

3 Study methods

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Introduction

In the present chapter, we describe the methods that address our research questions listed in the introduction (Chapter 1) in regard to teachers' and principals' accountability. We made sure that these methods best investigate the following topics, so that credible conclusions may be drawn.

- 1 Accountability as a two-dimensional concept.
- 2 Differences between accountability dispositions, divided by background characteristics such as gender and seniority.
- 3 Differences in accountability dispositions toward different audiences, in particular parents and school management.
- 4 Country differences in teachers' and principals' accountability.
- 5 Country differences in cultural values and organizational support.
- 6 Prediction of accountability dispositions by two cultural values: individualism and collectivism.
- 7 Prediction of accountability dispositions by organizational support.
- 8 Influence of principals' accountability on respective teachers' accountability.

The topics of this research project are not particularly sensitive or controversial, but we were attentive to all ethical research issues regarding human subjects who were involved in this study. It was of utmost importance to us to ensure that the questionnaire items would not include any sensitive content, that respondents would have the right to refuse participation, and that they could quit the study at any time. The approval of respective Institutional Ethics Review Boards (IRBs) in the researchers' academic institutions in each of the participating countries was secured.

The following sections of this chapter present the process of data collection and describe the study's instruments and measures. The last section of

this chapter specifies the study's analytical approach taken to explore the study's research questions.

Data collection

We collected data from teachers and their respective principals using a questionnaire as a research tool. In total, 2,554 teachers from 185 schools and 132 principals from 117 schools completed the questionnaires. Data were collected in each participating school from both principals and teacher faculty members so that teachers were matched with their respective principals using identifying codes. This matching enabled analyses that investigated relations between principals and teachers.

Identical questionnaires were distributed in each country, using applicable translation when necessary. In two countries (*Canada* and *China*), data were collected only from teachers, not principals. Table 3.1 shows the specific provinces or regions in which the data were collected in each country and the number of teachers and principals within each sample. In most cases, the data collected were generally representative of the pertinent country in terms of educational structure and educators' background characteristics (gender, age). However, in some cases it was difficult to collect the desired representative data. For example, in the case of *South Africa*, only privileged schools and schools in the Pretoria area accepted our questionnaires, so the sample was comprised of predominantly (but not entirely)

Table 3.1 Provinces or Regions in the Participating Countries and Number of Teachers and Principals

<i>Country</i>	<i>Provinces</i>	<i>Number of Teachers</i>	<i>Number of Principals</i>
Canada	Nova Scotia, Newfoundland, Ontario, and Alberta Provinces	169	0
China	Guangdong, Guangxi, Shaanxi, and Jilin Provinces	266	0
Hungary	The whole country	338	23
Israel	Northern Israel	418	30
Netherlands	The whole country	178	21
South Africa	Gauteng, Pretoria (Tshwane)	315	17
Spain	Catalonia	470	21
Zimbabwe	Harare	400	20

white teachers and principals who were highly educated and trained, and schools were relatively wealthy.

The questionnaire data were processed first into eight separate data sets (for each of the participating countries) that included respondent identification (ID), school ID, country ID, and background variables. The separate data files were combined into three sets of data. The first consisted of teachers' data, the second included principals' data, and the third consisted of a combination of both teachers' and principals' data. This structure enabled a broad spectrum of analyses, with IDs used as a matching mechanism. When data were missing, these were imputed following the procedure described in Appendix 3.1.¹

Study measures

Two questionnaires, one for teachers and the other for principals, were used in the present study (Appendix 3.2). Psychometric characteristics of all study variables as well as their number in the questionnaire appear in Appendix 3.3. Both questionnaires included the following scales and measures: external accountability disposition (two versions – general and audience focused), internal accountability disposition, individualism, collectivism, organizational support, and background characteristics.²

All multiple-item scales were validated in previous research (see later) and checked for reliability in the first stages of the present study. In an effort to ensure that respondents in the different countries were as close as possible to a shared understanding of the main study concepts, the research team spent considerable time in discussing the meaning of accountability and the other key research variables. The questionnaires were originally prepared in Hebrew and then translated into English and from English into the other four study languages: Chinese, Dutch, Hungarian, and Spanish. Translation was performed in a back-and-forth fashion (cf. Davis et al., 2013) and discussions among researchers were carried out in English.

External and internal accountability

A detailed description of the construction and development of the external and internal accountability scales used in this study can be found in Rosenblatt (2017). The scales were tailored for school context and were slightly modified to be used by both teachers and principals. Its external dimension was modeled to apply to two different audiences: school management and parents.

The 13-item *External Accountability* scale intended to measure the tendency to report to external audiences such as the principal, parents, or school management generally (in the case of teachers) and school boards (in the case of principals). The scale included items reflecting key accountability elements (Frink & Ferris, 1998), such as goal setting, performance report, transparency, performance evaluation, and feedback. Scale reliability (Cronbach's α) was .86 for teachers and .84 for principals. A sample item was: *In your work as a teacher, to what extent do you feel that it is your responsibility to be held accountable when your work in the classroom does not meet expectations?*

A short version (seven items) of external accountability was used to assess external accountability to each of two audiences: parents and school management. These audiences were selected because they seemed to be universally the most legitimate stakeholders in teachers' and principals' work environment. The selection of seven items from the original 13-item measure was based on the items' relevancy to the two audiences. Scale reliability (Cronbach's α) in the present study for accountability toward parents and school management was .86 and .87 for teachers and .87 and .90 for principals, respectively.

The seven-item *Internal Accountability* scale intended to measure teachers' and principals' tendency to report to themselves, based on their professional code and work ethics (Firestone & Shipps, 2005). Scale reliability (Cronbach's α) was .82 for teachers and .83 for principals. A sample item was: *In your work (as a teacher), to what extent do you feel that it is your responsibility to be accountable for your teaching in the best possible way?*

Individualism and collectivism

Individual-level values

Each of the scales for individualism and collectivism included four items. *Individualism* measured the degree to which a person tended to adhere to his or her own personal values and aspirations. *Collectivism* measured the degree to which a person tended to adhere to group values and norms. Both scales were adopted from Triandis and Gelfand (1998) with application of their horizontal dimension (where individuals see themselves as equal to others, in contrast to being placed in a hierarchy). Scale reliability in the present study for individualism and collectivism was $\alpha=.74$ and $\alpha=.81$ for teachers and $\alpha=.82$ and $\alpha=.82$ for principals, respectively (after deleting item 39 for the principals, see Appendix 3.2). A sample item for individualism

was: *I'd rather depend on myself than on others*, and for collectivism was: *The well-being of my fellow (teachers) is important to me*.

Country-level values

As outlined in Chapter 2, we investigated whether country and country-level cultural values may explain teachers' and principals' accountability dispositions. The present study used two country-wide databases. One database was an aggregation of individual teachers and principals in our study, grouped by their respective countries. The other database was borrowed from an external data source.

