiple-Imputation Manual, 2021) to obtain 50 imputed datasets. The final analysis was performed on the pooled data of these datasets including information on all 179 teachers.

Hypothesis testing. We first examined descriptive statistics and correlations. Because of the nested structure of the data with teachers nested in schools, we employed multilevel regression models in Mplus Version 8.4 (Muthén & Muthén, 2017), with teachers (level 1) being nested in schools (level 2). We included subscales of the four key elements of the theoretical framework and regressed them on teachers' likelihood to intervene using the dataset with imputed data. We controlled for personal characteristics of teachers; their gender, years of work experience as a teacher, personal victimization history, and whether they taught in primary or secondary education. In additional analyses, we performed *t*-tests for all predictor variables to examine main differences between primary and secondary school teachers. In the second step, interactions of primary/secondary school with each subscale were created and tested separately, to examine whether the main association between a subscale and teachers' likelihood to intervene differed between primary and secondary school teachers.

Results

Descriptives and Correlations

Table 1 lists the constructs of the model. The likelihood to intervene was rather high with an average of 3.27 on a 4-point scale, suggesting that most teachers reported that they were likely to intervene in bullying. We performed additional t-tests for sensitivity, to compare teachers' likelihood to intervene in physical, verbal, and relational bullying. Results confirmed findings from previous research (Yoon & Kerber, 2003) with teachers being most likely to intervene in physical bullying compared to verbal ($t(171)=6.73, p<.001$) and relational bullying ($t(171)=9.03, p<.001$), and more in verbal than relational bullying ($t(171)=3.21, p<.001$). Half of the vignettes were situated inside school and half outside, but no difference was found in teachers' likelihood to intervene based on the place of bullying (see Table A2 of Appendix B).

Teachers' also showed high self-reported scores on anti-bullying attitudes ($M=3.13$), empathy ($M=2.92$), and perceived seriousness of the bullying scenarios ($M=3.33$), all on a scale from 0 to 4. All three subscales correlated significantly with teachers likelihood to intervene; teachers attitudes ($r=.33, p<.001$), empathy ($r=.26, p<.001$), and perceived seriousness ($r=.68, p<.001$).

With regard to behavioral control, teachers scored 2.61 on average on a 4-point scale for self-efficacy, and slightly lower for internal attribution ($M=1.93$). This could be explained by the combination of items of internal and external attribution into one scale, with the items of external attribution reversed, instead of using two separate scales (Oldenburg et al., 2015). Teachers' self-efficacy also correlated significantly with their likelihood to intervene ($r=.25, p<.001$), whereas internal attribution only correlated marginally with teachers' likelihood to intervene ($r=.15, p=.05$).

The scores for supportive subjective norms were comparable, with means of 2.76 and

2.93 for experienced collegiality and collective efficacy respectively, and average scores of 2.79 and 2.32 for leadership and shared decision-making. All of these scales correlated positively with teachers' likelihood to intervene; perceived collegiality ($r=.25, p=.001$), collective efficacy ($r=.26, p=.001$), leadership ($r=.29, p<.001$) and shared decision-making ($r=.20, p=.01$).

Teacher' scores were low for knowledge of bullying ($M=1.61$), although the standard deviation was rather high ($SD=0.98$), suggesting that teachers vary in their knowledge of what defines bullying. Teachers' knowledge was, however, only marginally correlated with teachers' likelihood to intervene ($r=.15, p=.05$).

The final part of Table 1 with the control variables shows that 72% of the teachers was female, teachers had an average working experience of 16 years, and 31% of the teachers experienced victimization themselves as a student. Female teachers ($r=.18, p=.02$) and experienced teachers ($r=.16, p=.03$) were more likely to intervene in any of the six scenario's. Finally, 37% of the teachers worked at secondary school, and they were less likely to intervene bullying than colleagues from primary school ($r=-.18, p=.02$). The additional analyses pointed out that secondary school teachers also scored significantly lower on their empathy with the victim ($t(177)=4.01, p<.001$), how serious they take bullying ($t(177)=3.51, p<.001$), perceived collegiality ($t(169)=7.77, p<.001$), collective efficacy ($t(162)=4.11, p<.001$), leadership ($t(151)=5.89, p<.001$), shared decision-making ($t(147)=4.94, p<.001$), and knowledge of bullying ($t(172)=3.28, p<.001$) (see Table A3 in Appendix B).

Multilevel regression models

We first estimated an empty model specifying teachers' likelihood to intervene at the school- and teacher-level. The findings showed a variance of likelihood to intervene of $b=.184, p<.001$ at the teacher-level, and of $b=.005 (p<.001)$ at the school level, resulting in an intra-class

correlation (ICC) of 2.6% (see Hox, 2010 for the formula). The variance in teachers' likelihood to intervene between schools was minor. In the next model, we included all predictor variables and teachers' likelihood to intervene at the teacher-level, and controlled for the nested structure by specifying the school as a cluster variable in the model.

