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Elements Contributing to Teachers' Role in Bullying

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Chapter 4

School Culture Differences between Primary and Secondary Schools: A Cross-Country Comparison

This chapter is based on:

van Aalst, D., de Vries, E., Kaufman, T. M. L., Veenstra, R., & Huitsing, G. (2021). School Culture Differences between Primary and Secondary Schools: A Cross-Country Comparison.

Under Review.

Abstract

Background: Research on school-wide anti-bullying interventions has proven their effectiveness in primary schools, but effectiveness in secondary education is often limited. This may be explained by the circumstances under which interventions are implemented, referring to the school culture, which are shared prevailing values, perceptions, and attitudes. This study investigated differences in perceived school culture between primary and secondary school teachers .

Method: Study 1 used multilevel analysis to examine general perceived school culture differences between primary and secondary school teachers from fourteen countries worldwide, analyzing TALIS-data with over 100,000 teachers. Study 2 examined school culture in more detail, by analyzing six subscales using data from 180 Dutch primary and secondary school teachers, using multilevel difference tests.

Findings: In Study 1, secondary school teachers in ten of fourteen countries perceived their school culture more negative than primary school teachers. Study 2 showed secondary school teachers reporting significantly lower perceptions of school culture at the management level (shared decision-making and leadership) and the team level (lower perceived collegiality, team consensus, confidence, and collective efficacy).

Implications for Research and Practice: Intervention implementation may be more effective when accounting for the school culture, where the management facilitates supportive norms regarding cooperation, collegiality, and collective efficacy. Future studies may directly account for team- and school size that could partially explain school culture differences, and test for the impact of the school culture on the effectiveness of interventions and a diverse range of educational outcomes.

Keywords: Primary School, Secondary School, School Culture, Job Conditions

Introduction

Many scholars investigated the effectiveness of interventions aimed at improving children's social, emotional, and academic development in schools, with a great variation in outcomes (Gaffney et al., 2019; Goldberg et al., 2019). Although most school-wide interventions are somehow effective in primary education, a sharp decrease in effectiveness is often found in secondary education (Lane et al., 2006; Yeager et al., 2015). A reason for the differential intervention effectiveness between primary and secondary schools might be the circumstances under which interventions are implemented, referring to the extent to which there is shared decision-making, leadership participation, and frequent collaboration among colleagues (Durlak & DuPre, 2008). These elements constitute the *school culture*: the prevailing values, perceptions, attitudes and beliefs that are shared by school members (Hawley & Williford, 2015; Smith et al., 2008; Zhu et al., 2014) and should not be mistaken with the *school climate*, which refers to patterns of colleagues' behaviors and schools' policies, practices and procedures. Whereas most intervention research has focused on the effectiveness of school interventions, less attention has been paid to the school culture context in which interventions are implemented. This study aims to examine potential school culture differences between primary and secondary schools, which is likely to explain (part of) the differences in successful implementation of interventions. The aim of the current study was twofold: first, examining whether there are differences in *teacher perceived* general school culture between primary and secondary school teachers in fourteen countries worldwide (Study 1). Second, examining these differences between primary and secondary school teachers in more detail using six subscales of perceived school culture (Study 2).

Theory

School Culture and School Size

Previous research identified cohesion, collaboration, consensus, communication and collegiality as crucial features of effective schools (Levine & Lezotte, 1990). These features contribute to a similar point of view among staff, which increased effectiveness in interventions to enhance students' *academic* development (Levine & Lezotte, 1990), but potentially also contribute to the implementation of whole school implementations focusing on *social* and *emotional* development. Secondary education is more likely to be characterized by larger schools, and therefore has a larger number of both students and staff members than primary education (Hawley & Williford, 2015; Lane et al., 2006; Leithwood, 2012). The larger number of colleagues results in more variation of expectations on what is beneficial for students' academic and socio-emotional outcomes. Previous research found that school size was inversely related to implementation fidelity of an anti-bullying program, and to teacher protection against bullying (Hall & Chapman, 2018a). In addition, it is more likely that consultation, communication, and decision-making in secondary education occurs in smaller subgroups such as specialization clusters (e.g. clusters based on the topic taught or on the track or grade of students). In addition, due to its larger size, secondary schools are more likely to have a middle management layer of department managers, who are in consultation with their team, and thus indirectly translate policies and opinions between staff and the principal (Leithwood, 2012). This might result in fewer interactions between staff of different departments or clusters, and more indirect communication between the principal or upper management and staff (Leithwood, 2012). Both the larger number and fewer interactions between the subgroups decrease the chance of aligning values, beliefs, and expectations (Lane et al., 2006). We therefore expected that primary school teachers would evaluate their

perceived school culture more positive and beneficial than secondary school teachers (H1). In the first study, we tested this hypothesis using data from the worldwide Teaching and Learning International Survey (TALIS) 2018 teacher questionnaire from fourteen countries, enabling us investigating differences between the general perceived school culture in primary and schools.

Elements of School Culture

A general scale of school culture provides insights into the differences between primary and secondary school teachers' perceptions, but might be too general to tailor any training or policy in order to improve school culture in a way that is beneficial for the implementation of policies or whole-school interventions. School culture consists of several aspects that together result in shared values, perceptions and attitudes. There are two aspects that are important to consider; first regarding the principal or management, referring to teachers' perceptions of leadership and the extent to which they experience shared decision-making. The second aspect are the relationships within the team; referring to teachers' perceptions of norms on collegiality, consensus within the team, confidence or mutual trust, and collective efficacy. We therefore investigated school culture in more detail in one country (the Netherlands) where we had access to primary and secondary schools teams and test for more specific differences in school culture in management and team efforts. Below we discuss the different subscales and expected differences between primary and secondary school teachers.