Country cultural values are often established based on measurement of values with surveys administered to rather large samples (e.g., House et al., 2004; over 17,000 respondents). The two most commonly used sources for country aggregates of cultural values are the databases of the Global Leadership and Organizational Behavior Effectiveness (GLOBE) project (e.g., House et al., 2004, 2014) and the Hofstede studies originating from his work with IBM personnel (e.g., Hofstede et al., 2010). Hofstede and his colleagues keep an updated measure of cultural values on their website, but in their database one country from our sample is missing (*Zimbabwe*) and one is only represented with an estimated value (*Hungary*).³

We therefore turned to the GLOBE project for the values that may be most similar to the values we have used in our study. For this purpose, we selected the country scores of the 2004 study and not the more recent scores from 2014 because the latter only refer to chief executive officers (CEOs), whereas the 2004 data are from a broader sample including managers at different organizational levels.

Of the GLOBE's 2004 values, we could only use collectivism defined by House et al. (2004) as the degree to which a person is integrated into groups or families. In a collectivistic society, people would give preference to group interests, and group norms would typically determine their behavior, thoughts, and feelings, whereas in individualistic societies, people are supposed to look after themselves or, alternatively, adhere to personal aspirations, autonomy, freedom, independence, and achievement orientation. Of the nine dimensions of cultural values in the GLOBE project (House et al., 2004), none seems connected to our individualism measure. The *in-group collectivism* scale of the GLOBE project is the most closely connected to the concept of collectivism that we used in our analyses. It describes the degree to which individuals in a certain society express pride, loyalty, and cohesiveness in their organizations or families.⁴ The GLOBE project distinguishes between cultural values in practice ('as it is') and desired values

(‘as it should be’). In this project, it was assumed that leadership was much more connected to the latter (further referred to as values) than to the former because a key mission of leaders is to strategize and plan for the future. In the present study, we looked at the values in practice as our purpose in this study was to describe individuals’ and societies’ tendencies and inclinations in the present – the time the study took place.

Organizational support

This six-item measure was borrowed from the notion of organizational support, conceived by Eisenberger et al. (1986). Applied to schools, this measure assessed the degree to which teachers perceived school administration (in the case of teachers) and school boards (in the case of principals) as supportive of their work. Reliability in the present study was $\alpha=.88$ for teachers (after deleting items 39 and 42; see Appendix 3.2) and $\alpha=.91$ for principals (after deleting items 32 and 35; see Appendix 3.2). A sample item from the teacher questionnaire was: *My school administration is willing to help me when I need a special favor.*

Background variables

Several background variables were collected in this study for both teachers and principals, and were used as control variables: gender (with females coded 0 and males 1), seniority (work experience in years), and school size (the student body of the school). Data about age were also collected, although the high correlation between age and seniority led to a decision to use the latter for its higher relevancy to our study. We also collected data on schools’ religiosity and teachers’ school responsibilities (other than teaching). Because *China* did not provide data on school religiosity (only secular schools exist in this country), and there was a high missing-data rate in other countries, we eliminated this variable from our analyses. Finally, teachers’ school responsibility (other than teaching) was also eliminated because no data on this variable were collected in *Spain* and *Zimbabwe*.

Analytical approach

In this section, we provide information about the study’s multilevel models and describe the statistical procedures used while developing the analytical strategy. First, we discuss the leveled structure of the data and then we specify the full process of the models’ design: teachers’ external and internal accountability models, principals’ external and internal accountability

models, and teachers' and principals' models for accountability toward parents and school management. In Chapter 4 – Study Findings, only the final models are presented.

Leveled structure of the teacher data

Given the three-way nesting of the data – teachers within schools within countries – hierarchical linear models (HLM) seemed to be necessary in order to predict teachers' accountability dispositions. However, because of the small number of countries (eight), we could not include the country level in the models (Maas & Hox, 2005). An effort to include countries as dummy variables at the school level also failed because of a collinearity problem (country and other school variables being highly correlated), making the results unreliable. The teachers' data, therefore, were analyzed using two levels: a teacher level, composed of individual teachers' scores, and a teacher faculty level, where school teacher scores were aggregated as school means (Hox et al., 2017), further referred to as school level. To test the applicability of this modeled structure for the teacher analyses, we first calculated the intraclass correlations (ICC) between levels. These analyses, reported in Appendix 3.4, were conducted using HLM 6 (Raudenbush et al., 2004). For all other analyses, we used IBM SPSS Statistics for Windows, Version 25.0.

Predicting teachers' accountability dispositions

Two models were employed to predict teachers' external and internal accountability dispositions by cultural values, organizational support, and background variables. One model included independent variables taken from teachers only. The other included, in addition, independent variables taken from teachers' matched principals and describing the principals' accountability dispositions. In other words, the second model enabled prediction of teacher accountability not only by teachers' cultural values, experienced organizational support, and their background variables, but also by principals' own external and internal accountability. Because, as stated earlier, only six countries provided principal data, the second model included teacher independent variables taken from the principals' country pool, excluding *Canada* and *China*, that had provided only teacher and not principal data.

Looking at the amount of variance in the teacher data for both eight and six countries (Appendix 3.4), it appeared that for all analyses the amount of variance at the school level was significant and, therefore, HLMs had to be

applied. Residual plots of all final models for external and internal accountability showed no deviations from normality and linearity.⁵

At the first (teacher) level in the hierarchical linear regression models, we entered gender, seniority, individualism, collectivism, and organizational support as predictors of teachers' external and internal accountability. At the second (school) level, we entered school size, the school means of organizational support, individualism, and collectivism (Centering at the Grand Mean, CGM) to test the influence of these predictors of accountability of individual teachers in their schools. At the first level, the procedure Centering Within Cluster (CWC) was chosen over CGM because the first-level predictors were the main interest of this study (Enders & Tofghi, 2007). When CWC is used, first-level predictors provide information on variables compared to their within group meaning. Thus, regression coefficients are provided that give information about individual teachers compared to their school mean. So, positive coefficients mean that teachers with a higher score for that predictor show a higher accountability score compared to their within school colleagues. Predictors at the second level provide information at the second level (school). A positive coefficient of a second level predictor should be interpreted so that scoring above the sample mean of that predictor results in a higher *school mean score* for accountability.

After testing the models with these predictors, we included the interaction effects of individualism and organizational support and of collectivism and organizational support. Both were included at the first and second level; at the second level, the interaction represented the interaction between variable means. In Appendix 3.5, we present all models that were tested stepwise to get to the final predicting models for both external and internal accountability.

After calculating the models with only teacher and school variables, we calculated models including principals' external and internal accountability scores as school level variables to predict teachers' accountability scores. *Canada* and *China* were left out of this particular analysis, as mentioned earlier. The models were designed in a stepwise fashion to enable comparison with the models in which all teachers were included.