Before including all elements in one model, we first tested the relation of the four elements with likelihood to intervene separately (see Table 2). The first model showed that teachers' anti-bullying attitudes ($b=.15, p<.001$) and perceived seriousness ($b=.63, p<.001$) but not general empathy were related to the likelihood to intervene. The second model showed significant associations for both teachers' self-efficacy ($b=.15, p=.03$) and internal attribution ($b=.14, p<.001$) with likelihood to intervene. The third model focused on a supportive school context, and showed only a significant association between perceived leadership and the likelihood to intervene ($b=.14, p=.04$). Finally, model 4 showed that teachers who scored higher on knowledge were also more likely to intervene ($b=.05, p=.02$).

Model 5 in Table 2 shows the results of the multilevel regression model with all elements included. Teachers' attitudes ($b=.20, p<.001$) and the extent to which they take bullying seriously ($b=.61, p<.001$) related positively to the likelihood to intervene, in line with H1a and H1c. Teachers' empathy with the victim did not related significantly with their likelihood to intervene (H1b).

With regard to behavioral control, we found a positive relation between teachers' internal attribution and their likelihood to intervene ($b=.13, p<.001$) (H2b), whereas there was no effect for teachers' self-efficacy (H2a).

Teachers' perceptions of supportive colleagues and management, referring to collegiality, collective efficacy (H3a), and leadership and shared decision-making (H3b), were unrelated to the likelihood to intervene. Additionally, no effect was found for knowledge of

bullying (H4). Finally, female teachers ($b=.15, p=.005$) were more likely to intervene than male teachers. Additional analyses examine whether there were also differences in the association of these and the other predictor variables and teachers' likelihood to intervene between primary and secondary school teachers. Interactions of the predictor variables with secondary school type were only significant for differences in empathy ($b=-.21, p=.02$) and internal attribution ($b=-.16, p=.02$). This suggests that the association between both empathy and internal attribution with likelihood to intervene was weaker for secondary school teachers.

Compared to the empty model, the current model explained 58.7% ($R^2=[.184-.076]/.184*100$) of the variance in teachers' likelihood to intervene at the teacher level and had an acceptable goodness of fit (decrease in deviance compared to the intercept-only model = 160.80; $df=14; p<.001$).

Discussion

The aim of our study was to test a framework based on the Theory of Planned Behavior explaining teachers' likelihood to intervene (van Aalst et al., 2021). The results of this study provided evidence for a positive relation between teachers' likelihood to intervene and their anti-bullying attitudes, the extent to which they take bullying seriously, and internal attributions. Although we found significant associations between teachers' self-efficacy, leadership, and knowledge with teachers' likelihood to intervene in separate models, these associations disappeared in the full model. These findings suggest that to change teachers' tendency to act in bullying situations, the main focus should be on teachers' attitudes toward bullying, and their attribution style, because these appeared to be the most important factors explaining teachers likelihood to intervene in hypothetical bullying scenarios.

Table 3.1 Descriptive statistics and correlations (N=179)

	Mean	SD	Min	Max	01	02	03	04	05	06	07	08	09	10	11	12	14	15
1. Likelihood to intervene	3.27	0.44	2.00	4.00														
Attitudes																		
2. Anti-bullying attitudes	3.13	0.46	1.60	4.00	.33													
3. Empathy	2.92	0.42	1.50	4.00	.26	.15												
4. Perceived seriousness	3.33	0.44	1.50	4.00	.68	.24	.17											
Behavioral control																		
5. Self-efficacy	2.61	0.79	0.67	4.00	.25	-.11	.13	.02										
6. Internal attributions	1.93	0.36	1.00	3.31	.15	.31	.11	.18	-.05									
Subjective norms																		
7. Collegiality	2.76	0.52	1.25	3.88	.25	.04	.22	.27	.08	.07								
8. Collective efficacy	2.93	0.53	1.00	4.00	.26	-.01	.27	.16	.23	-.02	.62							
9. Leadership	2.79	0.60	0.50	4.00	.29	.10	.23	.29	.06	.03	.44	.49						
10. Shared-Decision Making	2.32	0.73	0.33	4.00	.20	.07	.11	.23	-.02	.13	.31	.34	.62					
11. Knowledge on bullying	1.61	0.98	0.00	4.00	.15	-.02	.13	.17	-.01	.04	.15	.13	.16	.02				
Control variables																		
12. Sex (1=female)	0.72	0.45	0.00	1.00	.18	.13	.23	.09	-.09	.12	.23	.10	.12	.14	.12			
14. Educational Experience	16.21	11.39	0.00	42.80	.16	-.06	.03	.19	.14	.07	.30	.17	.12	.07	.01	.09		
15. Victimization history	0.31	0.47	0.00	1.00	-.01	-.02	-.06	-.11	-.02	-.07	-.17	-.10	-.05	-.03	-.10	-.28	-.21	
16. Secondary school type	0.37	0.48	0.00	1.00	-.18	-.03	-.29	-.26	.09	-.12	-.51	-.31	-.43	-.38	-.24	-.47	-.11	.21

Note. Correlations in **bold** are significantly different from zero with $p < .05$.