The importance of management. School management refers to the role of the principal or management in relation to the school staff, and includes encouraging and inspiring teachers to develop themselves and participate in decision-making and implementation processes (Geijsel et al., 2001). Research has indicated that if teachers perceive their

management to provide support for anti-bullying programs through communicating clear expectations and demonstrating firm leadership, they are more likely to implement (elements of) the program (Ahtola et al., 2013; Haataja et al., 2015; Midthassel & Ertesvåg, 2008). When teachers feel that the management is taking their needs and feelings seriously, they are more likely to take some initiative on behalf of an innovation (Geijsel et al., 2001). The management, thus, can create conditions that facilitate professional development and can be a catalyst for change in teacher practice (Li et al., 2016).

Research on school restructuring considers the ‘commitment strategy to change’ as a useful approach for school improvement. The underlying assumption of this approach is that collaborative *leadership* and *shared decision-making* contribute to teachers’ commitment, collaboration, and willingness to implement a program and indirectly benefits students (Geijsel et al., 2001; Meyer et al., 2020). The management takes decisions about policies and changes, and the extent to which teachers and staff are included in this process is referred to as *shared decision-making*. Shared decision-making influences the willingness of teachers to comply to the adjustments and implement changes (Durlak & DuPre, 2008; Weiss & Cambone, 1994). Higher satisfaction with participation in decision making has also been positively related to teacher collaboration (Honingh & Hooge, 2014).

The management of primary schools is more likely to apply a leadership pattern that concerns collaboration, frequent contact and shared responsibility and decision-making, also referred to as the ‘our leadership’ pattern (de Jong et al., 2020). On the contrary, there is also a ‘*their leadership*’ pattern, with the management taking a more distant role, being more facilitators and decision makers rather than collaborators. Teachers belonging to a team with this type of leaders are more responsible for the innovations themselves, have infrequent contact with the principal, and decisions are taken more at the top without input from the

staff (de Jong et al., 2020). Because secondary schools are often larger and more complex, decreasing the chances of reaching consensus among team members, the management from secondary schools is expected to demonstrate more often 'their' leadership patterns, which might not contribute for a strong school culture. Teachers at larger schools secondary are therefore more likely to communicate with their principal indirectly, via department managers, which might give them a feeling of having less influence in decisions made by the principal (Leithwood, 2012). We therefore expected that primary school teachers would have more positive perceptions of leadership (H2a) and shared decision-making (H2b) than secondary school teachers.

The importance of the team. Staff members are not only connected by authority relationships with the principal or management, but also amongst each other, in shared goals and performances. Norms on collaboration, collegiality, consensus, and communication among teachers contribute to the coordination of goals can impact teachers' likelihood to implement policies or changes in schools (Durlak & DuPre, 2008; Kollerová et al., 2021; Kyriakides & Creemers, 2013).

A first element of the team factor is the importance of *collegiality* among teachers (Shah, 2012). When school staff interacts regularly about ideas, knowledge, and create a common understanding of goals and desired changes, the organization is more likely to be successful. Strong collegial relationships are beneficial for teacher development, professionalism, coping with complexity and policy changes, and indirectly student behavior and performance (Shah, 2012). Because secondary schools are often larger, more complex, and staff being more dispersed over specialization clusters, we expected that primary school teachers would score higher on perceived collegiality than secondary school teachers (H3a).

A second teacher factor is *consensus* among teachers, referring to shared goals, values, and beliefs among teachers. Previous research indicated that a lack of consensus among teachers related to more problems among students and higher victimization rates (Hultin et al., 2021; Roland & Galloway, 2004). Research on implementation of innovations suggested that common interest and consensus about the objectives is an important inducement for cooperation and goal achievement (O'Toole & Montjoy, 1984). If efforts of a substantial number of actors or agencies are required for implementation, the likelihood of effective implementation decreases. Secondary schools often have larger teams and these teams are more often divided over subgroups, decreasing the chances of consensus across subgroups or in the school team as a whole. We therefore expected that primary school teachers would be more likely to perceive consensus within their team than secondary school teachers (H3b).

The third factor concerns teachers' *confidence*, referring to the extent to which teachers trust each other and have confidence that others in the group will make efforts consistent with the shared goals (Smith et al., 1995). Mutual trust within personal relationships at work develops over time through a history of social interaction, and proves to be important in facilitating collaboration and collective action (Leana & Pil, 2006). The development of personal relationships due to frequent interactions between all members of a team is more likely in smaller teams and less complex organizations. We therefore expected that primary school teachers would report higher levels of confidence in team members than secondary school teachers (H3c).

A fourth teacher-component of school culture is *collective efficacy*, referring to teachers' perceptions of the group's ability to succeed in joint efforts (Meyer et al., 2020). Collective efficacy increases the chances of teachers' collaborative behavior and strengthens a school's capacity for improvement (Li et al., 2016; Meyer et al., 2020). Previous research

indicated that in order to make a change effective, teachers must work interdependently (Kurz & Knight, 2004). In smaller, primary schools, it might be easier to cooperate on a goal or policy change than in secondary schools, leading to the expectation that primary school teachers would perceive higher levels of collective efficacy than secondary school teachers (H3d).

Study 1:

Methods

Procedure and participants

Study 1 aimed testing Hypothesis 1 on the differences in general school culture between primary (ISCED 2011 level 1) and secondary (ISCED 2011 level 2) schools worldwide (UNESCO Institute for Statistics, 2012). This study made use of teacher data from the OECD Teaching and Learning International Survey (TALIS) 2018 which provides insight in the learning environment and the working condition in schools (OECD, 2018). TALIS 2018 focused on lower secondary education, but participating countries were also allowed to collect data in primary and/or upper secondary education.

There were fourteen countries that administered the TALIS 2018 teacher questionnaire in both primary and lower secondary education. Participating countries are located in Asia (Vietnam, Japan, Korea, Chinese Taipei), Europe (Denmark, Sweden, Spain, France, England, and the Netherlands), South America (Argentina), the Middle East (Turkey and United Arab Emirates) and Oceania (Australia). The variety in countries also reflect variety in educational organization, both within and between continents. For the present study, an important organizational difference across countries is the extent to which there is a strict distinction between primary and lower secondary education, referring to school building, contact among staff, and shared management (same management for both primary and

secondary educational level). In Scandinavian countries (here: Denmark, Sweden) youth attends the same school during primary and lower secondary education, while in the other countries (e.g., the Netherlands, see Study 2 of this manuscript) there is a stricter distinction between primary and (lower) secondary education, with regard to the building, staff and management (Nuffic: The Dutch organisation for internationalisation in education, n.d.).

