Cambridge Educational Research e-Journal

ISSN: 2634-9876 Journal homepage: http://cerj.educ.cam.ac.uk/

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To cite this article:

Hurtubise, P. (2021). Teachers' perceptions of cyberbullying: a comparative multilevel modeling approach. *Cambridge Educational Research e-Journal*, 8, 52-62. https://doi.org/10.17863/CAM.76201

Link to the article online:

Published online: 31 October 2021

Link to Apollo

Cambridge Educational Research e-Journal | Vol. 8 | 2021

DOI: https://doi.org/10.17863/CAM.76201

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Highlights

- Teachers in this study were more likely to respond to cyberbullying scenarios taking place at school rather than at home.
- Likelihood of response increased with perceived severity of the cyberbullying scenario.
- Teacher self-confidence was positively related to the likelihood of response to cyberbullying.

Hallazgos Destacados*

- Los docentes de este estudio eran más propensos a responder a los escenarios de ciberacoso que tenían lugar en la escuela que en casa.
- La probabilidad de respuesta aumentó con la gravedad percibida del escenario de ciberacoso.
- La auto-confianza de los docentes se relacionó positivamente con la probabilidad de responder al ciberacoso.

*Spanish Translation | Dr Sophia D'Angelo

Cambridge Educational Research e-Journal | Vol. 8 | 2021

DOI: https://doi.org/10.17863/CAM.76201

Teachers' Perceptions of Cyberbullying: A Comparative Multilevel Modeling Approach

Peter Hurtubise*

Keywords

cyberbullying, bullying, teachers' perceptions, multilevel modeling

Abstract

Teachers' perceptions of bullying and cyberbullying in schools are an increasingly important field in educational research. Teachers play a very important role in reducing bullying, and many psychological theories (such as Social Cognitive Theory and Expectancy Theory) would suggest that teachers' perceptions of bullying may influence their likelihood of responding. The aim of the research was to explore how teachers' perceptions affected their likelihood of responding to varied cyberbullying scenarios (e.g., whether at home or school). Using multilevel modeling, this study investigated the relationships between teachers' likelihood of response and key psychological factors and background characteristics, drawing on a convenience sample of 212 new and experienced teachers from England and the United States. Some of these factors include valence (severity of cyberbullying), expectancy (level of teacher self-confidence), and instrumentality (confidence in selected task). Findings show that valence, expectancy, and location of the cyberbullying were statistically significant predictors of teachers' likelihood of response to situations of cyberbullying. This study has potential implications for the design of teacher training programs that could help address cyberbullying in schools.

Palabras Clave

ciberacoso, bullying, percepciones de los docentes, modelamiento multinivel

Spanish Translation

Javiera Marfan

Resumen

Las percepciones de los docentes sobre el acoso escolar y el ciberacoso forman parte de un campo cada vez más importante en la investigación educativa. Los docentes desempeñan un papel muy importante en reducir el acoso, y muchas teorías psicológicas (como la Teoría Cognitiva Social y la Teoría de la Expectativa) sugieren que las percepciones de los profesores sobre el acoso pueden influir en su probabilidad de darle respuesta. El objetivo de esta investigación fue explorar cómo las percepciones de los docentes afectaban su probabilidad de responder ante diversos escenarios de ciberacoso (por ejemplo, en casa o en la escuela). Mediante el uso de modelos multinivel, este estudio investigó las relaciones entre la probabilidad de respuesta de los profesores y los factores psicológicos claves y las características de fondo, a partir de una muestra de conveniencia de 212 docentes nuevos y experimentados de Inglaterra y los Estados Unidos. Algunos de estos factores son la valencia (gravedad del ciberacoso), la expectativa (nivel de confianza del profesor en sí mismo) y la instrumentalidad (confianza en la tarea seleccionada). Los resultados muestran que la valencia, la expectativa y la ubicación del ciberacoso fueron predictores estadísticamente significativos de la probabilidad de respuesta de los docentes ante situaciones de ciberacoso. Este estudio tiene implicaciones potenciales para el diseño de programas de formación de docentes que podrían ayudar a abordar el ciberacoso en las escuelas.