Table 3.2 Multilevel regression, DV: Teachers' Likelihood to Intervene

	Model 1			Model 2			Model 3			Model 4			Model 5		
	<i>b</i>	<i>SD</i>	<i>p</i>	<i>b</i>	<i>SD</i>	<i>p</i>	<i>b</i>	<i>SD</i>	<i>p</i>	<i>b</i>	<i>SD</i>	<i>p</i>	<i>b</i>	<i>SD</i>	<i>p</i>
Attitudes															
Attitudes	0.15	0.05	<.01										0.20	0.04	.00
Empathy scale	0.02	0.04	.59										-0.03	0.05	.52
Seriousness scenarios	0.63	0.10	<.001										0.61	0.07	.00
Behavioral Control															
Teachers Self-efficacy				0.15	0.07	.03							-0.03	0.04	.48
Attribution				0.14	0.04	<.01							0.13	0.03	.00
Subjective Norms															
Collegiality							0.04	0.06	.50				-0.02	0.05	.69
Collective Efficacy							0.10	0.06	.12				0.09	0.06	.12
Leadership							0.14	0.07	.04				0.03	0.06	.58
Shared Decision-Making							0.01	0.05	.82				0.01	0.05	.92
Knowledge															
Knowledge total score										0.05	0.02	.02	0.02	0.02	.46
Control Variables															
Gender (female=1)	0.11	0.08	.15	0.13	0.05	.02	0.15	0.05	<.01	0.12	0.06	.06	0.15	0.05	.01
Educational Experience	0.00	0.00	.54	0.00	0.00	.12	0.00	0.00	.16	0.01	0.01	.04	0.00	0.00	.98
Victimization History	0.02	0.04	.64	0.01	0.05	.85	0.00	0.04	.93	0.01	0.05	.87	0.03	0.03	.38
Secondary school type	0.04	0.04	.33	-0.11	0.07	.12	0.03	0.10	.73	-0.07	0.07	.31	0.06	0.05	.24

Variance Likelihood to Intervene	0.09	0.01	<.001	0.16	0.02	<.001	0.16	0.02	<.001	0.18	0.02	<.001	0.08	0.01	.00
Deviance Difference ¹		126.79,	df=7	26.48,	df=6	26.71,	df=9	13.43,	df=5			160.80,	df=14		

¹Deviance Difference with regard to Intercept-only model

The analysis of the separate elements indicated that every element contributes to teachers' likelihood to intervene, but not all equally. Table 1 showed that correlations between some of the predictor variables were also high, demonstrating that some of the subscales of the elements are also associated with each other. For instance, it could be that teachers who know better what bullying defines also take bullying more seriously. The association of knowledge with teachers' likelihood to intervene might then be mediated through taking bullying more seriously. This questions whether these elements can be interpreted as separate blocks affecting the tendency to intervene and, subsequently, act. Future research may want to examine such a mediation model.

According to the developed framework, teachers' likelihood to intervene in a bullying situation is an antecedent of their actual intervention behavior (van Aalst, et al., 2021). The intention of behavior, in this case teachers' likelihood to intervene in bullying situations, can be viewed as an indicator of the motivation to perform certain behavior. Previous studies found a mean correlation between intention and actual behavior of .53 (Ajzen, 2012; Sheeran, 2002), and a meta-analysis confirmed the causal relationship between intention of behavior and subsequent actual behavior (Webb & Sheeran, 2006). So-called implementation intentions indicate actual behavior more accurately when someone specifies not only what they intend to do but also in which situation (Sheeran, 2002). We have tried to incorporate this through describing specific situations in bullying vignettes, which may provide a more accurate measure of teachers' likelihood to intervene than simply using general statements. However, we did not include an additional step in the model by looking at teachers' actual behavior. An avenue for further research would be to include observational data or self-reports of both teachers and students to have a multi-informant measure of actual teacher behavior in bullying situations (Nickerson & Ostrov, 2021; Wang et al., 2015; Zhao et al., 2021).

Limitations, Strengths and Directions for Further Research

Strengths of this study can be found in testing an integrated model with simultaneous inclusion of several elements contributing to teachers' likelihood to intervene. We thereby gained insight in the associations between the different key elements and teachers' likelihood to intervene.

