4 Study findings

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Introduction

In this chapter, we present the findings across and within countries. We report on teachers and principals, findings on the distribution of accountability (external and internal with regard to two audiences, parents and school management), and the distribution of cultural values (individualism and collectivism) and organizational support. Then we move to the findings on the prediction of teachers' accountability by cultural values and organizational support. Finally, we present a summary of all findings on predictions of teachers' and principals' accountability.

These topics were investigated using a questionnaire that included scales representing the main study variables. Scale items were answered on a five-point Likert scale (ranging from 1 to 5) and, per scale, an average score was created for all items together also ranging from 1–5. The study sample included 2,554 teachers from eight countries and 132 principals from six countries. More details about the study samples, population, and data collection can be found in Chapter 3 – Study Methods. The principals selected for the study matched the teachers' sample, so that each principal could be identified by their respective teachers in the same school. The number of principals in each school and each country varied. The across and within country tests met the minimum sample size requirements, but for some countries the distribution of principals' scores between males and females was not close to equal. It should be noted that both the samples of *South Africa* and *Zimbabwe* included a relatively small number of male principals. This combined with the small within countries sample sizes made us cautious about inferences concerning the observed within country principal variations in these countries. We used hierarchical linear modeling (HLM) to analyze the teacher data and simple regressions to analyze the principal data. We present effect size statistics according to Cohens' (1988) criteria.

Accountability distribution

In this section, we describe external and internal accountability dispositions across countries and according to the teachers' and principals' gender and seniority (number of years working as a teacher or principal).

Accountability across countries

Accountability disposition mean distribution

Tables 4.1 and 4.2 present scale means and standard deviations (SDs) for the two study samples (teachers and principals, respectively), as well as for the participating eight (teachers) or six (principals) countries. Tests of the difference between the two accountability dimensions are presented in the two tables as well. Also, a graphic representation of the country mean scores is portrayed in Figures 4.1 and 4.2. Results showed that

Table 4.1 *Teachers'* Accountability: Means and Standard Deviations of Accountability, T-Tests, and Effect Sizes for Comparison of External and Internal Accountability

		Accountability			
	N	*External M (SD)*	*Internal M (SD)*	*T-Tests Comparison Accountability Dispositions*	*Effect Size (Cohen's d)*
Canada	169	3.80 (0.55)	4.57 (0.41)	$t(168)=-19.18$, $p < .001$	1.60
China	266	3.66 (0.58)	4.25 (0.56)	$t(265)=-16.11$, $p < .001$	1.03
Hungary	338	3.90 (0.54)	4.57 (0.39)	$t(337)=-24.27$, $p < .001$	1.42
Israel	418	4.11 (0.53)	4.63 (0.46)	$t(417)=-22.03$, $p < .001$	1.04
Netherlands	178	3.62 (0.44)	4.06 (0.45)	$t(177)=-13.57$, $p < .001$	0.97
South Africa	315	4.13 (0.49)	4.67 (0.39)	$t(314)=-22.10$, $p < .001$	1.22
Spain	470	3.68 (0.59)	4.38 (0.48)	$t(469)=-27.17$, $p < .001$	1.31
Zimbabwe	400	4.10 (0.52)	4.49 (0.48)	$t(399)=-13.38$, $p < .001$	0.76
Total	2554	3.90 (0.57)	4.47 (0.49)	$t(2,553)=-54.06$, $p < .001$	1.07

Table 4.2 *Principals'* Accountability: Means and Standard Deviations of Accountability, T-Tests, and Effect Sizes for Comparison of External and Internal Accountability

	N	*External*	*Internal*	*T-Tests Comparison Accountability Dispositions*	*Effect Size (Cohen's d)*
Hungary	23	4.14 (0.34)	4.63 (0.42)	$t(22)=-4.99$, $p < .001$	1.29
Israel	30	4.31 (0.35)	4.67 (0.34)	$t(29)=-7.54$, $p < .001$	1.04
Netherlands	21	3.78 (0.51)	4.12 (0.39)	$t(20)=-4.71$, $p < .001$	0.74
South Africa	17	4.31 (0.37)	4.83 (0.24)	$t(16)=-5.30$, $p < .001$	1.67
Spain	21	4.12 (0.53)	4.49 (0.46)	$t(20)=-3.76$, $p = .001$	0.76
Zimbabwe	20	4.46 (0.52)	4.75 (0.33)	$t(19)=-3.39$, $p = .003$	0.66
Total	132	4.19 (0.48)	4.58 (0.43)	$t(131)=-11.69$, $p < .001$	0.86

Figure 4.1 Teachers' External and Internal Accountability by Country

teacher country means for external accountability varied between 3.62 (SD=0.44, *the Netherlands*) and 4.13 (SD=0.49, *South Africa*), while for internal accountability teacher means varied between 4.06 (SD=0.46, *the Netherlands*) and 4.67 (SD=0.39, *South Africa*). *Principals'* results show that country means for external accountability varied between 3.78 (SD=0.51, *the Netherlands*) and 4.46 (SD=0.52, *Zimbabwe*) while for

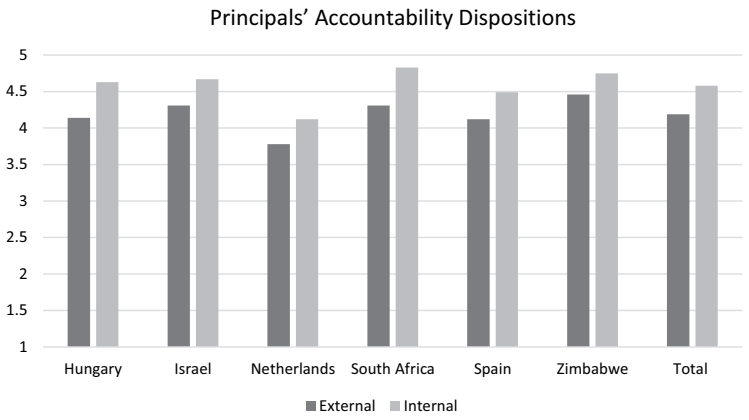

Figure 4.2 Principals' External and Internal Accountability by Country

internal accountability means varied between 4.12 (SD=0.39, *the Netherlands*) and 4.83 (SD=0.24, *South Africa*).

We tested the difference between external and internal accountability scores and the comparison of the two accountability dimensions showed that *teachers'* internal accountability was significantly higher than their external accountability for the total sample ($t(2,553)=-54.06$, $p < .001$) as well as for every individual country. Also, the *principals'* internal accountability was across-the-board significantly higher than their external accountability for the total sample ($t(131)=-11.69$. $p < .001$) as well as for each individual country. Effect sizes of the differences were large in every country. The identical trends in all countries in regard to the gap between external and internal accountability as well as to the significance and size of the differences between the two accountability types are striking. These results indicate that, although teachers and principals on average saw themselves accountable both externally and internally, they largely preferred the internal, professional standards over the external ones, namely, they tended more to report according to their own professional and ethical codes rather than to their superior's set standards.

Accountability similarities and differences among countries

Based on the accountability mean scores provided previously, we performed additional analyses to find out to what extent countries differed from each other with regard to the teachers' and principals' accountability variables.

We tested whether the differences between the country means were significant by conducting Multivariate Analysis of Variance (MANOVAs), including Bonferroni post hoc tests.[1]

TEACHERS

Results showed a significant difference between accountability means of the countries for teachers' external accountability scores ($F(7, 2546)=51.54$; $p < .001$; partial $\eta^2=.124$) and for teachers' internal accountability scores ($F(7, 2546)=51.14$; $p < .001$; partial $\eta^2=.123$), meaning that there are country means that differed from one another. The partial η^2 score represents the explained variance according to country: 12.4% for external accountability and 12.3% for internal accountability. These can be considered medium effect sizes.

It is possible to form clusters of countries where teachers scored similarly on the accountability dispositions. In regard to external accountability for teachers (Table 4.3), counting from highest scoring countries to lowest, *South Africa*, *Israel*, and *Zimbabwe* can be grouped as the countries with high teacher external accountability that significantly differed from *Canada*, *Spain*, *China*, and *the Netherlands* (the lowest cluster), and from *Hungary* (middle). Another clustering formation was to group *Hungary* and *Canada* together as a middle-score cluster, significantly different than each other country. When grouping countries from highest to lowest scores on teachers' internal accountability (Table 4.4), a slightly different order and grouping appeared than for teachers' external accountability. *South Africa*, *Israel*, *Canada*, and *Hungary* had the highest mean score cluster, significantly higher than each other country. *Canada*, *Hungary*, and *Zimbabwe* also form a cluster of average scores; a cluster that is significantly higher or lower compared to each of the other countries.

Table 4.3 Country Similarities and Differences on Teachers' External Accountability

Country	*South Africa*	*Israel*	*Zimbabwe*	*Hungary*	*Canada*	*Spain*	*China*	*Netherlands*
M	4.13	4.11	4.10	3.90	3.80	3.68	3.66	3.62
(SD)	(0.49)	(0.53)	(0.52)	(0.54)	(0.55)	(0.59)	(0.58)	(0.44)

Note: A straight line under the country groups refers to similar (non-significant different) country means.

Table 4.4 Country Similarities and Differences on Teachers' Internal Accountability

Country	*South Africa*	*Israel*	*Canada*	*Hungary*	*Zimbabwe*	*Spain*	*China*	*Netherlands*
M	4.67	4.63	4.57	4.57	4.49	4.38	4.25	4.06
(SD)	(0.39)	(0.46)	(0.41)	(0.39)	(0.48)	(0.48)	(0.56)	(0.45)

Note: A straight line under the country groups refers to similar (non-significant different) country means.

Table 4.5 Country Similarities and Differences on Principals' External Accountability

Country	*Zimbabwe*	*Israel*	*South Africa*	*Hungary*	*Spain*	*Netherlands*
M	4.46	4.31	4.31	4.14	4.12	3.78
(SD)	(0.52)	(0.35)	(0.37)	(0.34)	(0.53)	(0.51)

Note: A straight line under the country groups refers to similar (non-significant different) country means.