National study centers used the international versions (English and French) of the survey instruments as the basis of their national questionnaires and documented adaptations to the instruments to suit their respective national language and contexts (OECD, 2019). The teacher questionnaire was administered online, requiring 45-60 minutes to complete. Participating countries collected data from fall 2017 until spring 2018.

There were 100,994 teachers in the fourteen countries that completed the TALIS 2018 teacher questionnaire (primary school teachers $N=49,120$; secondary school teachers $N=51,874$; 70.1% female). Data stem, if applicable in the respective country, from teachers that worked in all educational levels. A total of 3,385 (primary school teachers $N=1,559$; secondary school teachers $N=1,826$) participants were excluded (3.3%) because they did not fill out any questions on school culture, and therefore no relevant information was available. Inspecting for systematic missing data patterns, it was found that participants from Asian countries seem less likely to skip the questions on school culture. As a result of missing answers on school culture, 97,609 (primary school teachers $N=47,561$; secondary school teachers $N=50,048$) participants were included in the analyses. The number of participants differed per country and can be found in Table 1. Information on important teacher background characteristics, such as socioeconomic status (SES) or ethnicity, was not available.

Measurements

The teacher questionnaire was developed by a Questionnaire Expert Group managed by the TALIS consortium (OECD, 2018). A conceptual framework, with research goals, was developed that was approved by all participating countries. The draft of the questionnaire was tested in a pilot study in all participating countries, adjusted after the pilot and finalized before sending it to the countries for the main study.

School culture. School culture in both primary and secondary education was measured with six items (e.g., “the school staff shares a common set of beliefs about teaching and learning”). Two items from the originally eight-item school culture scale were not included because they were about school culture in relation to parents and students instead of teachers. Items were answered on a four-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). A higher score therefore indicated a more positive and beneficial school culture in terms of collegiality and conditions to implement change or new policies.

Educational level. A dummy variable indicated primary (0) or secondary (1) school. The primary educational level is for all countries ISCED 2011 level 1 and secondary educational level is for all countries ISCED 2011 level 2.

Statistical analyses

First, exploratory factor analyses were performed and correlations between the items were provided to determine whether the school culture scale could be used as one scale. Second, statistics per educational level per country were presented. Questionnaires were adjusted to each country to fit the respective contexts (e.g., with regard to language and school system).

A three-level (teachers nested within schools within countries) multilevel linear regression analysis was performed in MLwiN version 3.0.4 to examine differences between

school culture in primary and secondary education within and between countries, and test Hypothesis 1. First, we estimated an empty model with variation at all levels to study the distribution of variance over teachers, schools and countries. Second, we added educational level (primary vs. secondary level) as an independent variable to determine whether there were differences in school culture between primary and secondary education worldwide. Third, we added country (dummy) and country x school-level interactions as predictors for school culture, each time leaving out the country of interest (making it the reference country). These analyses determined the differences in school culture between primary and secondary education for each country separately.

The False Discovery Rate (FDR) method was used to account for multiple comparisons, by adjusting the p -value (Benjamini & Hochberg, 1995). Effect sizes were calculated with Cohen's d (standard deviations were derived from standard errors using $SD = SE * \sqrt{n}$). Finally, 95% confidence intervals for the differences in school culture between primary and secondary education per country were calculated and visualized.

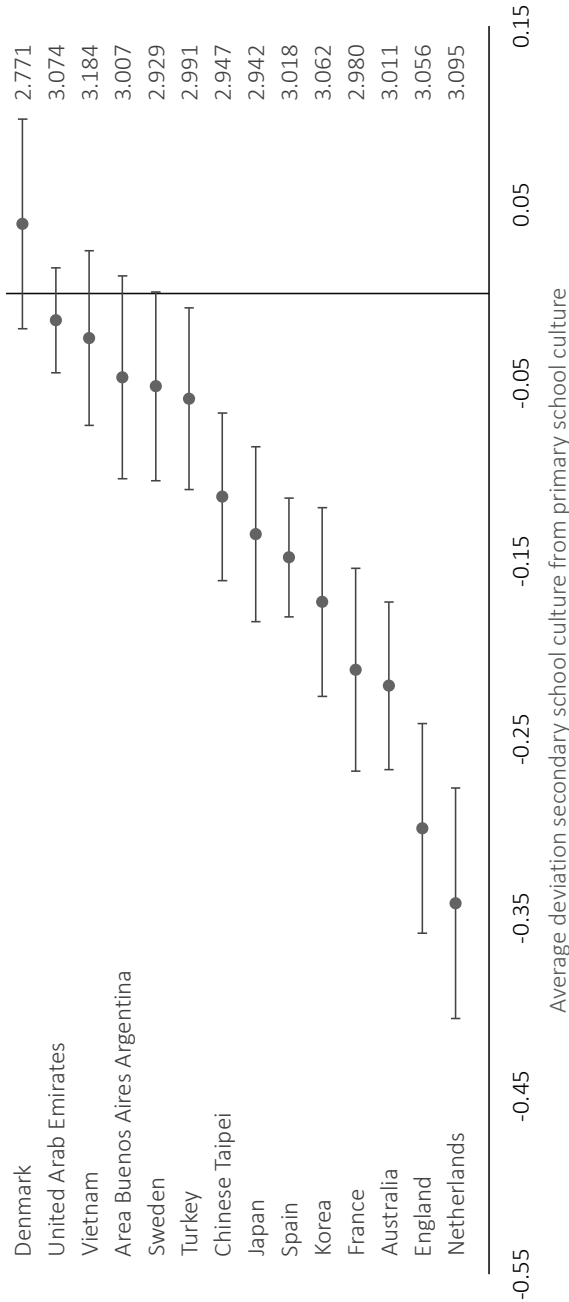
Results

Exploratory factor analyses (Appendix 1) showed that the six school culture items loaded on one factor ($\alpha = .89$), and could be used as one school culture scale. Correlations between the six variables were moderate to high (range $r = .42$ to $.70$) (Appendix 1). Appendix 2 shows descriptive statistics of the six school culture items per educational level per country. The empty multilevel estimated intra-class correlations and indicated that the school culture variation at school level was 19%, whereas the variance at the country level was only 2.6%.