Our study had also some limitations. First, teachers' likelihood to intervene was measured by six vignettes depicting bullying situations. Although this provides more context than a general question on whether teachers would intervene in bullying, it may be less accurate than observational data on teachers' response behavior to bullying (Yoon, 2004), and therefore questionable to what extent it captures real acts to tackle bullying. A recent study (Fischer et al., 2020) measured teachers' likelihood to intervene by asking teachers to recall a recent bullying situation which they faced, and whether they intervened, observed, or ignored that situation. Measuring teachers' likelihood this way, in addition to vignettes, and also asking students about their perceptions of teachers' interventions, may provide insight in the validity of our measure and may also allow to possibility to collect multi-informant data on teachers' intention and acts to tackle bullying.

Additional analyses suggested that primary and secondary school teachers differ in their mean levels for all predictor variables, and in some associations between predictor variables and the likelihood to intervene. Future research may therefore take differences between primary and secondary school teachers into account, and collect larger samples of both primary and secondary school teachers, in order to contribute to the development of more tailored anti-bullying interventions at both school types.

Future data collection could examine multiple contexts. Some schools or teachers work with anti-bullying programs and received training in dealing with bullying, while others

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did not, and it would be interesting to examine the malleability of teachers' attitudes, behavioral control, perceived subjective norms, and knowledge, and the impact of the likelihood to intervene. Furthermore, cross-national research may provide insight in contextual and cultural factors that play a role in the four key elements and their relation to teachers' likelihood to intervene.

Overall, our findings indicate the complexity and interrelations of elements that play a role in teachers' likelihood to intervene. Especially teachers' attitudes, the extent to which they take bullying seriously, and their internal attribution of the causes of bullying were important for their tendency to act, and could be included implementation of anti-bullying programs and teacher trainings at schools.

Appendices

Table A3.1: Bullying Vignettes

Note: we made slight adjustments for secondary schools. This version, and Dutch translations are available upon reasonable request

Scenario 1 Verbal At school	At the coat rack, you hear a student yelling to another student: "Nerd, loser, teacher's pet!". Other students laugh about it. The student tries to ignore it, but sits down at his table, dejected. You've seen this happen to this student before.
Scenario 2 Relational At school	You gave the kids some free time because they worked so hard. You see a few students in a group tell another student, "No, I already told you, you can't join us!" The student is isolated and plays by himself the rest of the time, his eyes full of tears. It's not the first time this has happened.
Scenario 3 Physical At school	You have instructed the children to work on a project in groups of four. As the children sit in their groups, you see a student pushing a fellow student so hard that he falls to the ground. The push was clearly intentional and unprovoked. The child who falls shouts: 'Stop pushing, you always do! Just go away!'
Scenario 4 Relational Outside school	In the classroom, the children talk enthusiastically about a (class) party last weekend. One student, however, looks gloomy. When you ask the student about it later, it turns out that the student was kicked out of the class WhatsApp group by classmates some time ago and therefore didn't know anything about the party last weekend.
Scenario 5 Physical Outside school	In the morning when the class fills up, a child comes toward you, visibly upset. The student tells that yesterday he was chased by classmates after school for the third time, that he was pushed off the bicycle and that his backpack was destroyed. This was also filmed and distributed in an app group.
Scenario 6 Verbal Outside school	Monday morning the atmosphere in the classroom feels tense. When you ask (the children) about it, it turns out that last weekend there was a football match of a team including students from your class. One of the children, whom is targeted more often, accidentally scored an own goal and was ridiculed on Instagram. The incident continues to affect the group, and the child looks scared and defeated.

Table A3.2: Testing differences between types of vignettes

	<i>t</i>	<i>df</i>	<i>p</i>
Physical vs. Verbal	6.73	170	<.001
Physical vs. Relational	9.03	172	<.001
Verbal vs. Relational	3.21	172	.001
Inside vs. Outside	1.41	170	.148

Table A3.3: Testing differences between Primary and Secondary School Teachers

	<i>M_{primary}</i>	<i>SD_{primary}</i>	<i>M_{secondary}</i>	<i>SD_{secondary}</i>	<i>t</i>	<i>df</i>	<i>p</i>
Attitude	3.13	0.04	3.11	0.06	0.36	176	.36
Empathy	3.01	0.04	2.76	0.05	4.01	177	<.001
Seriousness	3.41	0.04	3.18	0.06	3.51	177	<.001
Self-efficacy	2.56	0.07	2.71	0.10	1.21	177	.89
Internal attribution	1.96	0.03	1.87	0.04	1.55	176	.06
Collegiality	2.96	0.04	2.41	0.06	7.77	169	<.001
Collective Efficacy	3.05	0.04	2.72	0.08	4.11	162	<.001
Leadership	3.00	0.05	2.47	0.09	5.89	151	<.001
Decision-making	2.54	0.07	1.98	0.10	4.94	147	<.001
Knowledge	1.79	0.09	1.30	0.12	3.28	172	<.001