PRINCIPALS

The MANOVA for each of the accountability types for principals also showed differences between country means in both dimensions (external accountability, $F(5, 126)=6.12$, $p < .001$; partial $\eta^2=.195$; internal accountability, $F(5,126)=9.61$, $p < .001$; partial $\eta^2=.276$). As for principals' external accountability (Table 4.5), we found two clustering formations. The first formation included two clusters: *Zimbabwe*, *Israel*, and *South Africa* formed the higher cluster, while *Hungary*, *Spain*, and *the Netherlands* consisted of the lower cluster. The second formation had all countries except *the Netherlands* – the lowest country – in one cluster. Clustering of principals' internal accountability (Table 4.6) was identical to the second formation in principals' external clustering – *the Netherlands* came up as lowest in internal accountability.

Gender and accountability

Looking at gender differences in external and internal accountability for *teachers* (Tables 4.7 and 4.8), findings showed that in the total sample female teachers scored slightly and significantly higher than males on the two accountability scales. However, the effect sizes of these differences were small. Within countries generally females also scored higher than

Table 4.6 Country Similarities and Differences on Principals' Internal Accountability

Country	*South Africa*	*Zimbabwe*	*Israel*	*Hungary*	*Spain*	*Netherlands*
M	4.83	4.75	4.67	4.63	4.49	4.12
(SD)	(0.24)	(0.33)	(0.34)	(0.42)	(0.46)	(0.39)

Note: A straight line under the country groups refers to similar (non-significant different) country means.

Table 4.7 *Teacher* Gender Differences for External Accountability, Means, Standard Deviations, T-Tests, and Effect Sizes

	External Accountability			
	Female (SD)	*Male (SD)*	*T-Test Comparison Female vs Male*	*Effect Size (Cohen's d)*
Canada	3.77 (0.55)	3.86 (0.55)	$t(167)=-0.93$, $p=.352$	0.15
China	3.70 (0.58)	3.59 (0.58)	$t(264)=1.46$, $p=.146$	0.19
Hungary	3.92 (0.53)	3.82 (0.57)	$t(336)=1.35$, $p=.178$	0.18
Israel	4.13 (0.51)	4.05 (0.57)	$t(416)=1.33$, $p=.184$	0.14
Netherlands	3.59 (0.49)	3.65 (0.39)	$t(176)=-0.77$, $p=.441$	0.12
South Africa	4.11 (0.50)	4.17 (0.48)	$t(313)=-0.77$, $p=.441$	0.11
Spain	3.70 (0.58)	3.66 (0.60)	$t(468)=0.61$, $p=.545$	0.06
Zimbabwe	4.13 (0.56)	4.08 (0.47)	$t(398)=0.98$, $p=.327$	0.10
Total	**3.93** (0.57)	**3.86** (0.57)	$t(2552)=3.00$, $p=.003$	0.13

Note: Means of significant different values are **bold** ($p < .05$).

males, but nearly all differences were insignificant. That is to say, females somewhat more than males felt accountable both externally and internally with the exception of *Canada*, *the Netherlands*, and *South Africa* for external accountability, where the opposite was true (males were somewhat higher) and *Canada* for internal accountability, where accountability levels were equal. Only *Zimbabwe* women scored significantly lower than *Zimbabwe* men on internal accountability.

Table 4.8 *Teacher* Gender Differences for Internal Accountability, Means, Standard Deviations, T-Tests, and Effect Sizes

	Internal Accountability			
	Female M (SD)	*Male M (SD)*	*T-Test Comparison Female vs Male*	*Effect Size (Cohen's d)*
Canada	4.61 (0.43)	4.51 (0.36)	$t(167)=1.62$, $p=.107$	0.27
China	4.24 (0.61)	4.26 (0.47)	$t(237.2)=-0.28$, $p=.783$[a]	0.03
Hungary	4.57 (0.38)	4.55 (0.43)	$t(336)=0.38$, $p=.702$	0.05
Israel	4.65 (0.44)	4.56 (0.51)	$t(416)=1.75$, $p=.081$	0.18
Netherlands	4.06 (0.49)	4.06 (0.43)	$t(176)=-0.01$, $p=.994$	0.001
South Africa	4.67 (0.39)	4.66 (0.38)	$t(313)=0.29$, $p=.771$	0.04
Spain	4.42 (0.45)	4.34 (0.50)	$t(468)=1.72$, $p=.086$	0.16
Zimbabwe	**4.53** (0.44)	**4.43** (0.51)	$t(365.46)=2.05$, $p=.041$[a]	0.21
Total	**4.51** (0.48)	**4.40** (0.50)	$t(2552)=5.6$, $p < .001$	0.23

Note: [a] Levene's Test for Equality of Variances $p < .05$; means of significant different values are **bold** ($p < .05$).

Tables 4.9 and 4.10 present *principals'* results by gender in the total sample and respective countries. Similar to the teachers' case, female principals scored higher than males on external accountability, although no gender difference was found for internal accountability. Within countries, no significant differences were found between male and female principals' scores on accountability types, which may be a result of the low power of the test because of the small samples.

Seniority and accountability

Regarding the relations between teacher and principal seniority and accountability dispositions (see Table 4.11), we saw no significant correlation between *teachers'* seniority and external accountability for the total sample, although we did see a significant relation between internal accountability and teacher seniority. As for individual countries, for *South Africa* teachers, we found a significant correlation between seniority and both accountability

Table 4.9 *Principal* Gender Differences for External Accountability, Means, Standard Deviations, T-Tests, and Effect Size

	External Accountability			
	Female M (SD)	*Male M (SD)*	*T-Test Comparison Female vs Male*	*Effect Size (Cohen's d)*
Hungary	4.16 (0.22)	4.12 (0.42)	$t(21)=0.25$, $p=.803$	0.11
Israel	4.32 (0.39)	4.29 (0.30)	$t(28)=0.22$, $p=.828$	0.09
Netherlands	3.82 (0.46)	3.76 (0.54)	$t(19)=0.22$, $p=.826$	0.11
South Africa	4.35 (0.35)	4.13 (0.48)	$t(15)=0.91$, $p=.377$	0.52
Spain	4.24 (0.48)	3.99 (0.57)	$t(19)=1.09$, $p=.289$	0.47
Zimbabwe	4.40 (0.54)	4.70 (0.39)	$t(18)=-1.03$, $p=.317$	0.63
Total	**4.27** (0.44)	**4.08** (0.51)	$t(130)=2.23$, $p=.027$	0.39

Note: Means of (marginal) significant different values are **bold** ($p < .05$).

Table 4.10 *Principal* Gender Differences for Internal Accountability, Means, Standard Deviations, T-Tests, and Effect Size

	Internal Accountability			
	Female M (SD)	*Male M (SD)*	*T-Test Comparison Female vs Male*	*Effect Size (Cohen's d)*
Hungary	4.57 (0.35)	4.68 (0.47)	$t(21)=-0.63$, $p=.537$	0.27
Israel	4.67 (0.35)	4.68 (0.33)	$t(28)=-0.06$, $p=.953$	0.02
Netherlands	4.21 (0.32)	4.07 (0.43)	$t(19)=0.73$, $p=.472$	0.36
South Africa	4.81 (0.26)	4.93 (0.06)	$t(15)=-0.83$, $p=.419$	0.68
Spain	4.47 (0.39)	4.52 (0.54)	$t(19)=-0.21$, $p=.838$	0.09
Zimbabwe	4.73 (0.34)	4.84 (0.33)	$t(18)=-0.57$, $p=.577$	0.32
Total	4.62 (0.37)	4.52 (0.50)	$t(91.36)=1.36$, $p=.178$[a]	0.25

Note: [a] Levene's Test for Equality of Variances $p < .05$.

Table 4.11 Correlations Between Teacher and Principal Seniority and Accountability

	Teachers		*Principals*	
Country	*External Accountability*	*Internal Accountability*	*External Accountability*	*Internal Accountability*
Canada	−.041	−.01		
China	−.082	.056		
Hungary	.080	.008	.427*	.051
Israel	.048	.028	−.190	.010
Netherlands	.161*	.024	−.463*	−.169
South Africa	.212*	.127*	.279	.191
Spain	.006	.076	.094	.120
Zimbabwe	.050	.058	.603**	.566**
Total	.029	.068**	.001	−.017

Note: * $p < .05$, ** $p < .01$.

types. For *the Netherlands*, we only found a significant correlation between seniority and external accountability. All effect sizes were small.

Within the total sample of *principals*, no relation was found between seniority and any of the accountability dispositions. Examining specific countries, *Hungary* (r(23)=.427, p=.042) and *Zimbabwe* (r(20)=.603, p=.005) showed a positive relation between seniority and principals' external accountability. For *Zimbabwe*, a similar positive marginally significant relation is seen within the relation between principals' internal accountability and seniority (r(20)=.566, p=.009). Principals from *the Netherlands* have a negative relation between their seniority and external accountability (r(21)=−.463, p=.035).

Accountability audiences: parents and school management

In this section, we look more in depth into teachers' and principals' external accountability dispositions toward two key audiences: parents and school management (in the case of principals it would be the school board). Because the number of countries included in the teacher sample was larger than in the principal sample (eight and six, respectively), only the smaller sample was used in those cases when teachers and principals were compared.

As specified in Chapter 3 – Study Methods (p. 29), we used a short measure of external accountability fitted to each of the specific audiences. Items of this measure were selected from the larger scale used in the present study. To verify content validity of the shorter audience-focused scales, we first looked into the interrelations between the full external accountability

Table 4.12 Correlations of Accountability Toward Parents and School Management and General External Accountability

General External Accountability	*Accountability Toward*		*Correlation Between Accountability Toward Two Audiences*
	Parents	*School Management*	
Teachers	.446**	.516**	.452**
Principals	.557**	.572**	.762**

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

scale and the two shorter ones. Results (Table 4.12) showed significant correlations among all three accountability scales at medium effect size. The correlations found between the general scale and each of the small audience-focused scales for teachers and principals ranged between r=.446 and r=.572, attesting to the significant shared meaning between the general scale and the audience-specific ones, while leaving some independent meaning to each. Note that the correlation between the two audience-fitted (school management and parents) scales for principals (r=.762) was higher than that related to teachers (r=.452). This may mean that principals' distinction between the two audiences was smaller than that of teachers (see our interpretations on these preliminary correlations in Chapter 5 – Discussion of Study Findings, p. 128–129).