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DOI: https://doi.org/10.17863/CAM.76201

Introduction

Cyberbullying has been recognized as an increasing problem in the last two decades, and is now an internationally recognized phenomenon (Baek and Bullock, 2014; Barlett et al., 2014; Shapka et al., 2018). The uninhibited use of the internet at home for students precipitates a situation in which cyberbullying can flourish (Agatson et al., 2007, p. 59). More time spent on social media platforms could correspond with a higher chance of cyberbullying (Holt et al., 2014, p. 601). During the age of a pandemic, with almost unlimited internet time for many students, questions arise of who has the right to monitor internet use, and what can be done by schools that are already decentralized to deal with cyberbullying?

In order to explore teachers' perceptions of cyberbullying, this introduction will first define the term. Dan Olweus claims that "[a] student is being bullied or victimized when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other students" (1993, p. 9). Bullying in general corresponds with anxiety and depression in victims, as well as psychiatric disorders in perpetrators (Copeland et al., 2013). Cyberbullying particularly focuses on these negative behaviors occurring on communications devices (whether computers or cell phones). Unlike regular bullying which can take place in a physical reality, the fact that cyberbullying occurs on personal devices makes it incredibly challenging to monitor (Rosenberg and Asterhan, 2018; Cassidy et al., 2012).

Teachers often remain the first line of defense in protecting students from bullying and cyberbullying. Yet when it occurs at home on a device, will the teacher still respond? How often? What will they do? One study suggests that 25% of teachers do not perceive cyberbullying as a problem, although there is evidence of long-term effects (Stauffer et al., 2012, p. 353). One of the pioneers of bullying research (Dan Olweus) emphasized that the success of an antibullying program hinges on the 'resources', 'knowledge', and 'motivation' of the staff (Olweus and Limber, 2010, p. 132). When looking at these ideas from an international perspective, these core elements of a successful program could differ. Yet what seems consistent across context is that teachers serve as a 'first line of communication' (APA Zero Tolerance Task Force, 2008, p. 857). This study adopted perspectives from Social Cognitive Theory and Expectancy Theory. In Social Cognitive Theory, Bandura (1989) suggests that personal, behavioral, and environmental factors are reciprocally determined. Bandura also developed Self-Efficacy Theory (which connects very deeply with Expectancy Theory) in that it tries to further explain how personal factors (such as perceptions) shape behavior.

In particular, Expectancy Theory highlights valence (severity), expectancy (confidence in self), and instrumentality (confidence in selected task) as constructs that affect the likelihood of response (Vroom, 1964 and 2007). Olweus suggests that valence (severity) is important – because not considering bullying a problem could be an obstacle to bullying prevention (Olweus and Limber, 2010, p. 130). Hence, this psychological factor could be important for predicting whether or not teachers respond to cyberbullying. Olweus suggests that certain schools might 'cherry-pick' bullying strategies that they feel might be easier in terms of implementation (Olweus and Limber, 2010, p. 131). Perceptions of ease of task (instrumentality) could reflect the confidence that teachers have within their abilities (expectancy) for implementing such strategies. Therefore perceptions of skill level could be important for understanding why and how strategies were adopted within school contexts. Furthermore, Olweus details how certain schools privilege the use of zero-tolerance approaches, thereby suggesting that certain approaches are already deemed more effective than others (Olweus and Limber, 2010, p. 131). The shared belief in the effectiveness of particular approaches to bullying could affect the level and scope with which the strategy is implemented. Yet the question is whether these factors (valence, expectancy, and instrumentality) would actually serve as predictor variables for a likelihood of response. Such information could benefit training programs for teachers in the future.