Predicting teachers' accountability dispositions toward parents and school management

Following the statistical models predicting external accountability for teachers, we analyzed in a similar way teachers' accountability, focusing on parents and school management. Similar to the analyses described previously, we first calculated the intercept model which showed the amount of variance

located at both the teacher and school level in order to check whether the leveled structure of the data had to be taken into account. As Appendix 3.4 shows, this was indeed the case. Residual plots of all final models for accountability toward parents and school management showed no deviations from normality and linearity.⁶ The models for teachers' accountability toward parents and school management are presented in Appendix 3.6.

Predicting principals' accountability dispositions

The principal data base in our study was different than the teacher data base. First, most of the schools that participated in this study (117 in number) included one principal per school ($N=107$), eight schools included two principals (or co-principals), and two schools included three principals. Second, the principal sample included only six countries (unlike the eight countries in the teacher study). Because of the low numbers of schools with two or more principals and of countries where we could not apply multilevel analyses pertaining to principals, we could not check on the variance distribution over different levels. Accordingly, we employed different analyses to answer the same study questions.

We analyzed the principals' data using traditional linear regression models (Maas & Hox, 2005) to predict principals' external and internal accountability dispositions and accountability toward parents and school management. The variables used as predictors in the teachers' models were also included here (with minor adaptations to principals' milieu, as needed). We used stepwise inclusion to get to the final models. We first entered background variables (gender, seniority, and school size) followed by the scale variables cultural values (individualism and collectivism) and organizational support. For seniority and scale variables, centered values were used in the prediction models. Finally, we entered dummy variables for each country, with *Hungary* as the reference country because the mean country score of *Hungary* was closest to the sample means of both external and internal accountability.

Appendix 3.1

Handling of missing data

The common approach to handling missing data is to delete all cases having missing data. However, in an attempt to adopt statisticians' (e.g., Peeters et al., 2015; Van Buuren, 2018) recommendation to upgrade our work, we tried to employ known methods and software for handling incomplete data problems. As specified in this chapter, our study included three data sets: (1) the teacher data set for eight countries, (2) the principal data set for six countries, and (3) the combined data set of teachers and principals, also for six countries. Within the teacher data, missing items ranged from 4.8% to 0.1%. Of all 2,554 cases, 18.7% had no missing values. Overall, 95.5% of the data was included within the teacher data set. Similar to the teacher data set, all variables in the principal data set had a small percentage of missing data ranging from 7.6% to 0.8%. For principals, 84 cases (63.6%) had no missing values and of all the data (95.8%) was included in the data set.

The combined data set included all principals, but only teachers from schools of which the respective principal(s) completed the questionnaire, amounting to 1,894 teachers (78.4% of all teachers). Missing data in the combined data set ranged from 4.8% to 0.1%. Of all cases, 64.3% had one or more missing values within the questionnaire. Overall, 97.0% of the teacher data was included within the combined data set.

Multiple imputation is broadly recommended as the best general method to deal with incomplete data (Van Buuren, 2018). We used IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp., 2017) to impute the incomplete cases based on all variables included within the regression analyses. With a small amount of missing data, substantive conclusions are unlikely to change with more than five imputations (Van Buuren, 2018) and, therefore, we chose to calculate five imputations for each missing value. Furthermore, we chose to impute the question items over the scale variables to retain as much of the original data as possible. The amounts of missing data we imputed ranged from 4.8% to 0.1%, which we considered a small amount.

Appendix 3.2

The questionnaires used in the study (English version)

Items indicated with an asterisk (*) have been removed in the analyses.

Teacher questionnaire

School code: _____

Part A. Background

- a. Gender: 1. Male 2. Female
- b. Age: ____ (yrs)
- c. Experience as a teacher: ____ (yrs)
- d. Tenure (permanent position): yes/no/not relevant
- e. If applicable, please specify which leadership position you hold in addition to teaching (e.g., vice-principal, headmaster, subject-area coordinator): _____
- f. Teaching area:
 1. ____ Humanities, languages, and social studies
 2. ____ Science, mathematics, and technology
 3. ____ Arts, sport
 4. ____ Other
- g. Size of school in number of students: _____
- h. School location: 1. Urban 2. Suburban 3. Rural 4. Other _____
- i. School level:
 1. ____ Elementary/primary
 2. ____ Middle
 3. ____ High/secondary
- j. School religion:
 1. ____ Secular
 2. ____ Religious

Part B. In your work as a teacher, to what extent do you feel that it is your responsibility to:

	<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Large</i>	<i>Large</i>	<i>Very Large</i>
1 Make sure your students achieve high achievement scores	1	2	3	4	5
2 Meet expected standards	1	2	3	4	5
3 Be accountable for your students' achievements	1	2	3	4	5
4 Report to <i>school leadership</i> on the way you perform your work	1	2	3	4	5
5 Report to <i>other teachers</i> on the way you perform your work	1	2	3	4	5
6 Report to <i>parents</i> on the way you perform your work	1	2	3	4	5
7 Allow your work in class to be transparent to school leadership	1	2	3	4	5
8 Allow your work in class to be transparent to <i>other teachers</i>	1	2	3	4	5
9 Allow your work in class to be transparent to <i>parents</i>	1	2	3	4	5
10 Be evaluated on the basis of your work achievements	1	2	3	4	5
11 Change your work according to feedback you receive	1	2	3	4	5
12 Be held accountable when your work in the classroom does not meet expectations	1	2	3	4	5
13 Be acknowledged for the success of your classes	1	2	3	4	5

Part C. In your work as a teacher, to what extent do you feel that it is your duty to:

	<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>
14 Achieve professional goals	1	2	3	4	5
15 Develop professionally (training sessions, workshops, conferences, etc.)	1	2	3	4	5
16 Learn from the work of outstanding colleagues	1	2	3	4	5
17 Be responsible for teaching in the best possible way	1	2	3	4	5
18 Be responsible for using professional knowledge in your work	1	2	3	4	5
19 Be accountable to your own inner moral standards	1	2	3	4	5
20 Be accountable to professional ethics	1	2	3	4	5

Part D. To what extent do you believe your work should include the following behaviors and activities with regard to school management and parents:

	<i>School Management</i>					<i>Parents</i>				
	<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>	<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>
21 Strive to achieve set goals	1	2	3	4	5	1	2	3	4	5
22 Report on your performance regarding students' academic achievements	1	2	3	4	5	1	2	3	4	5

	<i>School Management</i>					<i>Parents</i>				
	<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>	<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>
23 Report on performance regarding curriculum coverage	1	2	3	4	5	1	2	3	4	5
24 Report on performance regarding social climate (e.g., student behavior, discipline) in class	1	2	3	4	5	1	2	3	4	5
25 Show transparency in your work	1	2	3	4	5	1	2	3	4	5
26 Get formal evaluations on the results of your work	1	2	3	4	5	1	2	3	4	5
27 Get feedback on your teaching	1	2	3	4	5	1	2	3	4	5