Teachers' accountability toward parents and school management

Teachers' accountability disposition toward parents was consistently lower than toward their school management, both for our teacher sample as a whole ($t(2,553)=-26.68$, $p < .001$) and for the individual countries (see Table 4.13 and Figure 4.3). Teachers from *the Netherlands* had the lowest accountability toward both parents (3.24(SD=0.69)) and school management (3.46(SD=0.66)). Teachers from *Spain* had the highest accountability disposition toward parents (3.88(SD=0.67)) and teachers from *Israel* (4.3(SD=0.57)) and *South Africa* (4.37(SD=0.53)) held the highest scores for their accountability disposition toward their school management. Most noteworthy were the large effect sizes of the differences between dispositions toward parents and school management for *Israel* and *South Africa*. Medium to large effect sizes were observed for *Canada* and *Zimbabwe*. The effect sizes for the different dispositions toward audiences were smaller for teachers from *Spain*, *China*, and *the Netherlands*. These results showed that accountability dispositions toward external audiences such as parents and school management seemed to vary across countries.

Table 4.13 Teachers' Means and Standard Deviations of Accountability Toward Parents and School Management, T-Tests, and Effect Sizes

		External Accountability Toward			
	N	*Parents*	*School Management*	*T-Test Comparison Accountability Dispositions*	*Effect Size (Cohen's d)*
Canada	169	3.68 (0.78)	4.18 (0.56)	$t(168)=-10.71$, $p < .001$	0.74
China	266	3.61 (0.77)	3.72 (0.67)	$t(265)=-2.81$, $p = .005$	0.16
Hungary	338	3.60 (0.73)	3.89 (0.63)	$t(337)=-8.09$, $p < .001$	0.43
Israel	418	3.62 (0.80)	4.37 (0.57)	$t(417)=-18.85$, $p < .001$	1.08
Netherlands	178	3.24 (0.69)	3.46 (0.66)	$t(177)=-4.57$, $p < .001$	0.34
South Africa	315	3.80 (0.82)	4.37 (0.53)	$t(314)=-14.74$, $p < .001$	0.83
Spain	470	3.88 (0.67)	3.96 (0.63)	$t(469)=-4.76$, $p < .001$	0.12
Zimbabwe	400	3.70 (0.92)	4.30 (0.61)	$t(399)=-11.66$, $p < .001$	0.77
Total	2,554	3.68 (0.80)	4.08 (0.67)	$t(2,553)=-26.68$, $p < .001$	0.54

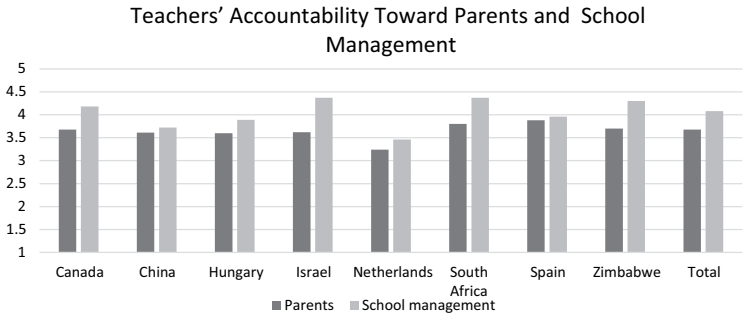

Figure 4.3 Teachers' External Accountability Toward Parents and School Management by Country

Principals' accountability toward parents and school management

For principals, we observed a similar effect as for teachers. Principals' accountability disposition toward school management was significantly higher than toward parents for the whole sample ($t(131)=-4.57$, $p < .001$) (see Table 4.14 and Figure 4.4). Similarly to teachers, *Dutch* principals scored the lowest on accountability to the two audiences: for parents (3.44(SD=0.60)) and for school management (3.50(SD=0.83)). Principals from *Spain*, similarly to *Spanish* teachers, scored highest toward parents (4.48(SD=0.47)), and *Israeli* principals scored highest toward school management (4.48(SD=0.47)). Effect sizes of the significant differences were medium size.

Comparison between teachers' and principals' accountability toward audiences

We looked into the comparison between teachers' and principals' accountability dispositions toward parents and school management. In regard to *parents* (Table 4.15 and Figure 4.5), results showed that principals' accountability

Table 4.14 Principals' Means and Standard Deviations of Accountability Toward Parents and School Management, T-Tests, and Effect Sizes

		External Accountability Toward			
	N	*Parents*	*School Management*	*T-Tests Comparison Accountability Dispositions*	*Effect Size (Cohen's d)*
Hungary	23	4.08 (0.55)	4.21 (0.52)	$t(22)=-1.11$, $p=.277$	0.24
Israel	30	**4.09** (0.56)	**4.48** (0.47)	$t(29)=-4.55$, $p < .001$	0.75
Netherlands	21	3.44 (0.60)	3.50 (0.83)	$t(20)=-0.49$, $p=.629$	0.09
South Africa	17	**4.09** (0.62)	**4.29** (0.60)	$t(16)=-2.99$, $p=.009$	0.32
Spain	21	4.33 (0.51)	4.46 (0.51)	$t(20)=-1.64$, $p=.116$	0.26
Zimbabwe	20	4.00 (1.14)	4.19 (0.90)	$t(19)=-1.53$, $p=.143$	0.19
Total	132	**4.01** (0.72)	**4.21** (0.71)	$t(131)=-4.57$, $p < .001$	0.27

Note: Means of significant different external and internal accountability values are **bold** ($p < .05$).

Figure 4.4 Principals' External Accountability Toward Parents and School Management by Country

Table 4.15 Teachers' and Principals' Means and Standard Deviations of Accountability Toward Parents, T-Tests, and Effect Sizes

	Teachers		*Principals*			
	N	*Accountability Score M (SD)*	*N*	*Accountability Score M (SD)*	*T-Test Comparison Accountability Dispositions*	*Effect Size (Cohen's d)*
Hungary	333	**3.60** (0.73)	23	**4.08** (0.55)	$t(354)=-3.10$, $p=.002$	0.75
Israel	361	**3.62** (0.80)	30	**4.09** (0.56)	$t(389)=-3.18$, $p=.002$	0.69
Netherlands	169	3.22 (0.70)	21	3.44 (0.60)	$t(188)=-1.34$, $p=.182$	0.33
South Africa	315	3.80 (0.82)	17	4.09 (0.62)	$t(330)=-1.45$, $p=.147$	0.40
Spain	318	**3.86** (0.65)	21	**4.33** (0.51)	$t(337)=-3.24$, $p=.001$	0.80
Zimbabwe	398	3.70 (0.92)	20	4.00 (1.14)	$t(416)=-1.38$, $p=.168$	0.28
Total	1894	**3.67** (0.80)	132	**4.01** (0.72)	$t(2024)=-4.74$, $p < .001$	0.45

Note: Means of significant different external and internal accountability values are **bold** ($p < .05$).

was significantly higher than teachers' accountability ($t(2024)=-4.74$, $p < .001$). This difference was observed for three individual countries: *Hungary*, *Israel*, and *Spain*. The effect sizes for the countries in which teachers and principals differed were medium (*Hungary* and *Israel*) to large (*Spain*).

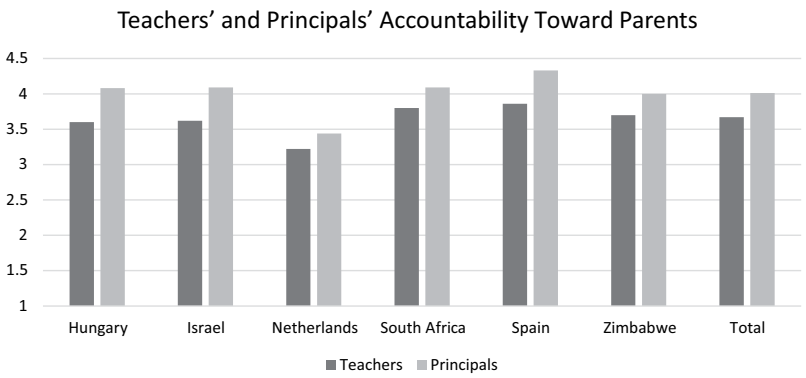

Figure 4.5 Teachers' and Principals' Accountability Toward Parents by Country

In the remaining three countries (*the Netherlands*, *South Africa*, and *Zimbabwe*), accountability toward parents was also higher than toward school management, but the differences were not significant.

As for *school management* (Table 4.16 and Figure 4.6), no significant difference was observed between teachers and principals in all countries together ($t(2024)=-1.6$, $p=.109$). Only two countries showed significantly higher scores for principals than teachers: *Hungary* and *Spain* (medium and large effect sizes, respectively).

To conclude, we see a trend where both teachers and principals felt more accountable toward their school management than toward their students' parents. However, when accountability preference for the two audiences was compared between samples, results showed that principals tended to be more accountable to parents than did teachers but were similar to teachers in regard to school management.

Cultural values distribution

After presenting results on our core variable accountability in the previous section, this section reports on teachers' and principals' adherence to the cultural values *individualism* and *collectivism*, used in the present study as accountability predictors. We describe differences in the two variables across countries and according to the teachers' and principals' gender and seniority (number of years working as a teacher or principal).

Table 4.16 Teachers' and Principals' Means and Standard Deviations of Accountability Toward School Management, T-Tests, and Effect Sizes

	Teachers		*Principals*			
	N	*Accountability M (SD)*	*N*	*Accountability M (SD)*	*T-Test Comparison Accountability Dispositions*	*Effect Size (Cohen's d)*
Hungary	333	**3.90** (0.63)	23	**4.21** (0.52)	$t(354)=-2.33$, $p=.021$	0.54
Israel	361	4.36 (0.58)	30	4.48 (0.47)	$t(389)=-1.07$, $p=.285$	0.22
Netherlands	169	3.46 (0.67)	21	3.50 (0.83)	$t(188)=-0.27$, $p=.787$	0.06
South Africa	315	4.37 (0.53)	17	4.29 (0.60)	$t(330)=0.62$, $p=.536$	−0.15
Spain	318	**3.89** (0.65)	21	**4.46** (0.51)	$t(337)=-3.95$, $p < .001$	0.98
Zimbabwe	398	4.30 (0.61)	20	4.19 (0.90)	$t(416)=0.74$, $p=.462$	−0.14
Total	1894	4.11 (0.67)	132	4.21 (0.71)	$t(2024)=-1.60$, $p=.109$	0.14

Note: Means of significant different external and internal accountability values are **bold** ($p < .05$).