The current study

The purpose of this study is to understand teachers' perspectives of cyberbullying in schools. The study has a specific focus on how these perspectives predict the likelihood of a teacher to respond to various bullying scenarios. An international sample of teachers from England and the US was drawn to measure how different factors related to the likelihood of response. This is the research question for this particular study: How do background factors (such as teacher gender and country) and expectancy factors (instrumentality, expectancy, and valence) relate to teacher responses to cyberbullying?

Method

Participants

The study used purposive convenience sampling of new and experienced teachers from England and the US. The sample consisted of 212 teachers in total. Teaching experiences varied (M = 5.87 years, SD = 9.49). Of the 212 teachers, 152 were from England, and 60 were from the US (primarily California). In terms of Gender, 53% were Female, and 47% were Male. Past research on bullying has used comparable sample sizes (Boulton

DOI: https://doi.org/10.17863/CAM.76201

et al., 2014; Bauman and Del Rio, 2006).

Procedure

The data from this research came from a larger mixed methods study. The data in this paper focuses particularly on the information gathered from the surveys and the quantitative strand of the research. Teachers self-reported the likelihood of responding to cyberbullying scenarios, alongside responding to other questions pertaining to motivational factors.

Teachers were told that the project was a part of a larger research project on cyberbullying in schools, and they were told that it should take no more than 15 minutes to fill out the survey questionnaires. They provided informed consent with CUREC standards, and the respondents were assured that their information would remain confidential. They were given the opportunity to participate further in the project by arranging an interview, which would further the qualitative component of a larger mixed methods study.

Measures

The questionnaires for this research were adapted from the previously referenced research of Bauman and Del Rio (2006), Yoon and Kerber (2003), Stauffer et al. (2012), and Boulton et al. (2014). This study included 21 survey items, covering three different potential cyberbullying scenarios. The first cyberbullying scenario focuses on cyberbullying taking place at school in a computer lab. The description of the scenario in the questionnaire is as follows: "Imagine that you are aware of a case of cyberbullying taking place in your school's computer lab." The second cyberbullying scenario takes place at home. Specifically, the description is: "You learn that a student is cyberbullying another student from home." The third scenario includes a group of students mocking an unflattering picture on a cell phone. The scenario is worded as follows: "A cyberbully situation is taking place on a cell phone. A group of students is huddled around the phone, mocking and laughing at an unflattering image of another student at school." For each scenario, the teachers were asked their likelihood of response, their perceived severity (valence), perceived self-confidence for dealing with perpetrator and victim (expectancy), and perceived confidence in performing their selected task with the perpetrator and the victim (instrumentality).

Valence

This research article equates valence with perceived severity associated with the specific cyberbullying scenario. This measure specifically consists of three survey items, asking the level of seriousness for situations of home, school, and group cyberbullying. The responses were measured with a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree". An example item is "In your opinion, how serious is this situation?" There was satisfactory reliability for perceived valence (Cronbach's $\alpha = .78$).

Expectancy

The research also explores expectancy, or the level of self-confidence teachers have for dealing with the cyberbullying scenario. This measure specifically consists of six survey items, dealing with how well the teacher feels that they can perform responses with the perpetrators and the victims of the home, school, and group cyberbullying scenarios. An example item is "How well do you think that you can perform this response?" The responses were measured with a 5-point Likert scale ranging from "not at all well" to "very well". Expectancy also had a good level of reliability (Cronbach's $\alpha = .89$).

Instrumentality

Instrumentality connects to the perceived effectiveness of the task itself. This measure consists of six survey item, relating to the perceived effectiveness of the tasks selected for dealing with perpetrators and victims in scenarios of home, school, and group cyberbullying. An example item is: "How likely do you feel that this response will resolve the problem?" The responses were measured with a 5-point Likert scale ranging from "not at all likely" to "very likely" to consider to resolve the cyberbullying. Instrumentality also had satisfactory scale reliability (Cronbach's $\alpha = .90$).