Part E. Please indicate how much you agree or disagree with the following statements about your work:

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
28 The way I teach in my class is determined for the most part by myself	1	2	3	4	5
29 The contents taught in my class are those that I select myself	1	2	3	4	5
30 My teaching focuses on goals and objectives that I select myself	1	2	3	4	5
31 I myself select the teaching materials that I use with my students	1	2	3	4	5

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(Continued)

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
32 I am free to be creative in my teaching approach	1	2	3	4	5
33 My job does not allow for much discretion on my part	1	2	3	4	5
34 In my class, I have little control over how classroom space is used	1	2	3	4	5
35 My school management strongly supports my goals and values	1	2	3	4	5
36 My school administration values my contribution	1	2	3	4	5
37 My school administration takes pride in my accomplishments at work	1	2	3	4	5
38 My school administration really cares about me	1	2	3	4	5
39 If given the chance, my school administration would take unfair advantage of me	1	2	3	4	5
40 My school administration is willing to help me when I need a special favor	1	2	3	4	5
41 Upon my request, my school administration would change my working conditions, if this is at all possible	1	2	3	4	5
42 My school administration would ignore any complaint from me	1	2	3	4	5

Part F. The following items refer to your personal values and attitudes toward work and life in general. Please indicate how much you agree or disagree with the following statements:

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
43 I'd rather depend on myself than on others	1	2	3	4	5
44 I rely on myself more than on others most of the time	1	2	3	4	5
45 I often do 'my own thing'	1	2	3	4	5
46 My personal identity, independent of others, is very important to me	1	2	3	4	5
47 If a fellow teacher gets an award, I would feel proud	1	2	3	4	5
48 The well-being of my fellow teachers is important to me	1	2	3	4	5
49 I take pleasure in spending time with others	1	2	3	4	5
50 I feel good when I cooperate with others	1	2	3	4	5
51 I believe that a person's influence is based primarily on his or her ability and contribution to society and not on the authority of his or her position	1	2	3	4	5
52 I believe that followers are expected to obey their leaders without reservation rather than question their leaders when in disagreement	1	2	3	4	5
53 I believe that people in positions of power try to increase their social distance (hierarchical space) from less powerful individuals	1	2	3	4	5

(Continued)

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(Continued)

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
54 I believe that rank and hierarchical position should go with special privileges	1	2	3	4	5
55 I find orderliness and consistency more important than experimentation or innovation	1	2	3	4	5
56 I tend to lead a highly structured life with few unexpected events	1	2	3	4	5
57 When I have to do something, I prefer to receive instructions that are spelled out in detail, so that I know what I am expected to do	1	2	3	4	5
58 I like to live with laws that cover almost all situations (rather than very few situations)	1	2	3	4	5

Principal questionnaire

School code _____

Part A. Background

- a. Gender: 1. Male 2. Female
- b. Age: ____ (yrs)
- c. Experience as a principal: ____ (yrs)
- d. Size of school in number of students: _____
- e. School location: 1. Urban 2. Suburban 3. Rural 4. Other _____
- f. School level:
 1. ____ Elementary/primary
 2. ____ Middle
 3. ____ High/secondary
- g. School religion:
 1. ____ Secular
 2. ____ Religious

Part B. In your work as a principal, to what extent do you feel that it is your responsibility to:

		<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>
1	Make sure school academic performance is high	1	2	3	4	5
2	Meet expected standards	1	2	3	4	5
3	Be accountable for the academic achievements of your school students	1	2	3	4	5
4	Report to <i>superiors</i> (<i>superintendent, central education office</i>) on the way you perform your work	1	2	3	4	5
5	Report to <i>your teaching staff</i> on the way you perform your work	1	2	3	4	5
6	Report to <i>parents</i> on the way you perform your work	1	2	3	4	5
7	Allow your work in school to be transparent to school leadership	1	2	3	4	5
8	Allow your work in school to be transparent to <i>other principals</i>	1	2	3	4	5
9	Allow your work in school to be transparent to <i>parents</i>	1	2	3	4	5
10	Be evaluated on the basis of your work achievements	1	2	3	4	5
11	Change your work according to feedback you get	1	2	3	4	5
12	Be held accountable when your work in school does not meet expectations	1	2	3	4	5
13	Be acknowledged for the success of your school	1	2	3	4	5

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Part C. In your work as a principal, to what extent do you feel that it is your duty to:

	<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>
14 Achieve professional goals	1	2	3	4	5
15 Develop professionally (training sessions, workshops, conferences, etc.)	1	2	3	4	5
16 Learn from the work of outstanding colleagues	1	2	3	4	5
17 Be responsible for leading in the best possible way	1	2	3	4	5
18 Be responsible for using professional knowledge in your work	1	2	3	4	5
19 Be accountable to your own personal moral standards	1	2	3	4	5
20 Be accountable to professional ethics	1	2	3	4	5

Part D. To what extent do you believe your work should include the following behaviors and activities with regard to school management board and parents:

	<i>School Management Board</i>					<i>Parents</i>				
	<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>	<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>
21 Strive to achieve set goals	1	2	3	4	5	1	2	3	4	5
22 Report on your performance regarding students' academic achievements	1	2	3	4	5	1	2	3	4	5
23 Report on performance regarding curriculum coverage	1	2	3	4	5	1	2	3	4	5

	<i>School Management Board</i>					<i>Parents</i>				
	<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>	<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>
24 Report on performance regarding social climate (e.g., student behavior, discipline) in class	1	2	3	4	5	1	2	3	4	5
25 Show transparency in your work	1	2	3	4	5	1	2	3	4	5
26 Get formal evaluations on the results of your work	1	2	3	4	5	1	2	3	4	5
27 Get feedback on your work as a school principal	1	2	3	4	5	1	2	3	4	5

Part E. Please indicate to what extent you agree or disagree with the following statements about your work:

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
28 My school board strongly supports my goals and values	1	2	3	4	5
29 My school board values my contribution	1	2	3	4	5
30 My school board takes pride in my accomplishments at work	1	2	3	4	5
31 My school board really cares about me	1	2	3	4	5
32 If given the chance, my school board would take unfair advantage of me	1	2	3	4	5

(Continued)

(Continued)

		<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
33	My school board is willing to help me when I need a special favor	1	2	3	4	5
34	If I asked, my school board would change my working conditions, if this is at all possible	1	2	3	4	5
35	My school board would ignore any complaint from me	1	2	3	4	5

Part F. The following items refer to your personal values and attitudes toward work and life in general. Please indicate how much you agree or disagree with the following statements:

		<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
36	I'd rather depend on myself than others	1	2	3	4	5
37	I rely on myself more than others most of the time	1	2	3	4	5
38	I often do 'my own thing'	1	2	3	4	5
39	My personal identity, independent of others, is very important to me*	1	2	3	4	5
40	If a colleague principal gets an award, I would feel proud	1	2	3	4	5
41	The well-being of my colleague principals is important to me	1	2	3	4	5
42	I take pleasure in spending time with others	1	2	3	4	5