Figure 4.6 Teachers' and Principals' Accountability Toward School Management by Country

Cultural values across countries

Cultural values mean distribution

Tables 4.17 and 4.18 present the mean scores for teachers' and principals' cultural values – individualism and collectivism – for the whole sample as well as for specific countries. Graphic representations of the country mean scores are portrayed in Figures 4.7 and 4.8. *Teachers'* mean of individualism was 3.64 (SD=0.75). Country teacher means varied between *Zimbabwe*, 3.42 (SD=0.93) and *South Africa*, 3.93 (SD=0.78). *Teachers'* collectivism mean was 4.25 (SD=0.58). Country means varied between *China*, 3.90 (SD=0.57) and *Spain*, 4.43 (SD=0.48). Comparison of the two cultural values showed that teachers' collectivism was significantly higher than their individualism for both the total sample ($t(2,553)=-33,45$, $p < .001$) and for all individual countries. The effect sizes varied between medium (e.g., *Israel*) and large (e.g., *Spain*, *Canada*, and *Zimbabwe*).

Table 4.17 Teachers' Means and Standard Deviations of Cultural Values, T-Tests, and Effect Sizes for the Comparison of Individualism and Collectivism

		Cultural Values			
	N	*Individualism*	*Collectivism*	*T-Test Comparison Cultural Values*	*Effect Size (Cohen's d)*
Canada	169	3.80 (0.61)	4.34 (0.49)	$t(168)=-9.44$, $p < .001$	0.99
China	266	3.54 (0.63)	3.90 (0.57)	$t(265)=-7.62$, $p < .001$	0.60
Hungary	338	3.75 (0.67)	4.32 (0.54)	$t(337)=-12.28$, $p < .001$	0.93
Israel	418	3.82 (0.69)	4.20 (0.64)	$t(417)=-9.76$, $p < .001$	0.57
Netherlands	178	3.47 (0.52)	4.03 (0.46)	$t(177)=-10.06$, $p < .001$	1.13
South Africa	315	3.93 (0.78)	4.35 (0.52)	$t(314)=-7.59$, $p < .001$	0.63
Spain	470	3.48 (0.71)	4.43 (0.48)	$t(469)=-23.65$, $p < .001$	1.57
Zimbabwe	400	3.42 (0.93)	4.22 (0.65)	$t(399)=-14.67$, $p < .001$	1.00
Total	2554	3.64 (0.75)	4.25 (0.58)	$t(2,553)=-33.45$, $p < .001$	0.90

Table 4.18 Principals' Means and Standard Deviations of Cultural Values, T-Tests, and Effect Sizes for Comparison of Individualism and Collectivism

		Cultural Values			
	N	*Individualism*	*Collectivism*	*T-Test Comparison Cultural Values*	*Effect Size (Cohen's d)*
Hungary	23	2.88 (0.84)	4.38 (0.46)	$t(22)=-8.07$, $p < .001$	2.20
Israel	30	3.62 (0.84)	4.35 (0.47)	$t(29)=-4.19$, $p < .001$	1.07
Netherlands	21	3.19 (0.68)	4.03 (0.40)	$t(20)=-4.24$, $p < .001$	1.49
South Africa	17	3.12 (0.92)	4.28 (0.41)	$t(16)=-4.24$, $p=.001$	1.63
Spain	21	3.72 (0.73)	2.61 (0.60)	$t(20)=7.97$, $p < .001$	−1.66
Zimbabwe	20	2.75 (1.22)	4.44 (0.54)	$t(19)=-5.04$, $p < .001$	1.79
Total	132	3.24 (0.94)	4.03 (0.79)	$t(131)=-6.73$, $p < .001$	0.91

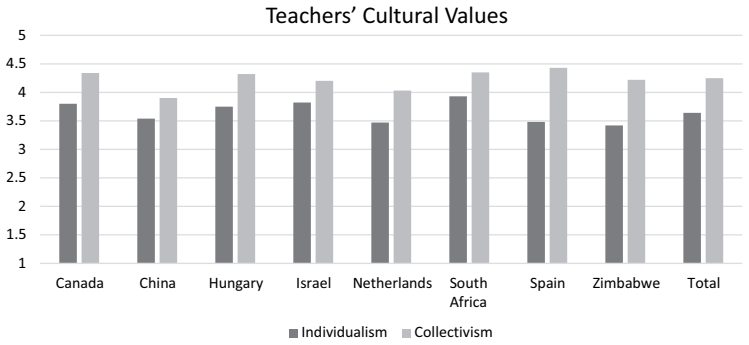

Figure 4.7 Teachers' Cultural Values by Country

Similar to the results of the teachers' data, for *principals* the individualism mean, 3.24 (SD=0.94), was lower than the general collectivism mean, 4.03 (SD=0.79) ($t(131)=-6.73$, $p < .001$). Principals' country means of individualism varied from *Zimbabwe*, 2.75 (SD=1.22), similar to the teachers' mean score in this country, to *Israel*, 3.62 (SD=0.84). Principals' country means of collectivism varied between *Spain*, 2.61

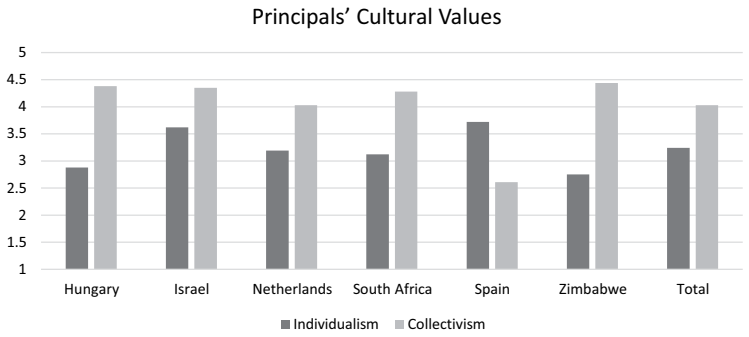

Figure 4.8 Principals' Cultural Values by Country

(SD=0.60) and *Zimbabwe*, 4.44 (SD=0.54). It is noteworthy that for *Spain* the mean of individualism, 3.72 (SD=0.73), was higher than the mean of collectivism, 2.61 (SD=0.60) ($t(20)=7.97$, $p < .001$), making *Spanish* principals the only group with a higher score for individualism than collectivism.

Cultural values – similarities and differences among countries

To explore whether the differences in cultural values among countries were significant, we used MANOVA. We next present the separate analyses for teachers and principals.

TEACHERS

MANOVA results for teachers showed a significant difference among countries in individualism ($F(7,2546)=23.80$; $p < .001$; partial $\eta^2=.061$) and collectivism scores ($F(7,2546)=29.80$; $p < .001$; partial $\eta^2=.076$), meaning that country means differed from one another. The partial η^2 represents the explained variance by the countries, which was 6.1% for individualism and 7.6% for collectivism, both with a small effect size.

When comparing the country teacher means on cultural values, individualism seemed to form two clustering formations (Table 4.19[2]). The first formation featured two distinctive groups: one consisted of the highest cluster, including *Canada*, *Hungary*, *Israel*, and *South Africa*. The other group consisted of the lowest cluster, including *China*, *Spain*, *the Netherlands*, and *Zimbabwe*. The two groups were significantly different from one another. The second formation consisted of three countries, *Israel*, *Canada*, and

Table 4.19 Country Similarities and Differences on Teachers' Individualism

Country	*South Africa*	*Israel*	*Canada*	*Hungary*	*China*	*Spain*	*Netherlands*	*Zimbabwe*
M	3.93	3.82	3.8	3.75	3.54	3.48	3.47	3.42
(SD)	(0.78)	(0.69)	(0.61)	(0.67)	(0.63)	(0.71)	(0.52)	(0.93)

Note: A straight line under the country groups refers to similar (non-significant different) country means.

Table 4.20 Country Similarities and Differences on Teachers' Collectivism

Country	*Spain*	*South Africa*	*Canada*	*Hungary*	*Zimbabwe*	*Israel*	*Netherlands*	*China*
M	4.43	4.35	4.34	4.32	4.22	4.20	4.03	3.90
(SD)	(0.48)	(0.52)	(0.49)	(0.54)	(0.65)	(0.64)	(0.46)	(0.57)

Note: A straight line under the country groups refers to similar (non-significant different) country means.

Hungary, forming a medium-score group that was significantly different (either higher or lower) than any other country.

Teacher collectivism (Table 4.20) seemed to form three clustering formations. The first consisted of three clusters: highest collectivism (*Spain*, *South Africa*, *Canada*, and *Hungary*), medium collectivism (*Zimbabwe* and *Israel*), and lowest collectivism (*the Netherlands* and *China*). The second formation featured *South Africa*, *Canada*, *Hungary*, and *Zimbabwe* as a lower cluster than *Spain* alone but higher than the cluster that consisted of *the Netherlands* and *China*. The third formation featured a medium-score cluster of *Canada*, *Hungary*, *Zimbabwe*, and *Israel*, which was different from each of the four other countries.

PRINCIPALS

Similar to the teacher case, results for principals showed significant country differences for individualism ($F(5,126)=4.44$, $p=.001$; partial $\eta^2=.150$) and collectivism ($F(5,126)=44.14$, $p < .001$; partial $\eta^2=.637$). A clustering analysis of country individualism showed two formations. According to one formation, *Zimbabwe* had the lowest score, significantly lower than all of the other five countries (see Table 4.21). The other formation showed that *Spain* had the highest score, significantly higher than all of the other five countries. As for collectivism (see Table 4.22), *Spain* had the lowest score, significantly different from all of the other five countries.

Table 4.21 Country Similarities and Differences on Principals' Individualism

Country	*Spain*	*Israel*	*Netherlands*	*South Africa*	*Hungary*	*Zimbabwe*
M	3.72	3.62	3.19	3.12	2.88	2.75
(SD)	(0.73)	(0.84)	(0.68)	(0.92)	(0.84)	(1.22)

Note: A straight line under the country groups refers to similar (non-significant different) country means.