Likelihood of Response

The likelihood of response was the dependent variable. This measure consists of three survey items, asking the likelihood of response to the situations of home, school, and group cyberbullying. The likelihood of response was measured with a 5-point Likert scale from "not at all likely" to "very likely". Likelihood of Response also had satisfactory reliability (Cronbach's $\alpha = .72$).

Analyses

The models presented within the analysis specifically explored the nature of the relationship between the expectancy factors and the teachers' likelihood of response. Although multiple regression is listed to compare the results, the multilevel models were deemed more appropriate because of the nested nature of the data. Listwise deletion was used for missing data. Independent variables included valence, expectancy, instrumentality, gender, country, and scenario. The dependent variable was the likelihood of response. In terms of the modeling of the error terms, they were clustered around teachers within each of the models. This was done because there is an assumption that the

DOI: https://doi.org/10.17863/CAM.76201

Table 1 Descriptive statistics

Scenario	Item description	*M*	*SD*	SE
School	Likelihood of Response	4.57	0.62	0.04
	Valence	4.43	0.70	0.05
	Perpetrator Expectancy	3.85	0.80	0.06
	Perpetrator Instrumentality	3.27	0.83	0.06
	Victim Expectancy	3.78	0.87	0.06
	Victim Instrumentality	3.11	0.81	0.06
Home	Likelihood of Response	4.09	0.95	0.07
	Valence	4.55	0.60	0.04
	Perpetrator Expectancy	3.76	0.88	0.06
	Perpetrator Instrumentality	3.25	0.90	0.06
	Victim Expectancy	3.77	0.90	0.06
	Victim Instrumentality	3.15	0.90	0.06
Group	Likelihood of Response	4.51	0.77	0.05
	Valence	4.55	0.66	0.05
	Perpetrator Expectancy	3.91	0.79	0.05
	Perpetrator Instrumentality	3.36	0.86	0.06
	Victim Expectancy	3.90	0.89	0.06
	Victim Instrumentality	3.09	0.96	0.07

Equation 1 Multiple regression model

$$y_i = \beta_1 + \beta_2 x_{2i} + \beta_3 x_{3i} + \beta_4 x_{4i} + \beta_5 x_{5i} + \beta_6 x_{6i} + \beta_7 x_{7i} + \beta_8 x_{8i} + \beta_9 x_{9i} + \beta_{10} x_{10i} + \varepsilon_i$$

y_i = likelihood of response, β_2 = valence coefficient, β_3 = victim expectancy coefficient, β_4 = victim instrumentality coefficient, β_5 = perpetrator expectancy coefficient, β_6 = perpetrator instrumentality coefficient, β_7 = the country coefficient, and β_8 = the gender coefficient, β_9 = the home cyberbullying coefficient, β_{10} = the group cyberbullying coefficient.

responses may vary based upon the specific preferences of the teachers.

Stata 14 was the statistical package used for all analyses. The command xtreg was used in the analysis of the multilevel models. In order to test whether there were statistically significant predictors in terms of the likelihood of response, four different models were implemented (a multiple regression model, a random effects model, a between effects model, and a fixed effects model). For the multilevel models, valence, expectancy, instrumentality, and type of scenario were all considered level one variables, whereas gender and country were considered level two variables.

Findings

This section reports findings that illustrate to what extent teachers' perceptions predicted the likelihood of response. The models revealed whether expectancy, instrumentality, valence, or scenario of cyberbullying were statistically significant predictors for the likelihood of response. Table 1 includes a list of the descriptive statistics for the items in the questionnaire.

The first model is a multiple regression model in which the standard errors were clustered around the teacher (Equation 1). Multilevel modeling was not implemented within this model.

A random effects models (Equation 2) is also utilized.