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
43 I feel good when I cooperate with others	1	2	3	4	5
44 I believe that a person's influence is based primarily on one's ability and contribution to society and not on the authority of one's position	1	2	3	4	5
45 I believe that followers are expected to obey their leaders without reservation rather than question their leaders when in disagreement	1	2	3	4	5
46 I believe that people in positions of power try to increase their social distance (hierarchical space) from less powerful individuals	1	2	3	4	5
47 I believe that rank and hierarchical position should go with special privileges	1	2	3	4	5
48 I find orderliness and consistency more important than experimentation or innovation	1	2	3	4	5
49 I tend to lead a highly structured life with few unexpected events	1	2	3	4	5
50 When I have to do something, I prefer to receive instructions that are spelled out in detail, so I know what I am expected to do	1	2	3	4	5
51 I like to live with laws that cover almost all situations (rather than very few situations)	1	2	3	4	5

Part G. Please indicate the degree to which you perceive autonomy in your work:

		<i>Perceived Autonomy</i>				
		<i>Very Little</i>	<i>Little</i>	<i>Neither Little nor Much</i>	<i>Much</i>	<i>Very Much</i>
52	Determining number/type of faculty and staff	1	2	3	4	5
53	Allocating resources	1	2	3	4	5
54	Hiring faculty and staff	1	2	3	4	5
55	Assigning faculty and staff	1	2	3	4	5
56	Transferring and/or discharging unsuitable faculty and staff	1	2	3	4	5
57	Allocating time for instruction	1	2	3	4	5
58	Determining student discipline policies/procedures	1	2	3	4	5

Appendix 3.3

Psychometric and questionnaire
position of study variables

Scale	Sub-dimensions	Teacher Questionnaire (item numbers)	Principal Questionnaire (item numbers)	Reliability (Cronbach's α)			
				Teachers		Principals	
				Original	After Imputation	Original	After Imputation
External accountability	Setting goals/meeting standards	1-3	1-3	.698	.699	.810	.804
	Report on performance	4-6	4-6	.726	.724	.711	.713
	Transparency	7-9	7-9	.810	.810	.702	.694
	Evaluation and feedback Combined	10-13	10-13	.717	.717	.613	.604
Internal accountability	Professional code	14-18	14-18	.800	.800	.771	.774
	Work ethic	19-20	19-20	.735	.735	.806	.809
	Combined			.822	.821	.832	.833
External accountability toward	Managers	21-27	21-27	.872	.870	.899	.896
	Parents			.865	.864	.871	.868
Organizational support		35-42	28-35	.882	.883	.910	.909
Individualism Collectivism		44-46	36-39	.741	.739	.822	.816
		47-50	40-43	.808	.809	.825	.823

Appendix 3.4

Check on leveled structure teacher data

In order to check if multilevel analyses were needed, the variance distributions for the teacher data on the teacher and school level were tested by calculating the intraclass correlation (ICC) between levels. The results in the following table showed that the variance at the school level was substantial in all data sets and, thus, multilevel analyses were needed.

	Variance Component		Proportion of Variance ¹		Intraclass Correlation (ICC)
	Teacher (First) Level, σ_e^2	School (Second) Level, $\sigma_{u_0}^2$	Teacher Level	School Level	
8 countries					
External accountability	0.26688	0.06381	80.7	19.3	0.19 $\chi^2(184): 783.85$
Internal accountability	0.19220	0.04932	79.6	20.4	0.20 $\chi^2(184): 794.70$
Accountability toward parents	0.55292	0.07874	87.7	12.3	0.12 $\chi^2(184): 523.24$
Accountability toward school management	0.34598	0.11410	75.2	24.8	0.25 $\chi^2(184): 951.25$
6 countries					
External accountability	0.26745	0.05380	83.3	16.7	0.17 $\chi^2(116): 498.59$
Internal accountability	0.18732	0.03934	82.6	17.4	0.17 $\chi^2(116): 513.07$
Accountability toward parents	0.56452	0.08301	87.1	12.8	0.13 $\chi^2(116): 386.37$
Accountability toward school management	0.35044	0.10983	76.1	23.9	0.24 $\chi^2(116): 676.21$
$Variance_{Teacher} = \frac{\sigma_e^2}{\sigma_e^2 + \sigma_{u_0}^2} \quad \quad \quad Variance_{School} = \frac{\sigma_{u_0}^2}{\sigma_e^2 + \sigma_{u_0}^2}$					

Note: ¹ Variance at all level-2 ($\sigma_{u_0}^2$) were significant at the 0.01 level.

Appendix 3.5a

Models for teachers' external
accountability

1. Without Principals' Accountability, Eight Countries

	M1		M2		M3		M4		M5		M6		M7		
	M1 + Background		M2 + Cult. Values and Org. Support		M3 + Teacher Level Interactions		M4 + School Size		M5 + School Cult. Values and Org. Support		M6 + School Level Interactions		M7		
Fixed Part	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p	β
Intercept	3.9 (0.022)		3.91 (0.024)		3.9 (0.024)		3.91 (0.024)		3.9 (0.024)		3.9 (0.022)		3.91 (0.022)		
Gender			-0.05 (0.024)	.056	-0.03 (0.023)	.129	-0.03 (0.023)	.132	-0.03 (0.023)	.133	-0.03 (0.023)	.2	-0.03 (0.023)	.174	-0.01
Seniority			0.003 (0.001)	.029	0.002 (0.001)	.037	0.003 (0.001)	.032	0.002 (0.001)	.049	0.002 (0.001)	.088	0.002 (0.001)	.09	0.02
Individualism			-0.003 (0.015)		-0.003 (0.015)	.861	-0.0008 (0.014)	.954	-0.0006 (0.014)	.966	-0.0002 (0.014)	.989	-0.0003 (0.014)	.981	-0.0003
Collectivism			0.2 (0.021)	<.001	0.2 (0.021)	<.001	0.2 (0.021)	<.001	0.2 (0.021)	<.001	0.2 (0.021)	<.001	0.2 (0.021)	<.001	0.12
Organizational Support			0.2 (0.018)	<.001	0.2 (0.018)	<.001	0.2 (0.018)	<.001	0.2 (0.018)	<.001	0.2 (0.018)	<.001	0.2 (0.018)	<.001	0.16
Org. Support x Individualism			0.004 (0.018)	.834	0.004 (0.018)	.834	0.004 (0.018)	.834	0.004 (0.018)	.833	0.003 (0.018)	.883	0.01 (0.018)	.695	0.03
Org. Support x Collectivism			0.04 (0.025)	.152	0.04 (0.025)	.152	0.04 (0.025)	.152	0.04 (0.024)	.108	0.04 (0.025)	.088	0.04 (0.025)	.077	0.005
School Size ^a			-0.07 (0.029)	.017	-0.07 (0.029)	.017	-0.07 (0.029)	.017	-0.07 (0.029)	.017	0.03 (0.033)	.433	0.04 (0.034)	.297	0.03
School Mean Individualism			0.1 (0.065)	.118	0.1 (0.065)	.118	0.1 (0.065)	.118	0.1 (0.065)	.118	0.1 (0.065)	.118	0.1 (0.065)	.103	0.03
School Mean Collectivism			0.12 (0.087)	.180	0.12 (0.087)	.180	0.12 (0.087)	.180	0.12 (0.087)	.180	0.12 (0.087)	.180	0.12 (0.087)	.221	0.027
School Mean Org. Support			0.26 (0.071)	.001	0.26 (0.071)	.001	0.26 (0.071)	.001	0.26 (0.071)	.001	0.26 (0.071)	.001	0.27 (0.064)	<.001	0.12