Table 4.22 Country Similarities and Differences on Principals' Collectivism

Country	*Zimbabwe*	*Hungary*	*Israel*	*South Africa*	*Netherlands*	*Spain*
M	4.44	4.38	4.35	4.28	4.03	2.61
(SD)	(0.54)	(0.46)	(0.47)	(0.41)	(0.40)	(0.60)

Note: A straight line under the country groups refers to similar (non-significant different) country means.

Differences in cultural values by gender

In this section, we present scores on cultural values for the total sample as well as for the respective countries differentiated by teacher and principal gender. Tables 4.23 and 4.24 feature the cultural values individualism and collectivism by gender for teachers and Tables 4.25 and 4.26 show the cultural values for principals.

Teachers

Female teachers in the all-country sample valued both individualism and collectivism more than males. However, single country analysis showed differential scores for the two values between women and men. In regard to individualism, female *Canadian* teachers scored significantly higher than their male counterparts and *Chinese* women scored significantly lower than males. Both effect sizes in these countries were small. In *Israel* and *Zimbabwe*, female teachers scored only marginally lower than males ($t(416)=1.78$, $p=.08$, $t(389)=1.94$, $p=.05$, respectively). The differences between female and male scores in the other countries – *Hungary*, *the Netherlands*, *Spain*, and *South Africa* – were insignificant. As for collectivism, in three countries – *Hungary*, *Spain*, and *Zimbabwe* – female teachers scored significantly higher than male teachers with only small effect sizes. The male and female scores of the other five countries – *Canada*, *China*, *Israel*, *South Africa*, and *Zimbabwe* – did not differ significantly.

Table 4.23 *Teacher* Gender Differences for Individualism, Means, Standard Deviations, T-Tests, and Effect Sizes

	Female (SD)	*Male (SD)*	*T-Test Comparison Female vs Male*	*Effect Size (Cohen's d)*
Canada	**3.87** (0.55)	**3.66** (0.69)	$t(167)=2.22$, $p=.028$	0.35
China	**3.48** (0.66)	**3.65** (0.57)	$t(264)=-2.11$, $p=.036$	0.28
Hungary	3.75 (0.68)	3.72 (0.67)	$t(336)=0.35$, $p=.729$	0.05
Israel	3.78 (0.71)	3.91 (0.62)	$t(416)=-1.78$, $p=.075$	0.20
Netherlands	3.50 (0.56)	3.45 (0.49)	$t(176)=0.63$, $p=.533$	0.09
South Africa	3.96 (0.75)	3.82 (0.87)	$t(95.98)=1.2$, $p=.235$[a]	0.17
Spain	3.48 (0.7)	3.48 (0.71)	$t(468)=0.04$, $p=.966$	0.004
Zimbabwe	3.50 (0.91)	3.32 (0.94)	$t(398)=1.94$, $p=.053$	0.19
Total	**3.68** (0.74)	**3.58** (0.75)	$t(2,552)=3.32$, $p=.001$	0.14

Note: [a] Levene's Test for Equality of Variances $p < .05$; means of significant different values are **bold** ($p < .05$).

Table 4.24 *Teacher* Gender Differences for Collectivism, Means, Standard Deviations, T-Tests, and Effect Sizes

	Female (SD)	*Male (SD)*	*T-Tests Comparison Female vs Male*	*Effect Size (Cohen's d)*
Canada	4.38 (0.48)	4.27 (0.51)	$t(167)=1.43$, $p=.155$	0.23
China	3.9 (0.59)	3.9 (0.53)	$t(264)=0.07$, $p=.948$	0.01
Hungary	**4.35** (0.52)	**4.17** (0.61)	$t(336)=2.46$, $p=.014$	0.32
Israel	4.22 (0.60)	4.13 (0.71)	$t(416)=1.32$, $p=.188$	0.14
Netherlands	3.98 (0.51)	4.06 (0.42)	$t(176)=-1.22$, $p=.226$	0.18
South Africa	4.35 (0.51)	4.33 (0.56)	$t(313)=0.28$, $p=.782$	0.04
Spain	**4.48** (0.47)	**4.36** (0.49)	$t(468)=2.69$, $p=.007$	0.25
Zimbabwe	**4.29** (0.57)	**4.13** (0.72)	$t(398)=2.51$, $p=.012$	0.25
Total	**4.28** (0.56)	**4.18** (0.61)	$t(2,552)=4.36$, $p < .001$	0.18

Note: Means of significant different values are **bold** ($p < .05$).

Principals

Male principals tended to score higher on individualism ($t(130)=-2.17$, $p=0.032$) and female principals scored higher on collectivism; however, the difference was marginally significant ($t(130)=1.79$, $p=0.076$). We saw fewer within country differences between females and males than what we saw for teachers: these were in only two countries – *Hungary* and *Israel*. Male *Hungarian* principals scored higher than female principals on individualism, and on collectivism *Israeli* female principals scored higher than male principals.

Table 4.25 *Principal* Gender Differences for Individualism Means, Standard Deviations, T-Tests, and Effect Sizes

	Individualism			
	Female M (SD)	*Male M (SD)*	*T-Tests Comparison Female vs Male*	*Effect Size (Cohen's d)*
Hungary	**2.40** (0.78)	**3.26** (0.71)	$t(21)=-2.75$, $p=0.012$	1.15
Israel	3.67 (0.98)	3.53 (0.48)	$t(28)=0.53$, $p=0.603$[a]	0.18
Netherlands	2.90 (0.46)	3.34 (0.74)	$t(19)=-1.41$, $p=0.175$	0.70
South Africa	2.98 (0.86)	3.78 (1.07)	$t(15)=-1.41$, $p=0.179$	0.82
Spain	3.67 (0.58)	3.79 (0.89)	$t(19)=-0.37$, $p=0.716$	0.16
Zimbabwe	2.63 (1.04)	3.25 (1.91)	$t(3.46)=-0.63$, $p=0.567$[a]	0.41
Total	**3.10** (0.98)	**3.45** (0.85)	$t(130)=-2.17$, $p=0.032$	0.39

Note: [a] Levene's Test for Equality of Variances $p < .05$; means of significant different values are **bold** ($p < .05$).

Table 4.26 *Principal* Gender Differences for Collectivism Means, Standard Deviations, T-Tests, and Effect Sizes

	Collectivism			
	Female M (SD)	*Male M (SD)*	*T-Test Comparison Female vs Male*	*Effect Size (Cohen's d)*
Hungary	4.35 (0.53)	4.4 (0.43)	$t(21)=-0.27$, $p=0.790$	0.11
Israel	**4.49** (0.44)	**4.06** (0.40)	$t(28)=2.65$, $p=0.013$	1.04
Netherlands	4.14 (0.20)	3.97 (0.47)	$t(19)=0.93$, $p=0.363$	0.48
South Africa	4.29 (0.41)	4.25 (0.50)	$t(15)=0.13$, $p=0.897$	0.08
Spain	2.61 (0.52)	2.62 (0.72)	$t(19)=-0.01$, $p=0.996$	0.00
Zimbabwe	4.45 (0.50)	4.38 (0.75)	$t(18)=0.25$, $p=0.803$	0.12
Total	4.13 (0.77)	3.88 (0.81)	$t(130)=1.79$, $p=0.076$	0.31

Note: Means of significant different values are **bold** ($p < .05$).

Cultural values and seniority

The correlations of both cultural values with seniority for teachers and principals are shown in Table 4.27. None of the single country correlations for teachers were significant. Only the total teacher sample correlations of seniority and the two cultural values were positively significant and for principals the correlation was negative with collectivism. This was caused by a large effect in *Spain* for principals. The longer principals in *Spain* were in the job, the less they adhered to collectivist values.

Table 4.27 Correlations Between Teacher and Principal Seniority and Cultural Values

	Teachers		*Principals*	
Country	*Individualism*	*Collectivism*	*Individualism*	*Collectivism*
Canada	.034	−.138		
China	.098	−.092		
Hungary	.066	−.031	−.140	.081
Israel	.050	.056	.009	−.121
Netherlands	−.070	−.077	−.198	.094
South Africa	−.040	−.013	−.268	−.017
Spain	.072	.079	−.317	−.608**
Zimbabwe	.046	.047	−.179	.226
Total	.047*	.061**	−.062	−.447**

Note: * $p < .05$, ** $p < .01$.

Organizational support distribution

This section presents the descriptive results for the teachers' and principals' experience of organizational support. We report results across countries as well as results pertaining to single countries, all by gender and seniority.

Organizational support across countries

In this section, we report on teachers' and principals' perception of organizational support. We present means and SDs, country differences and similarities, and background variables' (gender and seniority) differences in organizational support. The respondents' reference of supporting institution is the school in the case of teachers and the school board in the principals' case.

Organizational support mean distribution

Tables 4.28 and 4.29 show teachers' mean scores for organizational support, respectively, for the whole sample and the individual countries differentiated by gender. Figure 4.9 presents a graphic representation of the country means. The sample mean for *teachers'* organizational support was 3.64 (SD=0.78). Country means varied from *China*, 2.80 (SD=0.75) to *Canada*, 4.00 (SD=0.65). Apparently, teachers' perception of being supported by their schools was moderately high with no great variation among countries. The sample mean for *principals'* organizational support was 3.52 (SD=0.92). Country means varied from *Spain*, 2.24 (SD=0.71) to *South*

Table 4.28 *Teachers'* Means and Standard Deviations of Organizational Support by Gender, T-Tests, and Effect Sizes

	Organizational Support				
	Total (SD)	*Female (SD)*	*Male (SD)*	*T-Test Comparison Female vs Male*	*Effect Size (Cohen's d)*
Canada	4.00 (0.65)	3.99 (0.66)	4.02 (0.64)	$t(167)=-0.31$, $p=.757$	0.05
China	2.80 (0.75)	2.78 (0.74)	2.84 (0.75)	$t(264)=-0.54$, $p=.587$	0.07
Hungary	3.90 (0.74)	3.89 (0.73)	3.92 (0.78)	$t(336)=-0.22$, $p=.827$	0.03
Israel	3.88 (0.77)	3.87 (0.72)	3.92 (0.87)	$t(416)=-0.67$, $p=.505$	0.07
Netherlands	3.59 (0.69)	3.62 (0.67)	3.56 (0.72)	$t(176)=0.59$, $p=.557$	0.09
South Africa	3.81 (0.77)	3.78 (0.75)	3.91 (0.84)	$t(313)=-1.25$, $p=.213$	0.17
Spain	3.53 (0.70)	3.52 (0.68)	3.55 (0.72)	$t(468)=-0.52$, $p=.601$	0.05
Zimbabwe	3.61 (0.76)	3.63 (0.75)	3.59 (0.78)	$t(398)=0.48$, $p=.634$	0.05
Total	3.64 (0.80)	3.66 (0.79)	3.62 (0.83)	$t(2552)=1.06$, $p=.288$	0.04