A three-level multilevel linear regression analysis with primary/secondary education predicting school culture indicated that on average the school culture in fourteen countries

was perceived less beneficial in secondary education than in primary education ($M_{\text{difference}} = 0.113$, $SE = 0.007$; $p < .001$), which is consistent with H1. Table 1 shows the average score on school culture for both primary education and secondary education per country. In all countries, except Denmark, the school culture was perceived less beneficial in secondary education in comparison to primary education. Differences in school culture between primary and secondary education were non-significant for Area Buenos Aires Argentina ($M_{\text{difference}} = .046$; $p_{\text{adj}} = .067$), Denmark ($M_{\text{difference}} = .039$; $p_{\text{adj}} = .11$), United Arab Emirates ($M_{\text{difference}} = -.015$; $p_{\text{adj}} = .16$) and Vietnam ($M_{\text{difference}} = -.025$; $p_{\text{adj}} = .16$). The differences in school culture between primary and secondary education per country are visualized in Figure 1. Especially in the Netherlands ($M_{\text{difference}} = -.342$; $p_{\text{adj}} = .002$) and England ($M_{\text{difference}} = -.300$; $p_{\text{adj}} = .002$), school culture is perceived less positively in secondary education in comparison to primary education, and effect sizes were small to medium (respectively $d = .37$ and $d = .32$). See for all effect sizes Table 1.

Figure 4.1 School culture differences between primary and secondary education.



Note. The dots on the x-axis are the scores on school culture in secondary education in comparison with the scores in primary education per country. For example: in the Netherlands, the school culture score is almost 0.35 lower in secondary education than in primary education. The average in primary education is given in the right column (e.g., for the Netherlands: 3.095).

Table 4.1 Results multilevel linear regression

Country	School culture primary education (SE)	School culture secondary education (SE)	Difference primary/secondary education (SE)	t-test with adjusted p-value ^a	Effect size ^b
Australia (<i>N</i> _{primary} =2727; <i>N</i> _{secondary} =3209)	3.011 (.028)	2.791 (.017)	-.220 (.024)	<i>t</i> =-9.17, <i>p</i> =.002	0.18
Area Buenos Aires Argentina (<i>N</i> _{primary} =2367; <i>N</i> _{secondary} =2031)	3.007 (.020)	2.960 (.022)	-.047 (.029)	<i>t</i> =-1.62, <i>p</i> =.067	0.05
Denmark (<i>N</i> _{primary} =2426; <i>N</i> _{secondary} =1878)	2.771 (.020)	2.810 (.022)	.039 (.030)	<i>t</i> =1.30, <i>p</i> =.11	0.04
England (<i>N</i> _{primary} =1868; <i>N</i> _{secondary} =2125)	3.056 (.021)	2.756 (.021)	-.300 (.030)	<i>t</i> =-10.00, <i>p</i> =.002	0.32
France (<i>N</i> _{primary} =1359; <i>N</i> _{secondary} =2823)	2.980 (.022)	2.769 (.019)	-.211 (.029)	<i>t</i> =-7.28, <i>p</i> =.002	0.24
Japan (<i>N</i> _{primary} =3276; <i>N</i> _{secondary} =3522)	2.942 (.018)	2.807 (.017)	-.135 (.025)	<i>t</i> =-5.40, <i>p</i> =.002	0.13
Korea (<i>N</i> _{primary} =3155; <i>N</i> _{secondary} =2881)	3.062 (.018)	2.887 (.019)	-.173 (.027)	<i>t</i> =-6.41, <i>p</i> =.002	0.17
Netherlands (<i>N</i> _{primary} =1426; <i>N</i> _{secondary} =1734)	3.095 (.023)	2.753 (.023)	-.342 (.033)	<i>t</i> =-10.36, <i>p</i> =.002	0.37
Spain (<i>N</i> _{primary} =7168; <i>N</i> _{secondary} =7319)	3.018 (.012)	2.870 (.012)	-.148 (.017)	<i>t</i> =-8.71, <i>p</i> =.002	0.14
Sweden (<i>N</i> _{primary} =2170; <i>N</i> _{secondary} =2522)	2.929 (.020)	2.877 (.019)	-.052 (.027)	<i>t</i> =-1.93, <i>p</i> =.038	0.06
Chinese Taipei (<i>N</i> _{primary} =3478;	2.947 (.017)	2.833 (.017)	-.114 (.024)	<i>t</i> =-4.75, <i>p</i> =.002	0.09

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<i>N</i> _{secondary} =3812)					
Turkey	2.991 (.019)	2.932 (.018)	-.059 (.026)	<i>t</i> =-2.27,	0.05
(<i>N</i> _{primary} =3170;				<i>p</i> =.019	
<i>N</i> _{secondary} =3907)					
United Arab Emirates	3.074 (.011)	3.059 (.011)	-.015 (.015)	<i>t</i> =-1.00,	0.01
(<i>N</i> _{primary} =8988;				<i>p</i> =.16	
<i>N</i> _{secondary} =8465)					
Vietnam	3.184 (.017)	3.159 (.017)	-.025 (.025)	<i>t</i> =-1.00,	0.02
(<i>N</i> _{primary} =3983;				<i>p</i> =.16	
<i>N</i> _{secondary} =3820)					

Note. a = *p* is adjusted for multiple comparisons using the False Discovery Rate (FDR; Benjamini & Hochberg, 1995). b = Cohen's *d*, absolute values

Study 2:

Methods

Procedure and participants

Study 2 was conducted to test the specific hypotheses on aspects of leadership and team differences. For this study, we made use of data collected among primary and secondary school teachers in the Netherlands who filled out a survey prior to their training as part of an anti-bullying prevention 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 schools were approached to participate in the teacher-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 and distributed and recollected. Every teacher received an informed consent letter, a questionnaire, and an empty envelope to return the questionnaire. Teachers could opt-out at any point during the study or return an empty questionnaire. In total, 193 questionnaires were sent to the schools, of which 136 were filled out by teachers (71%). However, 22 (11%) teachers did not fill out 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 (Response rate 59%; 87.4% female, $M_{\text{age}} = 42.29$).