School Mean	0.12	.461	0.09	.541	0.01
Individualism x School Mean	(0.163)		(0.145)		
Org. Support School Mean	0.48	.045	0.33	.144	0.03
Collectivism x School Mean	(0.236)		(0.226)		
Org. Support Principal External Accountability	0.16	.002	(0.051)	.002	0.07

<i>Random Part</i>	<i>Variance</i>	<i>Expl. variance</i>	<i>Variance</i>	<i>Expl. variance</i>	<i>Variance</i>	<i>Expl. variance</i>	<i>Variance</i>	<i>Expl. variance</i>
σ_e^2	0.267	0.266	0.229	15%	0.228	15%	0.228	15%
$\sigma_{\delta_{it}}^2$	0.054	0.054	0	0	0.054	0	0.037	31%
								43%

Note: ^a School size was divided by 1,000.

Appendix 3.5b

Models for teachers' internal
accountability

1. Without Principals' Accountability, Eight Countries

	<i>M1</i>		<i>M2</i>		<i>M3</i>		<i>M4</i>		<i>M5</i>		<i>M6</i>		<i>M7</i>		
	<i>M1 + Background</i>		<i>M2 + Cult. Values and Org. Support</i>		<i>M3 + Teacher Level Interactions</i>		<i>M4 + School Size</i>		<i>M5 + School Cult. Values and Org. Support</i>		<i>M6 + School Level Interactions</i>				
<i>Fixed Part</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>β</i>
Intercept	4.46 (0.019)	0	4.48 (0.02)	0	4.48 (0.02)	0	4.48 (0.02)	0	4.48 (0.02)	0	4.48 (0.016)	0	4.49 (0.017)	0	
Gender			-0.04 (0.018)	.019	-0.04 (0.018)	.019	-0.04 (0.018)	.016	-0.04 (0.018)	.025	-0.04 (0.018)	.025	-0.04 (0.018)	.018	-0.02
Seniority			0.002 (0.001)	.036	0.002 (0.001)	.059	0.002 (0.001)	.066	0.001 (0.001)	.127	0.001 (0.001)	.194	0.001 (0.001)	.180	0.01
Individualism			0.029 (0.014)	.036	0.029 (0.014)	.036	0.03 (0.014)	.050	0.03 (0.014)	.048	0.03 (0.014)	.045	0.03 (0.014)	.042	0.02
Collectivism			0.23 (0.019)	<.001	0.23 (0.019)	<.001	0.23 (0.018)	<.001	0.23 (0.018)	<.001	0.23 (0.018)	<.001	0.23 (0.018)	<.001	0.13
Organizational Support			0.08 (0.014)	<.001	0.08 (0.014)	<.001	0.08 (0.014)	<.001	0.08 (0.014)	<.001	0.08 (0.014)	<.001	0.08 (0.014)	<.001	0.07
Org. Support x Individualism			-0.001 (0.017)	.975	-0.001 (0.017)	.975	-0.001 (0.017)	.975	-0.0003 (0.016)	.987	0.001 (0.017)	.946	0 ^b (0.017)	1.00	0 ^b
Org. Support x Collectivism			-0.02 (0.023)	.289	-0.02 (0.023)	.289	-0.02 (0.023)	.33	-0.02 (0.021)	.002	-0.01 (0.022)	.545	-0.01 (0.022)	.722	0
School Size ^a			-0.1 (0.032)	.002	-0.1 (0.032)	.002	-0.1 (0.032)	.002	-0.1 (0.032)	.002	-0.01 (0.026)	.761	0 (0.025)	.921	0
School Mean Individualism			0.15 (0.045)	.001	0.15 (0.045)	.001	0.15 (0.045)	.002	0.15 (0.046)	.002	0.15 (0.045)	.001	0.15 (0.045)	.001	0.05

(Continued)

(Continued)

	M1	M2	M3	M4	M5	M6	M7
<i>Intercept</i>	<i>M1 + Background</i>	<i>M2 + Cult. Values and Org. Support</i>	<i>M3 + Teacher Level Interactions</i>	<i>M4 + School Size</i>	<i>M5 + School Cult. Values and Org. Support</i>	<i>M6 + School Level Interactions</i>	
<i>Fixed Part</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>
School Mean							
Collectivism							
School mean							
Organizational Support							
School mean							
Individualism x School Mean							
Org. Support							
School mean							
Collectivism x School Mean							
Org. Support							
<i>Random Part</i>	<i>Variance</i>	<i>Variance</i>	<i>Variance</i>	<i>Variance</i>	<i>Variance</i>	<i>Variance</i>	<i>Variance</i>
		<i>Expl. variance</i>		<i>Expl. variance</i>		<i>Expl. variance</i>	<i>Expl. variance</i>
σ^2	0.192	0.192	13%	0.168	13%	0.167	13%
σ^2_e	0.049	0.047	0	0.049	0	0.024	49%
$\sigma^2_{\eta_0}$						0.023	53%

Note: ^a School size was divided by 1,000, ^b -0.000003, ^c -0.000002.