DOI: https://doi.org/10.17863/CAM.76201

Equation 2 Random effects model

$$y_{ij} = \beta_1 + \beta_2 x_{2ij} + \beta_3 x_{3ij} + \beta_4 x_{4ij} + \beta_5 x_{5ij} + \beta_6 x_{6ij} + \beta_7 x_{2ij} + \beta_8 x_{8ij} + \beta_9 x_{9ij} + \beta_{10} x_{10ij} + \zeta_j + \varepsilon_{ij}$$

y_{ij} = likelihood of response, β_2 = valence coefficient, β_3 = victim expectancy coefficient, β_4 = victim instrumentality coefficient, β_5 = perpetrator expectancy coefficient, β_6 = perpetrator instrumentality coefficient, β_7 = country coefficient, and β_8 = gender coefficient, β_9 = the home cyberbullying coefficient, β_{10} = the group cyberbullying coefficient. The intercept for each teacher is specific to the teacher, marked by $\beta_1 + \zeta_j$, whilst ε_{ij} represents a situation specific error component.

Equation 3 Between effects model

$$\bar{y}_j = \beta_1 + \beta_2 \bar{x}_{2\cdot j} + \beta_3 \bar{x}_{3\cdot j} + \beta_4 \bar{x}_{4\cdot j} + \beta_5 \bar{x}_{5\cdot j} + \beta_6 \bar{x}_{6\cdot j} + \beta_7 \bar{x}_{7\cdot j} + \beta_8 \bar{x}_{8\cdot j} + \zeta_j + \bar{\varepsilon}_j$$

y_{ij} = the likelihood of response, β_2 = valence coefficient, β_3 = victim expectancy coefficient, β_4 = victim instrumentality coefficient, β_5 = perpetrator expectancy coefficient, β_6 = perpetrator instrumentality coefficient, β_7 = country coefficient, and β_8 = gender coefficient.

Equation 4 Fixed effects model

$$y_{ij} = \beta_2 x_{2ij} + \beta_3 x_{3ij} + \beta_4 x_{4ij} + \beta_5 x_{5ij} + \beta_6 x_{6ij} + \beta_9 x_{9ij} + \beta_{10} x_{10ij} + \alpha_j + \varepsilon_{ij}$$

α_j = the teacher specific intercept

y_{ij} = the likelihood of response, β_2 = valence coefficient, β_3 = victim expectancy coefficient, β_4 = victim instrumentality coefficient, β_5 = perpetrator expectancy coefficient, β_6 = perpetrator instrumentality, β_9 = the home cyberbullying coefficient, β_{10} = the group cyberbullying coefficient.

This model (unlike the multiple regression) explores how the data is nested within each teacher response (Gelman and Hill, 2007, p. 245-246). An error term is thus associated with each teacher. In terms of the nomenclature, outcome '*i*' is nested within each teacher '*j*'. This designation can also be found within Rabe-Hesketh and Skrondal (2012, p. 127-128).

A between effect model is also utilized (Equation 3), exploring the between teacher effects. The variance is partitioned by teacher. Scenario based differences are not as emphasized in this model, as teacher perceptions are averaged across situation so that an average metric is used for each teacher. This can be seen within the bars over the terms in the following equation. Unlike the random effects model, '*i*' is no longer listed, showing that the '*j*' term is emphasized to explore the variance between teachers themselves. Equation 3 is used for the between effects model (Rabe-Hesketh and Skrondal, 2012, p. 143-144).

The analysis also implements a fixed effects model. Unlike the between effects model which privileges partitioning the variance between teachers, the fixed effects model explores teacher variance in responses between scenarios. Fixed intercepts for the teachers are used (represented by the term α_j). Variation within teachers is only explored, thereby removing level two variables (country and gender) from the analysis, as seen in Table 3. Equation 4 shows the fixed effects model (Rabe-Hesketh and Skrondal, 2012, p. 145-146). The effect sizes calculations for each of the models drew on the work of Tymms (2002, p. 55-62). For continuous variables, Effect Size = (2ß*$SD_{Predictor}$) / σ_e; ß = the regression coefficient in the regression model, $SD_{Predictor}$ = references the independent variable's Standard Deviation, σ_e = the pooled standard deviation of within effects; for dichotomous variables, Effect Size = ß / σ_e (Tymms 2002: 55-62).