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, i.e., 'mentors'), management, and support staff who were involved in the first and second grades of secondary schools (the equivalence of US grades 7 and 8) were invited to participate prior to the training (183 total). In total, 92 teachers filled

out the questionnaire (50.3%). However, 26 teachers did not fill out the consent form (14%), and therefore only responses to 66 questionnaires were used in the analyses (Response rate 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). The questionnaire administered aimed to obtain information on factors that play a role in determining the school culture. The survey included elements from a theoretical framework on teacher interventions and bullying, based on the Theory of Planned Behavior (Ajzen, 1991), and included questions on bullying, teachers' attitudes and self-efficacy, personal bullying history, responses to hypothetical bullying situations, and about the school culture (for the framework see: van Aalst, Huitsing, et al., 2021). In the current study, both leadership and team factors were used to indicate differences in school culture between primary and secondary schools.

Measurements

Management elements. Perceived management was measured with two subscales: general leadership and shared-decision making (both based on Hoy et al., 2002 and Hoy & Tschannen-Moran, 2003). First, *leadership* was measured with six items (e.g., “the management accepts questions from staff and takes them seriously”) indicating to what extent the management is open to input from employees and treats them as equal actors in the process ($\alpha = .85$). Second, *shared-decision making* was measured with three items (e.g., “our management includes employees in their decision making”) indicating whether the management makes decisions without taking the feelings and opinions of employees into account ($\alpha = .71$). Items were answered on a five-point Likert scale (0=completely disagree; 1=disagree; 2=neutral; 3=agree; 4=completely agree).

Team elements. Perceptions of the team were assessed with four subscales: collegiality, consensus, confidence and collective efficacy. *Collegiality* was measured with eight items (e.g., “staff at our school support and help each other”) that indicate teacher cooperation, willingness to help, and mutual respect ($\alpha = .78$) (based on Hoy et al., 2002). *Consensus* in the team was assessed with four items (e.g., “the goals of this school are clear to the team”) that indicate teacher agreement ($\alpha = .84$) (based on Spector, 1985). *Confidence* in the team was measured with five items (e.g., “I trust my colleagues”) that indicate trust in the team ($\alpha = .79$) (based on Hoy & Tschannen-Moran, 2003). *Collective efficacy* was measured with four items (e.g., “as a team, we are able to create a nice school”) that were developed for this study and indicate the shared belief that as a team, teachers can have a positive impact on students’ behavior ($\alpha = .81$). Participants answered the questions on a five-point Likert scale (0=completely disagree; 1=disagree; 2=neutral; 3=agree; 4=completely agree). See Appendix 3 for all items of all subscales.

Statistical Analyses

We calculated descriptive statistics including independent *t*-tests to inspect initial differences in the subscales for the school culture between primary (reference category) and secondary educational level (coded as 1). Because of the nested structure of the data with teachers in school, we employed multilevel difference tests in MLwiN version 3.0.4 (Rasbash et al., 2017) with teachers (level 1) being nested in schools (level 2). We included a dichotomous variable with primary (reference category) and secondary educational level (coded as 1) as predictor to test our hypotheses for differences in the six elements of school culture.

Results

Table 2 presents the means of all subscales, separately for primary and secondary schools. Primary school teachers scored consistently higher than secondary school teachers on all subscales, indicating that they perceived their school culture more positively. All subscale differences between primary and secondary schools were statistically significant ($p < .05$).

The correlation between leadership and shared-decision making was high ($r=.62$, $p<.001$), and the correlations between the four teacher-factor subscales were all exceeding .58, except for the correlation between confidence and consensus ($r=.45$).

Multilevel linear regression. We estimated six separate models in Table 3 where every model included one subscale as dependent variable. Teachers' perceptions of both leadership and shared-decision making did significantly differ between primary and secondary school teachers ($b=-0.539$, $p<.001$ and $b=-0.566$, $p<.001$ respectively), which was in line with hypotheses 2a and 2b.

In line with the hypotheses on differences in teacher factors, we found that secondary school teachers perceived lower levels of collegiality ($b=-0.581$, $p<.001$, H3a), consensus ($b=-0.639$, $p<.001$, H3b), confidence ($b=-0.187$, $p=.038$, H3c), and collective efficacy ($b=-0.341$, $p=.011$, H3d). Table 3 shows the smallest effect size for confidence ($d =0.19$), which is explained by the high scores of both primary and secondary school teachers on this subscale ($M_{primary}=3.01$, $SD_{primary}=0.44$ and $M_{secondary}=2.834$, $SD_{secondary} =0.57$). The remaining five elements showed small ($d=0.25$ for collective efficacy) to moderate ($d=0.51$ for collegiality) effect sizes.

Table 4.2 Descriptive statistics, Correlations and Factor analysis

Subscale	#items	M _{primary} (SD)	M _{secondary} (SD)	t-test (df) ¹	Correlations				
					1.	2.	3.	4.	5.
1.Leadership	6	.848 (0.449)	2.999 (0.664)	5.888 (151)	**				
2.Decision-making	3	.705 (0.633)	2.541 (0.749)	4.937 (147)	**	.616**			
3.Collegiality	8	.780 (0.422)	2.968 (0.489)	7.603 (162)	**	.462**	.332**		
4.Consensus	4	.836 (0.562)	2.784 (0.744)	5.623 (156)	**	.624**	.465**	.579**	
5.Confidence	5	.793 (0.435)	3.009 (0.566)	2.224 (166)	*	.406**	.331**	.603**	.454**
6.Coll. Efficacy	4	.807 (0.410)	3.055 (0.641)	4.108 (162)	**	.487**	.336**	.619**	.576**

** Significant at the 0.01 level (2-tailed).

* Significant at the 0.05 level (2-tailed).