2. With Principals' Accountability, Six Countries

	M1		M2		M3		M4		M5		M6		M7		M8			
	<i>Intercept</i>		<i>M1 + Background</i>		<i>M2 + Cult. Values and Org. Support</i>		<i>M3 + Teacher Level Interactions</i>		<i>M4 + School Size</i>		<i>M5 + School Cult. Values and Org. Support</i>		<i>M6 + School Level Interactions</i>		<i>M7 + Principals' Accountability</i>			
<i>Fixed Part</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>β</i>	
Intercept	4.49 (0.021)	4.51 (0.022)	4.51 (0.022)	4.51 (0.022)	4.51 (0.022)	4.51 (0.022)	4.51 (0.022)	4.51 (0.022)	4.51 (0.019)	4.5 (0.021)	4.51 (0.019)	4.5 (0.021)	4.51 (0.019)	4.5 (0.021)	4.51 (0.019)	4.5 (0.021)	0.66	-0.02
Gender		-0.07 (0.025)	-0.05 (0.023)	.037	-0.05 (0.023)	.039	-0.05 (0.023)	.040	-0.04 (0.022)	.068	-0.04 (0.022)	.071	-0.04 (0.022)	-0.04 (0.022)	.351 (0.001)	.351 (0.001)	.206	0.01
Seniority		0.002 (0.001)	0.001 (0.001)	.210	0.001 (0.001)	.236	0.001 (0.001)	.246	0.001 (0.001)	.340	0.001 (0.001)	.340	0.001 (0.001)	0.04 (0.001)	.022	0.04 (0.001)	.022	0.03
Individualism			0.037 (0.015)	.017	0.037 (0.015)	.024	0.04 (0.016)	.024	0.04 (0.016)	.022	0.04 (0.016)	.022	0.04 (0.016)	0.22 (0.021)	<.001	0.22 (0.016)	<.001	0.12
Collectivism			0.23 (0.022)	<.001	0.23 (0.022)	<.001	0.22 (0.021)	<.001	0.22 (0.021)	<.001	0.22 (0.021)	<.001	0.22 (0.021)	0.08 (0.015)	<.001	0.08 (0.015)	<.001	0.06
Organizational Support			0.08 (0.015)	<.001	0.08 (0.015)	<.001	0.08 (0.015)	<.001	0.08 (0.015)	<.001	0.08 (0.015)	<.001	0.08 (0.015)	0.08 (0.015)	<.001	0.08 (0.015)	<.001	0.06
Org. Support x Individualism						.817	-0.005 (0.02)	.820	-0.005 (0.02)	.857	-0.004 (0.021)	.841	-0.005 (0.021)	-0.005 (0.021)	.818	-0.005 (0.021)	.818	-0.003
Org. Support x Collectivism						.260	-0.04 (0.032)	.256	-0.04 (0.032)	.383	-0.03 (0.035)	.351	-0.03 (0.035)	-0.03 (0.035)	.367	-0.03 (0.035)	.367	-0.02
School Size							-0.02 (0.052)	.672	-0.02 (0.052)	.488	0.03 (0.043)	.477	0.03 (0.044)	0.02 (0.038)	.660	0.02 (0.038)	.660	0.004
School Mean Individualism										.002	0.17 (0.054)	.002	0.17 (0.054)	0.16 (0.051)	.002	0.16 (0.051)	.002	0.06
School Mean Collectivism										.001	0.31 (0.089)	.001	0.31 (0.088)	0.26 (0.078)	.001	0.26 (0.078)	.001	0.06
School Mean Organizational Support										.006	0.15 (0.053)	.006	0.15 (0.055)	0.13 (0.052)	.009	0.13 (0.052)	.014	0.04

(Continued)

(Continued)

	M1	M2	M3	M4	M5	M6	M7	M8					
Intercept	M1 + Background	M2 + Cult. Values and Org. Support	M3 + Teacher Level Interactions	M4 + School Size	M5 + School Cult. Values and Org. Support	M6 + School Level Interactions	M7 + Principals' Accountability						
Fixed Part	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p	β
School Mean													
Individualism x School Mean													
Org. Support													
School Mean													
Collectivism x School Mean													
Org. Support													
Principal Internal Accountability													
Random Part													
	Variance	Expl. variance	Variance	Expl. variance	Variance	Expl. variance	Variance	Expl. variance	Variance	Expl. variance	Variance	Expl. variance	
σ^2_e	0.187	0.187	0.187	0.164	0.164	0.164	0.164	0.164	0.164	0.164	0.164	0.164	14%
$\sigma^2_{\eta_0}$	0.039	0.037	0	0.039	0	0.039	0	0.024	0.024	0.024	0.024	0.016	58%

Note: ^a School size was divided by 1,000.

Appendix 3.6a

Models for teachers' accountability
toward parents

I. Without Principals' Accountability, Eight Countries

	M1		M2		M3		M4		M5		M6		M7		
	<i>Intercept</i>		<i>M1 + Background</i>		<i>M2 + Cult. Values and Org. Support</i>		<i>M3 + Teacher Level Interactions</i>		<i>M4 + School Size</i>		<i>M5 + School Cult. Values and Org. Support</i>		<i>M6 + School Level Interactions</i>		
<i>Fixed Part</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>β</i>
Intercept	3.67 (0.027)		3.68 (0.028)		3.67 (0.028)		3.67 (0.029)		3.67 (0.029)		3.66 (0.028)		3.66 (0.028)		
Gender			-0.01 (0.035)	.679	0.003 (0.034)	.935	0.003 (0.034)	.921	0.003 (0.034)	.928	0.01 (0.034)	.839	0.01 (0.034)	.834	0.003
Seniority			0.004 (0.002)	.015	0.004 (0.002)	.018	0.004 (0.002)	.018	0.003 (0.002)	.027	0.003 (0.002)	.043	0.003 (0.002)	.045	0.03
Individualism			-0.001 (0.025)	.971	-0.001 (0.025)	.971	0.001 (0.025)	.958	0.001 (0.025)	.948	0.003 (0.025)	.921	0.002 (0.025)	.933	0.002
Collectivism			0.28 (0.033)	<.001	0.28 (0.033)	<.001	0.28 (0.034)	<.001	0.28 (0.034)	<.001	0.28 (0.034)	<.001	0.28 (0.034)	<.001	0.16
Organizational Support			0.12 (0.026)	<.001	0.12 (0.026)	<.001	0.12 (0.026)	<.001	0.12 (0.026)	<.001	0.12 (0.026)	<.001	0.12 (0.026)	<.001	0.09
Org. Support x Individualism					-0.03 (0.026)	.292	-0.03 (0.026)	.292	-0.03 (0.026)	.295	-0.03 (0.027)	.337	-0.02 (0.027)	.418	-0.01
Org. Support x Collectivism					0.02 (0.031)	.599	0.02 (0.031)	.599	0.02 (0.03)	.504	0.04 (0.031)	.258	0.03 (0.032)	.322	0.02
School Size ^a					-0.04 (0.023)	.068	-0.04 (0.023)	.068	-0.04 (0.023)	.068	-0.001 (0.022)	.960	-0.003 (0.023)	.889	-0.002
School Mean Individualism											-0.14 (0.079)	.071	-0.15 (0.078)	.059	-0.05
School Mean Collectivism											0.61 (0.098)	<.001	0.61 (0.098)	<.001	0.16
School Mean Organizational Support											-0.06 (0.082)	.441	-0.05 (0.077)	.497	-0.02

School Mean
Individualism
x School Mean
Org. Support
School Mean
Collectivism x
School Mean
Org. Support

-0.12
(0.184)

.512

-0.02

0.09
(0.131)

.498

0.02

<i>Random Part</i>	<i>Variance</i>	<i>Expl. variance</i>	<i>Variance</i>	<i>Expl. variance</i>	<i>Variance</i>	<i>Expl. variance</i>	<i>Variance</i>	<i>Expl. variance</i>
σ_e^2	0.559	0.3%	0.523	6%	0.522	7%	0.521	7%
σ_{η}^2	0.079	<.001	0.083	0	0.083	0	0.061	23%
							0.061	23%

Note: ^a School size was divided by 1,000.