Table 4.29 *Principals'* Means and Standard Deviations of Organizational Support by Gender, T-Tests, and Effect Sizes

	Organizational Support				
	Total (SD)	*Female (SD)*	*Male (SD)*	*T-Test Comparison Female vs Male*	*Effect Size (Cohen's d)*
Hungary	3.60 (0.84)	3.32 (0.97)	3.82 (0.68)	$t(21)=-1.47$, $p= 0.157$	0.60
Israel	3.85 (0.59)	3.89 (0.67)	3.78 (0.42)	$t(26.49)=0.53$, $p= 0.598$	0.19
Netherlands	3.47 (0.86)	3.36 (0.93)	3.52 (0.85)	$t(19)=-0.41$, $p= 0.685$	0.19
South Africa	3.97 (0.57)	3.99 (0.61)	3.89 (0.38)	$t(15)=0.26$, $p= 0.795$	0.19
Spain	2.24 (0.71)	2.26 (0.66)	2.22 (0.80)	$t(19)=0.13$, $p= 0.899$	0.06
Zimbabwe	3.93 (0.77)	3.84 (0.81)	4.29 (0.50)	$t(18)=-1.05$, $p= 0.309$	0.67
Total	3.52 (0.92)	3.55 (0.93)	3.48 (0.92)	$t(130)=0.42$, $p= 0.678$	0.07

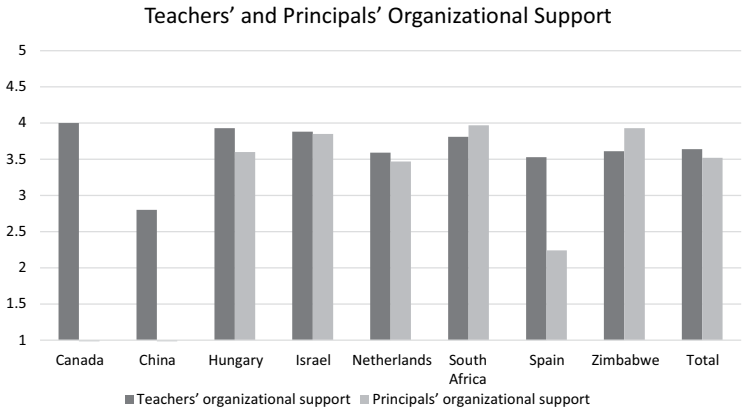

Figure 4.9 Teachers' and Principals' Organizational Support by Country

Africa, 3.97 (SD=0.57). Similar to teachers' perception of being supported by their schools, principals also perceived moderately high support from their boards, with the exception of *Spain*.

Organizational support similarities and differences among countries

To compare the *teacher* country means of organizational support, we performed an analysis of variance (ANOVA, $F(7,2546)=71.24$; $p < .001$; partial $\eta^2=.164$). Looking at the partial η^2, countries explained 16.4% of the variance of organizational support. Table 4.30 features the comparative scores. Similar scores were found for teachers from *Canada*, *Hungary*, *Israel*, and *South Africa*. These countries formed a cluster that was significantly higher than the next group, consisting of *the Netherlands*, *Spain*, and *Zimbabwe*. *China* was an exception – significantly lower than the other two clusters with a country mean 2.80 (SD=0.75).

Results for ANOVAs for *principals'* country mean scores also showed significant differences ($F(5,126)=16.92$, $p < .001$, partial $\eta^2=.402$). Table 4.31 shows all scores compared to each other. Similar to the case of collectivism, principals from *Spain* scored lowest on perceived organizational support and differed from all other country means.

Organizational support by gender and seniority

T-tests did not show any difference between male and female *teachers'* experience of organizational support, either for the whole sample or for

Table 4.30 Country Similarities and Differences on *Teachers'* Organizational Support

Country	*Canada*	*Hungary*	*Israel*	*South Africa*	*Zimbabwe*	*Netherlands*	*Spain*	*China*
M	4.00	3.90	3.88	3.81	3.61	3.59	3.53	2.80
(SD)	(0.65)	(0.74)	(0.77)	(0.77)	(0.76)	(0.69)	(0.70)	(0.75)

Note: A straight line under the country groups refers to similar (non-significant different) country means.

Table 4.31 Country Similarities and Differences on *Principals'* Organizational Support

Country	*South Africa*	*Zimbabwe*	*Israel*	*Hungary*	*Netherlands*	*Spain*
M	3.97	3.93	3.85	3.6	3.47	2.24
(SD)	(0.57)	(0.77)	(0.59)	(0.84)	(0.86)	(0.71)

Note: A straight line under the country groups refers to similar (non-significant different) country means.

individual countries (see Table 4.28). For *principals'* experienced organizational support, we also did not find differences according to principals' gender (see Table 4.29). Like teachers, male and female principals showed no different perception of their support from their board.

We tested the relation of seniority to teachers' and principals' organizational support with correlations shown in Table 4.32. Overall, the more experienced that *teachers* were, the more they felt supported by their school principals, although this was a small but significant effect. Among individual

Table 4.32 Correlations Between Teachers' and Principals' Seniority and Organizational Support

Country	*Teachers*	*Principals*
Canada	−.097	
China	−.077	
Hungary	.103	.031
Israel	.016	−.238
Netherlands	.040	.238
South Africa	.115*	.295
Spain	.032	−.602**
Zimbabwe	−.007	.133
Total	.078**	−.317**

Note: * $p < .05$, ** $p < .01$.

countries, only *South Africa* showed this relation. For *principals*, the relation between organizational support and seniority was negative. The longer principals were in their job, the less they felt supported by their board. This finding seemed to be slanted by *Spain*, where a similar negative finding was found.

Prediction of teachers' and principals' external and internal accountability

In this section. we present findings where we predict teachers' and principals' accountability dispositions by cultural values, perceived organizational support, and background variables. For the prediction of teacher accountability, we also added principals' accountability disposition as an additional predicting variable. Whereas the teacher models without principals' accountability dispositions were calculated for eight countries, the models that included principals' dispositions were calculated for six countries (*Canada* and *China* did not provide principal data). We first describe the teacher models: external and internal accountability without and with principal accountability contribution, and audience-focused external accountability referring to parents and school management. Then we present the principal models.

Prediction of teachers' accountability

Relationships between model variables

We first ran correlations to explore the relations among the study variables: teachers' external and internal accountability dispositions, cultural values (individualism and collectivism), and perceived organizational support (Table 4.33). We also included personal background variables (gender, seniority) and school size.

It should be noted that although the correlation between the two teacher accountability dimensions was substantial (r=.504, $p < .001$), suggesting that the two shared common content (variance), these dimensions were still far from identical: 75% of the variance attested to differences between the two. Both external and internal accountability were each significantly and positively related to the two cultural values individualism and collectivism, with small and medium effect sizes, respectively. Organizational support correlated significantly and positively with the two accountability dimensions with a medium effect size. In regard to background variables, seniority was significantly and positively related to internal accountability with a rather small effect size. Gender was significantly but negatively related to internal accountability only, meaning that females were more internally

Table 4.33 Correlations Between Teacher Study Variables

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
(1) Gender	–							
(2) Seniority	.003	–						
(3) External accountability	−.059**	.029						
(4) Internal accountability	−.110**	.068**	.504**					
(5) Individualism	−.066**	.047*	.060**	.124**				
(6) Collectivism	−.086**	.061**	.282**	.369**	.075**			
(7) Organizational support	−.021	.078**	.366**	.298**	.075**	.347**		
(8) School size	.046*	−.105**	−.040*	−.107**	−.035	−.154**	−.252**	

Note: * $p < .05$; ** $p < .01$; Gender: 0=Female, 1=Male.

accountable than males. The relation of school size to internal accountability was significantly negative, again with a small effect size. These correlations paved the way to more advanced analyses of the relationships among the study variables by building multilevel multiple linear regression models for predicting teacher external and internal accountability.

Modeling teachers' accountability

In Chapter 3 – Study Methods (p. 32), we explained the need for a multilevel approach because our teacher data had a hierarchical structure in which teachers were nested within schools and within countries. Because of the small number of countries where teacher data were collected (eight) at the highest level, a two-level model was chosen over a three-level model. The final study model then included variables representing the individual teacher (first level) and those representing the school (teacher faculty) (second level).

To test for the need to consider the data's nested structure, we calculated the ICC between the two levels, i.e., the proportion of variance at the teacher and at the school levels. These ICCs showed that significant amounts of variance were located at the school level. For external accountability, 19.3% of the variance was located at the school level and for internal accountability, 20.4%. These results confirmed the leveled structure and the need for multilevel analyses.

We performed multilevel regression analyses including teacher variables and school variables as predictors. To create school scores, we aggregated the scores on the individual teacher level and used the average school teachers'

score. This procedure was performed for the accountability, cultural values, and organizational support variables. Based on preliminary tests, we also included interactions between the cultural values (individualism and collectivism) and organizational support. In regard to background variables, we included gender and seniority at the individual level and school size (student body size) at the school level. When the model included principals' data (collected from six, not eight, countries), we considered principals' accountability dispositions as a school level variable.

A relation between school level variables and each of the accountability dispositions should be interpreted at the school level. The *teachers' school mean score* of, e.g., school-level individualism can only predict *the school mean* of teachers' accountability dispositions. 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 showed a higher accountability disposition compared to their within school colleagues.

Table 4.34 shows the models for predicting external and internal accountability without principals' accountability dispositions. We discuss the statistical model of external accountability followed by the statistical model predicting internal accountability.