Table 4.3 Multilevel Linear Regression Models

Dependent:	N	Constant = random intercept		Predictor: Secondary education		One-tailed t-test with $\alpha=.05$	Effect size ^a	Variances	
		<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)			Level 1: Teacher Variance (<i>SE</i>)	Level 2: School Variance (<i>SE</i>)
Leadership	149	3.013 (.083)	-539 (.139)	<.001	0.41	.250 (.030)	.039 (.024)		
Decision-making	153	2.560 (.097)	-566 (.159)	<.001	0.45	.414 (.050)	.043 (.032)		
Collegiality	164	2.988 (.075)	-581 (.126)	<.001	0.51	.161 (.019)	.037 (.020)		
Consensus	158	2.831 (.115)	-639 (.193)	<.001	0.37	.308 (.036)	.093 (.046)		
Confidence	168	3.026 (.063)	-187 (.105)	.038	0.19	.217 (.025)	.017 (.014)		
Coll. efficacy	164	3.073 (.088)	-341 (.148)	.011	0.25	.200 (.023)	.053 (.027)		

^a Cohen's *d*

General conclusion and discussion

The aim of this study was first to examine whether there were differences in general perceived school culture between primary and secondary school teachers, and second, to examine in more detail whether six specific elements of school culture differed between primary and secondary school teachers.

Results from Study 1 showed differences in teacher perceived general school culture in ten out of fourteen countries under investigation, with overall lower scores among secondary than primary school teachers. In the remaining four countries, no differences were found. Study 2 was conducted with the aim to examine more specific aspects of school culture differences on management and team levels, and findings indicated that primary school teachers perceived more shared decision-making and leadership at the management level, and more collegiality, consensus, confidence, and collective efficacy at the team level, compared to teachers in secondary schools, which was in line with our hypotheses.

Previous research identified cohesion, collaboration, consensus, communication and collegiality as basis for effective implementation of interventions and policy change (Levine & Lezotte, 1990). Our findings indicated secondary school teachers perceiving these elements to a lesser extent than their primary school colleagues. These differences could be partially explained by school- and team-size; secondary schools often being larger and having more staff members. Larger organizations are also more likely to include a middle management layer, with every manager leading a subdivision of staff, which could result in more variation in expectations among staff, especially between subgroups, and more indirect communication with the principal or main management (Leithwood, 2012).

Although schools from different countries, and even different continents, were included in this study, there was no country in which secondary school teachers perceived the

school culture more positive than primary school teachers from their country. This would suggest that despite the variety in contexts and school systems of these countries, the difference in school culture between primary and secondary school teachers is robust, and that this could explain part of the difference in implementation effectiveness that previous research found between primary and secondary school teachers (Yeager et al., 2015).

Practical implications

These results emphasize the challenge for secondary education to create a school culture that is beneficial for policy change and the implementation of school-wide interventions. Teachers have the largest impact on educational outcomes and the implementation of interventions, however, the role of school-, department-, and team leaders should not be underestimated (Robinson et al., 2008). Previous research has shown an increasingly central role of team leaders in secondary education (Price, 2012), by being responsible for managing a team of teachers and for teachers' output. This also includes people management responsibilities, referring to the implementation of human resource practices by team leaders (Robinson et al., 2008; Runhaar, 2017), motivating individuals towards their school's goals, monitoring the progress of others, and improving the quality of education (Fleming & Amesbury, 2013). People management contributes to employees feeling motivated to reciprocate the received support by increasing their efforts, which could contribute to the implementation of a policy or school wide intervention (Knies & Leisink, 2013). Related to the present study, team leaders could play a crucial role in positively influencing school culture, for instance by involving teachers in the decision-making process (vertical people management) and by fostering collegiality, consensus, confidence and collective efficacy (horizontal people management) (Penning de Vries, 2021). Given the present results, indicating clear differences in perceived school culture between primary and

secondary school teachers, the implementation of school-wide interventions, programs or policies would benefit from accounting for the school culture and working on people management skills of school-, department, and/or team-leaders.

Strengths, Limitations, and Future Directions

This was, to our knowledge, the first study that compared teacher perceived school culture in primary and secondary education. This was done both cross country and in more detail in one country (the Netherlands). Previous research suggested that the variation in the implementation success of interventions could be due to differences in the organization and culture of a school, but did not reflect on school culture differences between primary and secondary education (Durlak & DuPre, 2008; Yeager et al., 2015). Both studies provided evidence for secondary school teachers perceiving their school culture as less positive compared with primary school teachers.

However, this study came with a few limitations. First, the countries included in our study were a convenience sample, based on the data-availability of both primary and secondary school teachers from the same country in the TALIS study. Although this makes the finding consistent and robust, we were unable to control for the variation in culture and educational systems in these countries, neither for the age that students make the transition from primary to secondary education, if applicable. Future data collection and research could include these variables to gain more insight in the differences between primary and secondary school teachers in several countries when context is controlled for. Second, more specific elements of school culture were only examined in the Netherlands, coincidentally the country with the largest differences in teacher perceived school culture between primary and secondary education. Therefore, differences in specific elements of the school culture might be smaller or partially absent in other countries. Third, school- and team size were an

argument underlying the expected differences in perceived school culture between primary and secondary school teachers (Leithwood, 2012). However, both datasets lacked information on school- and team size, and it therefore remained unclear what part of the found difference could be explained by school- and team-size and factors arising from this, such as budgets, levels of complexity, facilities, and frequency of problems (Leithwood, 2012). Fourth, in this study we examined differences in perceived school culture, but did not examine their relation to actual implementation behavior and effectiveness. The current study is therefore a first step in examining the relation between perceived school culture, and the extent to which interventions, such as anti-bullying programs, are implemented, and subsequently, their effectiveness on bullying prevalence, but future research should collect more specific data to study these relationships.