Appendix 3.6b

Models for teachers' accountability
toward school management

1. Without Principals' Accountability, Eight Countries

	M1		M2		M3		M4		M5		M6		M7		
	<i>Intercept</i>		<i>M1 + Background</i>		<i>M2 + Cult. Values and Org. Support</i>		<i>M3 + Teacher Level Interactions</i>		<i>M4 + School Size</i>		<i>M5 + School Cult. Values and Org. Support</i>		<i>M6 + School Level Interactions</i>		
<i>Fixed Part</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>β</i>
Intercept	4.07 (0.028)		4.07 (0.031)		4.07 (0.031)		4.07 (0.031)		4.07 (0.031)		4.06 (0.028)		4.07 (0.03)		
Gender			-0.01 (0.023)	.355	0.01 (0.023)	.707	-0.01 (0.023)	.705	-0.01 (0.023)	.679	-0.003 (0.023)	.892	-0.003 (0.023)	.891	-0.001
Seniority			0.002 (0.001)	.075	0.002 (0.001)	.082	0.002 (0.001)	.074	0.002 (0.001)	.135	0.001 (0.001)	.254	0.001 (0.001)	.252	0.01
Individualism			0.008 (0.018)	.630	0.008 (0.018)	.630	-0.01 (0.018)	.678	-0.01 (0.018)	.690	-0.01 (0.018)	.711	-0.01 (0.018)	.720	-0.005
Collectivism			0.24 (0.024)	<.001	0.24 (0.024)	<.001	0.24 (0.023)	<.001	0.24 (0.023)	<.001	0.25 (0.023)	<.001	0.25 (0.023)	<.001	0.14
Organizational Support			0.17 (0.022)	<.001	0.17 (0.022)	<.001	0.17 (0.022)	<.001	0.17 (0.022)	<.001	0.17 (0.022)	<.001	0.17 (0.022)	<.001	0.13
Org. Support x Individualism					0.005 (0.024)	.830	0.005 (0.024)	.830	0.006 (0.023)	.806	0.006 (0.024)	.787	0.004 (0.024)	.868	0.02
Org. Support x Collectivism					0.02 (0.027)	.379	0.02 (0.027)	.379	0.03 (0.026)	.288	0.03 (0.027)	.211	0.04 (0.028)	.194	0.003
School Size ^a					-0.09 (0.023)	<.001	-0.09 (0.023)	<.001	-0.09 (0.023)	<.001	0.001 (0.02)	.934	-0.001 (0.022)	.980	-0.0004
School Mean Individualism											0.11 (0.075)	.148	0.11 (0.074)	.124	0.04
School Mean Collectivism											0.30 (0.126)	.018	0.30 (0.126)	.024	0.08

(Continued)

2. With Principals' Accountability, Six Countries

<i>Fixed Part</i>	<i>M1</i>		<i>M2</i>		<i>M3</i>		<i>M4</i>		<i>M5</i>		<i>M6</i>		<i>M7</i>		<i>M8</i>	
	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>	<i>B(SE)</i>	<i>p</i>
<i>Intercept</i>	4.1 (0.034)	4.11 (0.037)	4.10 (0.037)		4.10 (0.038)		4.10 (0.038)		4.10 (0.038)		4.09 (0.036)		4.08 (0.037)		4.08 (0.035)	
<i>Gender</i>		-0.02 (0.031)	-0.003 (0.029)	.909	-0.004 (0.029)	.900	-0.004 (0.029)	.892	-0.004 (0.029)	.935	0.002 (0.029)	.941	0.002 (0.029)	.941	0.003 (0.029)	0.001
<i>Seniority</i>		0.002 (0.001)	0.002 (0.001)	.189	0.002 (0.001)	.176	0.002 (0.001)	.175	0.001 (0.001)	.288	0.001 (0.001)	.269	0.001 (0.001)	.269	0.001 (0.001)	0.01
<i>Individualism</i>			-0.008 (0.02)	.700	-0.01 (0.02)	.764	-0.01 (0.02)	.765	-0.01 (0.02)	.778	-0.01 (0.02)	.777	-0.01 (0.02)	.777	-0.01 (0.02)	-0.004
<i>Collectivism</i>			0.23 (0.026)	<.001	0.24 (0.025)	<.001	0.24 (0.025)	<.001	0.24 (0.025)	<.001	0.24 (0.025)	<.001	0.24 (0.025)	<.001	0.24 (0.025)	0.14
<i>Organizational Support</i>			0.15 (0.025)	<.001	0.15 (0.025)	<.001	0.15 (0.025)	<.001	0.15 (0.025)	<.001	0.15 (0.025)	<.001	0.15 (0.025)	<.001	0.15 (0.025)	0.11
<i>Org. Support x Individualism</i>					-0.003 (0.027)	.911	-0.003 (0.027)	.910	-0.003 (0.027)	.944	-0.002 (0.028)	.831	-0.006 (0.027)	.831	-0.005 (0.027)	-0.004
<i>Org. Support x Collectivism</i>					0.03 (0.036)	.352	0.03 (0.036)	.349	0.03 (0.036)	.327	0.04 (0.037)	.330	0.04 (0.037)	.330	0.03 (0.037)	0.02
<i>School Size</i>					0.02 (0.089)	.811	0.02 (0.089)	.811	0.02 (0.089)	.811	0.08 (0.081)	.394	0.07 (0.083)	.394	0.1 (0.083)	0.05
<i>School Mean Individualism</i>					0.16 (0.091)	.076	0.16 (0.091)	.076	0.16 (0.091)	.076	0.16 (0.091)	.102	0.14 (0.087)	.102	0.14 (0.09)	0.04
<i>School Mean Collectivism</i>					0.32 (0.170)	.061	0.32 (0.170)	.061	0.32 (0.170)	.061	0.32 (0.170)	.060	0.30 (0.160)	.060	0.23 (0.153)	0.05
<i>Organizational Support</i>					0.21 (0.107)	.057	0.21 (0.107)	.057	0.21 (0.107)	.057	0.21 (0.107)	.091	0.19 (0.111)	.091	0.18 (0.104)	0.07

(Continued)

Notes

- 1 A list of missing values on the item level can be obtained from the authors on request.
- 2 A few additional variables were included in the questionnaire but were excluded from the analyses because of low reliability (power distance and uncertainty avoidance) or for theoretical reasons (teachers' and principals' job autonomy).
- 3 Retrieved on March 29th 2020 15.15–15.20 from www.hofstede-insights.com/product/compare-countries/
- 4 We did not choose to include institutional collectivism, given its definition: the degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action.
- 5 These plots are available from the authors on request.
- 6 These plots are available from the authors on request.