The empty (null) models show how the variance is represented across different levels of models without predictors. Multiple Regression, Random Effects, Between Effects, and Within Effects Models are all presented without any independent variables, revealing the Intraclass Correlation Coefficient (ICC) for each model. The rho variables are further clarified in the footnotes of Table 2.

The multiple regression and multilevel models were conducted to discover which expectancy factors served as statistical predictors for teachers' likelihood of response (as seen in Table 3). The analysis explores expectancy and instrumentality in terms of victims and perpetrators. The multiple regression was plausible, yet the multilevel modeling had a distinct advantage

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Table 2 Empty models for teachers' reported likelihood of response

	Multiple regression			Random effects			Between effects			Fixed effects		
	Est	SE	*p*	Est	SE	*p*	Est	SE	*p*	Est	SE	*p*
Fixed part												
Constant	4.39	0.03	<.001	4.39	0.04	<.001	4.39	0.04	<.001	4.39	0.03	<.001
Random part												
$\sqrt{\psi}$				.51						.63[a]		
$\sqrt{\theta}$				.64						.64[b]		
ρ [c] (teacher)				.39						.49		
ρ [d] (scenario)				.61						.51		

[a] SD for estimated Level 2 residuals, α_j

[b] SD for estimated Level 1 residuals, ε_{ij}

[c] $\rho^c = \psi / (\psi + \theta)$; assuming $\psi = \text{Var}(\zeta_j)$ [variance of random intercept] and $\theta = \text{Var}(\varepsilon_{ij})$ [variance of situation specific error component].

[d] $\rho^d = \theta / (\psi + \theta)$

methodologically (scenarios were nested within teachers as described above). Since the scenarios were nested within teachers, this calls into question the assumption of independence of observations, which would be needed for the use of the first multiple regression model. Table 3 shows that models consistently revealed that valence and expectancy with perpetrator were both identified as statistically significant predictors. The use of fixed effects and random effects models can be seen as two 'complementary approaches' (Clarke et al., 2015, p. 259).

As can be seen from Table 3, various regression models were run. The models sought to determine whether categorical predictors (such as gender, country, and scenario) as well as expectancy factors (such as instrumentality, expectancy, and valence) served as adequate predictors for a higher teacher likelihood of response to the bullying scenarios presented in the survey. The first model was a multiple regression with robust standard errors clustered by teacher. The robust multiple regression model had the following characteristics: $R^2 = .33$, $F(9, 201) = 24.17$, $p < .01$. The random effects revealed another appropriate fit with overall $R^2 = .33$ (within $R^2 = .26$, between $R^2 = .36$), Wald $\chi^2(9) = 209$, $p < .01$. The between effects model revealed relevant findings with overall $R^2 = .19$ (within $R^2 = .18$, between $R^2 = .40$), $F(7, 194) = 15.99$, $p < .01$. The fixed effects model had overall $R^2 = .30$ (within $R^2 = .27$, between $R^2 = .32$), $F(7, 201) = 16.34$, $p < .01$. Based purely off the R^2 it would seem that the random effects model was most appropriate. To test the appropriateness of the model, the Hausman Endogeneity test was not statistically significant ($\chi^2(7) = 4.09$, $p > .05$), hence furthering the use the random effects model.

The random effects model had valence ($\beta_2 = .37$, $p < .01$, $ES = .75$) and expectancy with perpetrator ($\beta_3 = .25$, $p < .01$, $ES = .68$) as statistically significant predictors. Yet the scenario of home cyberbullying ($\beta_5 = -.46$, $p < .01$, $ES = -.87$) remained a negative predictor for a teacher response. However, a review of the table will reveal that not all measures were predictors, suggesting that not all expectancy factors were relevant for predicting a response.