EXTERNAL ACCOUNTABILITY RESULTS

At the teacher level, teachers' collectivism (β=0.12, t(2,540)=9.866, $p <$ .001) and organizational (school) support (β=0.16, t(2,540)=10.814, $p <$ .001) were positive significant predictors of teachers' external accountability disposition. The more teachers adhered to collectivistic views and the more they experienced organizational support, the higher their external accountability disposition. All other variables did not predict teachers' external accountability. Of the two predictors at the teacher level, organizational support had a larger standardized coefficient than collectivism, meaning that organizational support had a slightly larger predictive value. There was no significant interaction effect between collectivism and organizational support; thus, the regression coefficients for collectivism were similar for teachers across the whole range of organizational support.

The other cultural value, individualism, did not predict teachers' external accountability. Similarly, the interaction between individualism and organizational support did not predict teachers' external accountability disposition. It should be noted that the p-value of seniority at the individual level suggested a marginal positive relation (β=0.02, t(2,540)=1.696, p=.09). We also observed a marginal positive teacher level interaction between

Table 4.34 Models for Predicting Teachers' External and Internal Accountability

	External Accountability		*Internal Accountability*	
	B(SE)	*β*	*B(SE)*	*β*
Fixed Part				
Intercept	3.91 (0.022)		4.49 (0.017)	
Gender	−0.03 (0.023)	−0.01	−0.04 (0.018)	−0.02*
Seniority	0.002 (0.001)	0.02†	0.001 (0.001)	0.01
Individualism	−0.0003 (0.014)	−0.0003	0.03 (0.014)	0.02*
Collectivism	0.21 (0.021)	0.12***	0.23 (0.018)	0.13***
Organizational support	0.20 (0.018)	0.16***	0.08 (0.014)	0.07***
Org. support x individualism	0.01 (0.018)	0.005	−0.000003 (0.017)	−0.000002
Org. support x collectivism	0.04 (0.025)	0.03†	−0.01 (0.022)	−0.005
School size (student body/1,000)	0.04 (0.034)	0.03	0 (0.025)	0.002
School mean individualism	0.10 (0.058)	0.03	0.15 (0.045)	0.05**
School mean collectivism	0.10 (0.084)	0.03***	0.27 (0.077)	0.07**
School mean org. support	0.27 (0.064)	0.12	0.16 (0.042)	0.07***
School mean individualism x school mean org. support	−0.17 (0.136)	−0.03	0.05 (0.081)	0.008
School mean collectivism x school mean org. support	−0.03 (0.11)	−0.01	−0.13 (0.073)	−0.03†
Random Part	*Variance*	*Explained Variance*	*Variance*	*Explained Variance*
σ^2_e	0.228	15%	0.167	13%
$\sigma^2_{u_0}$	0.045	30%	0.023	53%

Note: † $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$; Gender: 0=Female, 1=Male.

teachers' collectivism and organizational support (β=0.03, t(2,540)=1.766, p=.08). This means that the higher teachers' collectivist views were, the stronger the relation between teachers' organizational support and their external accountability.

At the teacher school level, similar to the individual level predictors, the teachers' school mean of organizational support (β=0.13, t(178)=5.452, $p < .001$) positively predicted the school mean of teachers' external accountability: the more teachers on average felt organizational support at their work, the more they felt externally accountable. School mean of collectivism was a significant predictor of external accountability, but individualism was not, nor was there any interaction. School size had no relation to external accountability. These results showed that the teachers' individualistic, collectivistic, and organizational support characteristics predicted external accountability to a stronger degree than personal characteristics.

The model explained 15% of the variance on the teacher level and 30% on the school level. The total explained variance of the model was 18%, so about one-fifth of the variance between teachers' external accountability scores is explained by the predictors both at the teacher and school levels.

INTERNAL ACCOUNTABILITY RESULTS

Similar to the external accountability model, both teachers' collectivism (β=0.13, t(2,540)=12.739, $p < .001$) and organizational support (β=0.07, t(2,540)=5.989, $p < .001$) were positive significant predictors at the teacher level for internal accountability. The other cultural value, individualism (β=0.02, t(2,540)=2.028, p=.042) showed to be a positive significant predictor as well. Gender turned out to be the only significant background predictor (β=−0.02, t(2,540)=−2.376, p=.018). The negative sign meant that female teachers felt more accountable than their male counterparts. Both interactions between organizational support and the cultural values were not significant predictors.

At the school level, all variables predicted the school mean of teachers' internal accountability. The school mean of individualism (β=0.05, t(178)=3.355, p=.001), collectivism (β=0.07, t(178)=2.515, p=.001), and organizational support (β=0.07, t(178)=3.714, $p < .001$) were all positive significant predictors. The p-value of the interaction between the school mean of collectivism with the school mean of organizational support suggested a marginal negative relation (β=−0.03, t(178)=−1.822, p=.07). School size had no predictive effect, just like in predicting internal accountability at the individual level.

The amount of explained variance at the teacher level was 13% and at the school level was 53%. Similar to the model of external accountability, the total explained variance of the internal accountability model was 21%, meaning that this set of predictors also predicted about one-fifth of the variance between teachers' internal accountability scores.

Principals' accountability predicting teachers' accountability

In order to explore the predictive power of principals' accountability disposition for their teachers' accountability, we had to limit our teacher sample to that composed of the same six countries represented in the principal sample. To this reduced teacher sample, we added the principals' own accountability dispositions as predictors of teachers' accountability.

We first explored the relations between teachers and principals on both external and internal accountability. The correlation between teachers' external accountability score and the principals' external accountability score was significant ($r(1,894)=.167$, $p < .001$) but relatively small. We also found a significant correlation ($r(1,894)=.2219$, $p < .001$) between teachers' and principals' internal accountability, slightly larger than the correlation for external accountability. The significant correlations allowed the inclusion of principals' external and internal accountability in the models as school-level predictors. These models are shown in Table 4.35.

PRINCIPALS' EXTERNAL ACCOUNTABILITY AS A PREDICTOR OF TEACHERS' EXTERNAL ACCOUNTABILITY

The most striking finding is the predicting effect at the school level of principals' external accountability on teachers' external accountability ($\beta=0.07$, $t(109)=3.155$, $p=.002$). We found that at the individual level, teachers' collectivism ($\beta=0.11$, $t(1,879)=8.313$, $p < .001$) and organizational support ($\beta=0.15$, $t(1,879)=9.455$, $p < .001$) significantly predicted teachers' external accountability. Also, a positive marginal interaction between collectivism and organizational support was observed ($\beta=0.03$, $t(1,879)=1.690$, $p=.091$). All other variables failed to predict external accountability at the teacher level. At the school level, organizational support predicted teachers' external accountability ($\beta=0.11$, $t(109)=4.722$, $p < .001$), and school size was a positive marginal predictor ($\beta=0.02$, $t(109)=1.792$, $p=.075$).

Another notable finding is the 15% explained variance at the teacher level and 43% at the school level. Comparing the explained variance for the model without and with principals' external accountability as predictor in the six-country sample (see Appendix 3.5a, second part, columns M7 and M8), we saw no change at the teacher level and 8 percent points more explained variance at the school level (the level where the principal's score was added as a predictor). Considering the small change in other predictors, we may conclude that all extra variance was explained by principals' external accountability scores.

Table 4.35 Predictive Model for Teachers' External and Internal Accountability With Principals' External Respectively Internal Accountability as Predictor

	External Accountability		*Internal Accountability*	
	B(SE)	*β*	*B(SE)*	*β*
Fixed Part				
Intercept	3.94 (0.024)		4.51 (0.019)	
Gender	–0.03 (0.027)	–0.01	–0.04 (0.022)	–0.02†
Seniority	0.002 (0.001)	0.02	0.001 (0.001)	0.01
Individualism	0.01 (0.016)	0.01	0.04 (0.016)	0.03*
Collectivism	0.20 (0.024)	0.11***	0.22 (0.021)	0.12***
Org. Support	0.20 (0.021)	0.15***	0.08 (0.015)	0.06***
Org. Support x Individualism	0.004 (0.02)	0.003	–0.005 (0.021)	–0.003
Org. Support x Collectivism	0.06 (0.033)	0.03†	–0.03 (0.035)	–0.02
School size (Student Body/1000)	0.09 (0.049)	0.04†	0.02 (0.038)	0.004
School mean Individualism	0.04 (0.058)	0.01	0.16 (0.051)	0.06**
School mean Collectivism	0.025 (0.085)	0.005	0.26 (0.078)	0.06**
School mean Org. Support	0.30 (0.064)	0.11***	0.13 (0.052)	0.04*
School mean Individualism x School mean Org. Support	0.09 (0.145)	0.01	–0.02 (0.118)	–0.004
School mean Collectivism x School mean Org. Support	0.33 (0.226)	0.03	–0.06 (0.167)	–0.001
Principal External/ Internal Accountability	0.16 (0.051)	0.07**	0.22 (0.044)	0.07***
Random Part	*Variance*	*Explained Variance*	*Variance*	*Explained Variance*
$\sigma^2_{u_0}$	0.228	15%	0.164	14%
σ^2_e	0.031	43%	0.016	58%

Note: † $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$; Gender: 0=Female, 1=Male.

PRINCIPALS' INTERNAL ACCOUNTABILITY AS A PREDICTOR FOR TEACHERS' INTERNAL ACCOUNTABILITY

Similar to the relation between principals' and teachers' external accountability previously reported, within the model for teachers' internal

accountability with principal's internal accountability disposition, at the school level principals' internal accountability significantly predicted teachers' internal accountability (β=0.07, t(109)=3.846, $p < .001$). We also included in this model, at the individual level, teachers' gender (β=−0.02, t(1,879)=−1.887, p=.059), individualism (β=0.03, t(1,879)=2.286, p=.022), collectivism (β=0.12, t(1,879)=10.511, $p < .001$), and organizational support (β=0.06, t(1,879)=4.941, $p < .001$), which significantly predicted teachers' internal accountability, though for gender only marginally. All other variables did not predict internal accountability at the teacher level. Again, collectivism and organizational support were the strongest predictors.

At the school level, next to principals' internal accountability, the school means of individualism (β=0.06, t(109)=3.656, p=.001), collectivism (β=0.06, t(109)=3.412, p=.001), and organizational support (β=0.05, t(109)=2.308, p=.023) significantly predicted teachers' internal accountability.