In addition, future research also may focus on the role of the school system. Especially in the Netherlands and England, the differences in teacher perceived school culture between primary and secondary education were considerable. In both England and the Netherlands, there is a strict distinction between primary and secondary schools. Until the age of eleven (England) or twelve (the Netherlands), children go to primary schools, after which they switch schools and enter a new school with new teachers. Primary and secondary schools are then considered as entirely separate organizations, with its own school culture, and with secondary schools often being larger than primary schools. This increases the likelihood to observe differences in perceived school culture between primary and secondary education. On the contrary, in school systems in Scandinavian countries like Denmark and Sweden, students generally attend one school for both primary and lower secondary education from the age of 6 to 16. In this case, primary and secondary school teachers belong to the same organization, increasing the likelihood of sharing more similar perceptions of school culture between

primary and secondary school teachers, which might explain the null-results with regard to Denmark. In addition, it is also more likely that these organizations are larger than primary schools in other countries, which would explain the observed absolute level of general school culture in Danish primary schools; the average score was as low as the absolute level of general school culture in most secondary schools in other countries.

To conclude, this study provided insights into the teacher perceived school culture differences between primary and secondary education. Results indicated that primary school teachers in most countries (ten out of fourteen) reported higher scores on perceived school culture than secondary school teachers. Regarding subscales of school culture, (Dutch) primary school teachers perceived more shared decision-making and leadership at the management level, and more collegiality, consensus, confidence, and collective efficacy at the team level than their colleagues in secondary school. Given that previous research found that, among others, perceived management support, collegiality and collective efficacy, contribute to teachers' motivations, expectations, and efforts (Ahtola et al., 2013; Haataja et al., 2015; Midthassel & Ertesvåg, 2008), more insight in the role of school culture could contribute to increase school-wide implementation effectiveness. Based on these results, the present study can serve as a starting point for further research on school culture as potential important explanation for both educational outcomes as well as differential intervention effects.

Appendices

Table A4.1: Factor analysis and correlation matrix of items on school culture.

Factor	Eigenvalue	% Explained Variance							
1.	4.671	58.39							
2.	.977	12.22							
			Factor ^a	1.	2.	3.	4.	5.	6.
1.	This school provides staff with opportunities to actively participate in school decisions		.473	-					
2.	This school has a culture of shared responsibility for school issues		.624	.62	-				
3.	There is a collaborative school culture which is characterized by mutual support		.742	.59	.70	-			
4.	The school staff share a common set of beliefs about teaching and learning		.758	.46	.56	.64	-		
5.	The school staff enforces rules for student behavior consistently throughout the school		.656	.42	.50	.54	.60	-	
6.	This school encourages staff to lead new initiatives		.661	.58	.58	.62	.58	.52	-

^aCorrelation matrix of Factor 1: rotated factor with varimax rotation.

Table A4.2: Descriptive statistics per variable per country and total

	1. Actively participate in school decisions	2. Shared responsibility for school issues	3. Mutual support	4. Common set of beliefs	5. Rules for student behavior consistent	6. Encourage staff to lead new initiatives
Australia						
Primary	2.93 (.72)	2.93 (.67)	3.03 (.68)	3.11 (.65)	3.01 (.77)	3.03 (.69)
Secondary	2.70 (.74)	2.74 (.70)	2.84 (.71)	2.92 (.67)	2.62 (.79)	2.93 (.69)
Area Buenos Aires						
Argentina						
Primary	2.72 (.80)	2.91 (.70)	3.07 (.69)	3.06 (.67)	3.11 (.69)	3.13 (.69)
Secondary	2.63 (.78)	2.88 (.70)	3.08 (.66)	2.98 (.67)	3.06 (.70)	3.10 (.71)
Denmark						
Primary	2.75 (.71)	2.87 (.65)	2.98 (.62)	2.69 (.66)	2.42 (.70)	2.91 (.63)
Secondary	2.82 (.71)	2.91 (.64)	3.02 (.63)	2.72 (.67)	2.43 (.70)	2.93 (.63)
England						
Primary	2.90 (.67)	2.98 (.60)	3.07 (.63)	3.17 (.61)	3.09 (.68)	3.09 (.65)
Secondary	2.60 (.72)	2.74 (.66)	2.83 (.69)	2.94 (.64)	2.58 (.82)	2.84 (.71)
France						
Primary	3.04 (.72)	2.77 (.72)	3.08 (.70)	2.96 (.70)	3.11 (.65)	2.88 (.67)
Secondary	2.87 (.67)	2.60 (.71)	2.80 (.72)	2.71 (.70)	2.77 (.72)	2.88 (.70)
Japan						
Primary	2.97 (.60)	2.84 (.61)	3.13 (.62)	2.92 (.61)	2.95 (.62)	2.78 (.63)
Secondary	2.83 (.64)	2.72 (.66)	2.95 (.64)	2.79 (.63)	2.87 (.69)	2.65 (.66)
Korea						
Primary	3.02 (.82)	2.99 (.78)	3.07 (.75)	3.12 (.70)	3.15 (.70)	2.99 (.84)
Secondary	2.88 (.77)	2.84 (.73)	2.91 (.70)	2.96 (.66)	2.90 (.72)	2.84 (.77)
Netherlands						
Primary	3.19 (.53)	3.16 (.56)	3.17 (.57)	3.00 (.57)	2.93 (.64)	3.10 (.54)
Secondary	2.87 (.60)	2.81 (.62)	2.84 (.62)	2.67 (.65)	2.50 (.75)	2.87 (.58)
Spain						
Primary	3.02 (.73)	2.93 (.69)	3.00 (.68)	3.00 (.62)	3.04 (.66)	3.04 (.71)
Secondary	2.83 (.74)	2.81 (.73)	2.88 (.70)	2.87 (.66)	2.89 (.71)	2.94 (.73)
Sweden						
Primary	2.91 (.63)	2.84 (.60)	3.02 (.63)	2.87 (.62)	2.81 (.70)	3.13 (.62)
Secondary	2.90 (.67)	2.78 (.63)	2.98 (.66)	2.83 (.64)	2.70 (.72)	3.09 (.65)
Chinese Taipei						
Primary	2.87 (.64)	2.95 (.58)	2.96 (.59)	2.93 (.56)	2.96 (.58)	2.99 (.59)
Secondary	2.78 (.66)	2.85 (.58)	2.84 (.60)	2.85 (.58)	2.80 (.63)	2.88 (.62)
Turkey						