The findings suggest that certain expectancy factors and scenarios predicted a higher level of response to cyberbullying. The table reveals that valence and expectancy with perpetrator were statistically significant predictors for a likelihood of response, whilst the home cyberbullying situations corresponded with less likelihood of response. At the same time, instrumentality and background characteristics (such as country and gender) did not correspond with a differing likelihood of response.

Discussion

The research project attempted to identify whether there was a connection between expectancy factors and teachers' likelihood of response to cyberbullying. The results suggest that two out of the three expectancy factors were relevant: valence and expectancy in dealing with the perpetrator. Strategies for emphasizing the importance of cyberbullying and the long term health impacts on student well-being could be important for increasing the likelihood of teacher response. Yet the other question at this time is how to develop systems in which teachers are able to understand how students well-being with the increased emphasis on virtual classes during the age of a pandemic.

DOI: https://doi.org/10.17863/CAM.76201

Table 3 Multiple regression and multilevel regression for expectancy factors and likelihood of response (clustered standard error except for between effects model)

		Multiple regression			Random effects			Between effects			Fixed effects (Within)		
		Est	SE	*p*	Est	SE	*p*	Est	SE	*p*	Est	SE	*p*
Fixed part	β_1 [Constant]	1.64	0.33	<.001	1.77	0.32	<.001	1.37	0.34	<.001	1.87	0.44	<.001
	β_2 [Valence]	0.40	0.06	<.001	0.37	0.06	<.001	0.43	0.07	<.001	0.29	0.08	<.001
	β_3 [V. Exp.]	0	0.05	0.99	0.01	0.05	0.79	-0.05	0.08	0.55	0.02	0.07	0.81
	β_4 [V. Inst.]	0.11	0.05	0.03	0.07	0.05	0.15	0.21	0.08	0.01	0.02	0.06	0.74
	β_5 [P. Exp.]	0.26	0.05	<.001	0.25	0.05	<.001	0.31	0.09	0.001	0.22	0.08	0.003
	β_6 [P. Inst.]	0.01	0.05	0.83	0.05	0.05	0.26	-0.11	0.08	0.19	0.12	0.06	0.062
	β_7 [Country]	-0.13	0.08	0.11	-0.12	0.09	0.16	-0.12	0.08	0.14			
	β_8 [Gender]	-0.13	0.07	0.08	-0.13	0.07	0.07	-0.13	0.08	0.08			
Scenarios	β_9 [Home]	-0.47	0.05	<.001	-0.46	0.05	<.001				-0.45	0.05	<.001
	β_{10} [Group]	-0.09	0.05	0.07	-0.09	0.05	0.07				-0.08	0.05	0.11
	R-squared												
	Within				0.26			0.18			0.27		
	Between				0.36			0.4			0.32		
	Overall	0.33			0.32			0.19			0.3		
	Random Part												
	$\sqrt{\psi}$				0.39						0.52[a]		
	$\sqrt{\theta}$				0.53						0.53[b]		
	ρ [c] (teacher)				0.35						0.49		
	ρ [d] (scenario)				0.65						0.51		

n = 595 for each of the models, [a] SD for estimated of Level 2 residuals, a_j, [b] SD for estimated Level 1 residuals, e_{ij}

V. Exp. = Victim Expectancy, V. Inst. = Victim Instrumentality, P. Exp. = Perpetrator Expectancy, P. Inst. = Perpetrator Instrumentality

DOI: https://doi.org/10.17863/CAM.76201

The study suggests that expectancy (defined as a teacher's confidence in one's ability) with the perpetrator is important for the likelihood of response. Former studies suggest that a positive school culture is associated with lower rates of school bullying, and further research would be helpful to see how school culture particularly relates to the confidence of teachers in dealing with these problems (Guerra et al., 2011, p. 307). Many new teachers claim that they lack the confidence for dealing with cyberbullying and that trainings currently do not provide enough support (Yot-Dominguez et al., 2019). Such studies suggest that increased preparation may be necessary, because the lack of preparation could lead to lower self-confidence and less likelihood of response in the future. Core measures of success need to be elucidated in the future on how to promote a sense of teacher confidence for dealing with such cyberbullying situations. The literature presents many key areas that can elucidate strategies to develop this into the future. For example, Ertesvåg and Roland (2015, p. 195) suggest that lower levels of 'leadership', 'teacher affiliation', and 'collaborative activity' correlated with higher levels of bullying. The complexity and importance of teacher self-confidence for dealing with these issues is important for developing long term teamwork that can prevent and counter cyberbullying at a larger scale.

Additionally, teachers were less likely to respond during home cyberbullying scenarios. This has potential implications at this moment in history when most of the internet use of students occurs at home, in potentially unmonitored spaces. These research findings suggest that teachers may be not be responding to the cyberbullying if it is taking place at home instead of school. Such ideas suggest that parental guidance may increase in importance within the future, since parents have the greatest influence over internet use at home. Teachers may need to strategize with parents more directly, in order to ensure that standards of respectful behavior extend beyond the classroom. Future research can explore how parents and school culture interrelate in cocreating a system of support for students that are experiencing cyberbullying. As discussed previously, Olweus and Limber (2010, p. 132) suggest that 'resources', 'knowledge', and 'motivation' are all important factors for responding to situations of bullying. Future research may explore how to improve these measurements for parents in addition to teachers.

Limitations and future research directions

There were limitations with this research. For example, notions of bullying continue to change between and across contexts – especially with the introduction of cyberbullying. The complexity of the concept itself can also lead to changing perceptions of teachers over the course of their careers. More longitudinal designs might be appropriate for future research, seeing how these ideas shape and change over the course of the careers of the teachers. The evolving nature of the term itself perhaps demands more exploratory methods as well, potentially requiring more qualitative methods (such as semi-structured interviews) to investigate the experiences of teachers themselves to see how their experiences relate between and across contexts. Additionally, sample size and sampling strategy were limited. The 212 teachers composed a purposive convenience sample. The English teachers were recruited through the Oxford PGCE and MLT programs. The prestige of the program could form a limitation since not all applicants are accepted, thereby limiting the representativeness of the sample. Further research could seek larger sample sizes. Since bullying extends beyond merely the US and English contexts, more international samples would seem appropriate and useful. Another limitation connects to the analysis, in the sense that more causal inference designs would be preferable. There is always the possibility that increased likelihood of response might lead to a perceived seriousness and confidence within the teacher's response. Matching estimators might be a useful strategy for similar research projects that work across international contexts. Yet the research does create a unique and meaningful contribution to the field. More comparative research projects focused on bullying and cyberbullying are needed at this time. The research also presents more advanced statistical methods than are currently used when investigating which factors correspond to a likelihood of a response to cyberbullying.

Conclusion

This study explored how teachers' expectancy factors related to the likelihood of responding to different cyberbullying scenarios. The multilevel models suggest that valence, expectancy with perpetrators, and the location of the cyberbullying are statistically significant predictors for a teacher response. The research suggests that policies should accentuate the importance of dealing with home cyberbullying situations. The difference in the likelihood of response between home and school cyberbullying situations suggests that current laws around cyberbullying might be unclear for teachers across England and the US. Hence, it would be important to create a consistent strategy between schools so that new and experienced teachers implement the correct protocol for all scenarios of cyberbullying.

Acknowledgements

Thanks go to Dr Sophia D'Angelo for proofreading the translated abstract and to Maria Amparo Fernández Mocholí for proofreading the translated highlights.

DOI: https://doi.org/10.17863/CAM.76201

Disclosure statement

No potential conflict of interest was reported by the author.

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