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Primary	2.94 (.74)	2.98 (.70)	2.94 (.71)	3.07 (.63)	2.98 (.69)	2.97 (.73)
Secondary	2.90 (.78)	2.93 (.74)	2.89 (.77)	3.02 (.68)	2.83 (.78)	2.92 (.78)
United Arab Emirates						
Primary	2.83 (.81)	3.04 (.72)	3.10 (.70)	3.19 (.66)	3.15 (.74)	3.17 (.72)
Secondary	2.80 (.82)	3.01 (.73)	3.08 (.71)	3.19 (.66)	3.12 (.74)	3.16 (.73)
Viet Nam						
Primary	3.20 (.55)	3.04 (.50)	3.17 (.46)	3.31 (.52)	2.96 (.64)	3.42 (.54)
Secondary	3.17 (.56)	3.00 (.50)	3.13 (.45)	3.28 (.52)	2.95 (.66)	3.40 (.54)
Total						
Primary	2.94 (.73)	2.96 (.67)	3.05 (.66)	3.06 (.65)	3.01 (.70)	3.07 (.69)
Secondary	2.83 (.73)	2.85 (.69)	2.94 (.68)	2.95 (.67)	2.85 (.75)	2.98 (.72)

Table A4.3: Items Questionnaire - Translated

English	Dutch
<p>Leadership (• = .848): The management...</p> <p>... explores all sides of topics and admits that other opinions exist.</p> <p>... discusses classroom issues with the teachers.</p> <p>... accepts questions from teachers and takes them seriously.</p> <p>... treats all faculty members as his or her equal.</p> <p>... goes out of their way to show appreciation.</p> <p>... makes clear what is expected from staff.</p>	<p>De directie...</p> <p>... staat open voor andere meningen bij de benadering van een probleem.</p> <p>... bespreekt klasproblemen met de docenten van die klas.</p> <p>... accepteert vragen van medewerkers en neemt deze serieus.</p> <p>... behandelt medewerkers van de school als een gelijke.</p> <p>... neemt de moeite om waardering te laten blijken.</p> <p>... laat weten wat er wordt verwacht van medewerkers.</p>
<p>Decision-making (• = .705)</p>	
<p>Our management includes staff in the decision-making process</p> <p>If the management takes a decision that I disagree with, the decision will be implemented anyway (R)</p> <p>Our management takes most decisions independently, without consulting me (R)</p>	<p>Onze directie betreft medewerkers bij beslissingen.</p> <p>Als de directie een besluit wil nemen waar ik niet achter sta, dan wordt dat besluit hoe dan ook doorgevoerd.</p> <p>Onze directie neemt de meeste beslissingen zelfstandig, zonder mijn mening te raadplegen.</p>
<p>Collegiality (• = .780)</p>	
<p>Teachers accomplish their work with vim, vigor and pleasure</p> <p>Teachers leave school immediately after school is over (R)</p> <p>Most of the teachers here accept the faults of their colleagues.</p> <p>Teachers help and support each other.</p> <p>Teachers are proud of their school.</p> <p>New teachers are readily accepted by colleagues (R)</p> <p>Teachers socialize in small, select groups (R)</p>	<p>Medewerkers op onze school doen hun werk met veel plezier en energie.</p> <p>Medewerkers op onze school gaan meestal meteen weg als de lessen zijn afgelopen.</p> <p>De meeste medewerkers accepteren de fouten van collega's.</p> <p>Medewerkers op onze school helpen en steunen elkaar.</p> <p>Medewerkers zijn trots op onze school.</p> <p>Het duurt een poos voordat nieuwe medewerkers worden geaccepteerd door collega's.</p> <p>Medewerkers op onze school vormen groepjes.</p>

Teachers respect the professional competence of their colleagues	Medewerkers hebben respect voor de professionele competenties van hun collega's.
Consensus ($r = .836$)	
Most of my colleagues share my beliefs and values about what the central mission of the school should be. The school goals are clear for the entire team The school priorities are clear for the whole team In this school the teachers and the administration are in close agreement on school discipline policy.	De meeste medewerkers van onze school delen dezelfde overtuiging en zijn het eens over de missie van onze school. De doelen van onze school zijn duidelijk voor het hele team. De prioriteiten van onze school zijn duidelijk voor het hele team. Op onze school zijn de medewerkers en de directie het eens over de omgangsregels binnen de school.
Confidence ($r = .793$)	
My colleagues are open with me. My colleagues are honest towards me. Colleagues in this school trust each other. Even in difficult situations, I can depend on my colleagues. I share personal information with my colleagues	Mijn collega's hebben een open houding naar mij toe. Mijn collega's zijn eerlijk tegen mij. Ik vertrouw mijn collega's. Ik kan in lastige situaties op mijn collega's rekenen. Ik deel persoonlijke informatie met mijn collega's.
Collective efficacy ($r = .807$)	
As a team, we are able to provide our students with good education As a team, we are able to reduce bullying behavior among children As a team, we are able to create a nice school If problems occur at our school, we solve them as a team	Wij zijn als team in staat leerlingen goed onderwijs te bieden. Wij zijn als team in staat om het pestgedrag onder kinderen terug te dringen. Wij kunnen als team een leuke school creëren. Als er zich problemen voor doen dan kunnen wij deze als team goed oplossen.