When looking at the explained variance, we see for principals' internal accountability a similar trend for the explained variance of the model as for external accountability. The amount of explained variance was at the teacher level 14% and 58% at the school level. The latter is in the six-country sample 20 percent points more than in the model without the principals' internal accountability included (see Appendix 3.5b, second part, columns M7 and M8). Thus, and similar to the case of external accountability, adding the principals' accountability made the predictive value of the models substantially stronger.

Prediction of teachers' accountability dispositions toward parents and school management

In order to examine differences between accountability audiences, we analyzed teachers' accountability dispositions toward parents and school management. As in the case of teachers' general external and internal accountability, hierarchical models were appropriate for the audience-focused accountability data.

Relationships between model variables

We first ran correlations to explore the relations between the teachers' external accountability dispositions toward parents and school management with cultural values (individualism and collectivism) and perceived organizational support (Table 4.36). We also included personal background variables (gender, seniority) and school size. As in the case for correlations between external and internal accountability and teacher variables, we see many

Table 4.36 Correlations Between Teacher Variables and Accountability Toward Parents and School Management

	Accountability	
	Toward Parents	*Toward Management*
(1) Gender	−.017	−.045*
(2) Seniority	.040*	−.012
(3) External accountability	.464**	.543**
(4) Internal accountability	.331**	.475**
(5) Individualism	−.007	.054**
(6) Collectivism	.257**	.289**
(7) Organizational support	.152**	.314**
(8) School size	−.068**	−.078**

Note: * $p < .05$; ** $p < .01$; Gender: 0=Female, 1=Male.

significant correlations and thus the more advanced analyses of the relationships between the study variables with multilevel multiple linear regression models for predicting teachers' accountability toward parents and school management were appropriate.

In Table 4.37, we present the models for teachers' external accountability toward parents and school management. As we did earlier in regards to teachers' general external accountability, as a last step in the analysis, we included principals' own external accountability toward the respective audiences as a predictor for teachers' accountability toward these two audiences (Table 4.38).

In regard to accountability toward parents, calculation of the ICC showed that 12% of the total variance was located at the school level, where for accountability toward school management the variance at the school level was 25%. The amount of variance at the school level within the accountability model toward school management was surprisingly high.

Two more features of the models should be noted. When looking at the models, it appears that the variables used to predict general external accountability (see Table 4.34) are about equally successful in predicting the accountability dispositions toward the two audiences. Seniority predicted accountability toward parents but not toward school management. In other words, teachers who had more years of work experience in school tended to feel more accountable to parents than teachers with less work experience, but no difference was found for school management in this regard. At the school level, we see in both audience-specific accountability disposition models that the school mean of teachers' collectivism plays a role in predicting aggregated school accountability, which was not a predictor in the general external accountability model (see Table 4.34). Noteworthy, further,

Table 4.37 Prediction of Teachers' External Accountability Toward Parents and School Management

	Accountability Toward			
	Parents		*School Management*	
	B(SE)	*β*	*B(SE)*	*β*
Fixed Part				
Intercept	3.66 (0.028)		4.07 (0.03)	
Gender	0.01 (0.034)	0.003	−0.003 (0.023)	−0.001
Seniority	0.003 (0.002)	0.03*	0.001 (0.001)	0.01
Individualism	0.002 (0.025)	0.002	−0.01 (0.018)	−0.005
Collectivism	0.28 (0.034)	0.16***	0.25 (0.023)	0.14***
Org. support	0.12 (0.026)	0.09***	0.17 (0.022)	0.13***
Org. support x individualism	−0.02 (0.027)	0.02	0.004 (0.024)	0.002
Org. support x collectivism	0.03 (0.032)	−0.01	0.04 (0.028)	0.02
School size (size/1,000)	−0.003 (0.023)	−0.002	−0.001 (0.022)	−0.0004
School mean individualism	−0.15 (0.078)	−0.05†	0.11 (0.074)	0.04
School mean collectivism	0.61 (0.098)	0.16***	0.30 (0.130)	0.08*
School mean org. support	−0.05 (0.077)	−0.02	0.24 (0.079)	0.11**
School mean individualism x school mean org. support	−0.12 (0.184)	−0.02	0.12 (0.143)	0.02
School mean collectivism x school mean org. support	0.09 (0.131)	0.02	−0.07 (0.105)	−0.01
Random Part	*Variance*	*% Explained Variance*	*Variance*	*% Explained Variance*
$\sigma^2_{u_0}$	0.521	7%	0.307	11%
σ^2_e	0.061	23%	0.082	28%

Note: † $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$; Gender: Female=0, Male=1.

is the absence of predictive value of the aggregated scores of organizational support at the school level within the model that predicts teachers' disposition toward parents. After these general observations, we now focus on the separate models for the two audiences.

Table 4.38 Predictive Model for Teachers' External Accountability Toward Parents and School Management With Principals' Parents or School Management Accountability Scores as Predictors

	Toward Parents		*Toward School Management*	
	B(SE)	*β*	*B(SE)*	*β*
Fixed Part				
Intercept	3.63 (0.032)		4.08 (0.035)	
Gender	0.01 (0.041)	0.01	0.003 (0.029)	0.001
Seniority	0.003 (0.002)	0.03†	0.001 (0.001)	0.01
Individualism	0.01 (0.029)	0.005	−0.01 (0.02)	−0.004
Collectivism	0.26 (0.037)	0.14***	0.24 (0.025)	0.14***
Org. support	0.12 (0.029)	0.09***	0.15 (0.025)	0.11***
Org. support x individualism	−0.02 (0.033)	−0.01	−0.005 (0.027)	−0.004
Org. support x collectivism	0.005 (0.042)	0.003	0.03 (0.037)	0.02
School size (size/1,000)	−0.09 (0.063)	−0.04	0.1 (0.083)	0.05
School mean individualism	−0.22 (0.091)	−0.07*	0.14 (0.09)	0.04
School mean collectivism	0.45 (0.109)	0.10***	0.23 (0.153)	0.05
School mean org. support	−0.01 (0.095)	−0.004	0.18 (0.104)	0.07†
School mean individualism x school mean org. support	0.58 (0.273)	0.07*	0.44 (0.221)	0.05†
School mean collectivism x school mean org. support	−0.01 (0.395)	−0.001	0.02 (0.374)	0.002
Principal external accountability toward parents/ school management	0.11 (0.035)	0.08**	0.16 (0.046)	0.11**
Random Part	*Variance*	*Explained Variance*	*Variance*	*Explained Variance*
$\sigma^2_{u_0}$	0.531	6%	0.317	9%
σ^2_e	0.056	33%	0.078	29%

Note: † $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$; Gender: 0=Female, 1=Male.

Teachers' external accountability toward parents

MODEL WITHOUT PRINCIPALS' ACCOUNTABILITY

At the first level, teachers' collectivism (β=0.16, t(2,540)=8.343, $p < .001$) and organizational support (β=0.09, t(2,540)=4,540, $p < .001$) were positive significant predictors of teachers' accountability disposition toward parents. The more teachers adhered to collectivistic views and the more they experienced organizational support, the higher their accountability disposition toward parents. Additionally, at the teacher level, teachers' seniority was a significant positive predictor of teachers' accountability disposition toward parents (β=0.03, t(2,540)=8.343, p=.045), meaning that the more work experience teachers had, the higher their accountability disposition toward parents. All other variables at the teacher level did not predict teachers' accountability toward parents. Of the two predictors at the teacher level, collectivism had a larger standardized coefficient than the regression coefficient for organizational support, meaning that collectivism had a slightly higher predictive value. There was no significant interaction effect between collectivism and organizational support, meaning that the regression coefficients for collectivism were similar for teachers across the whole range of organizational support. The second cultural value, individualism, as well as the interaction between individualism and organizational support, did not predict teachers' external accountability toward parents.

At the second level, school, the school mean of teachers' collectivism (β=0.16, t(178)=6.267, $p < .001$) positively predicted the school mean of teachers' accountability toward parents: the more teachers on average had collective feelings, the more they felt externally accountable toward parents (similar to the teacher level prediction by teacher collectivism). The school mean of teachers' organizational support was not a significant predictor of teachers' accountability toward parents at the school level, and the school mean of teachers' individualism was a marginally negative significant predictor (β=−0.05, t(178)=−1.895, p=.059). None of the interactions at the school level of the cultural values and organizational support were predictors of accountability toward parents. These results showed that the teachers' individualistic and collectivistic values predicted external accountability toward parents to a stronger degree than their background characteristics.

At the teacher level, the model explained 7% of the teacher variance and at the school level, it explained 23% of the school faculty variance. The total explained variance of the model is 9%, so about one-tenth of the variance between teachers in external accountability scores toward parents is explained by the cultural values and organizational support predictors together at the teacher and the school level.

CONTRIBUTION OF PRINCIPALS' EXTERNAL ACCOUNTABILITY TOWARD PARENTS TO TEACHERS' EXTERNAL ACCOUNTABILITY TOWARD PARENTS

In light of the findings in regard to differences between teachers' and principals' accountability dispositions toward parents (Table 4.15), we set out on an analysis to examine the contribution of principals' accountability disposition to the teachers' accountability toward parents in the same schools. In Table 4.38, we see that principals' external accountability predicted teachers' accountability toward parents.

Of the variance at the teacher level, 6% is explained and at the school level, 33%. Compared with the explained variance for the model without external accountability scores as predictors in the six-country sample (see Appendix 3.6a, second part, columns M7 and M8), we see almost no change at the teacher level, and 6 percent points rise in explained variance at the school level (the level of the included predictor). We may conclude that a high amount of extra variance was explained by adding principals' accountability toward parents in the model. The total model did explain a somewhat similar amount of variance (9.5%) as the model without the principals' scores included as predictor.

Teachers' external accountability toward school management

MODEL WITHOUT PRINCIPALS' ACCOUNTABILITY

Similar to the accountability model for accountability toward parents, both teachers' collectivism (β=0.14, t(2,540)=10.557, $p < .001$) and experienced organizational support (β=0.13, t(2,540)=7.536, $p < .001$) were positive significant predictors at the teacher level (see Table 4.38). The other cultural value, individualism, showed not to be a significant predictor, and no background predictors were found to predict teachers' external accountability toward school management. Similar to the external model, both interactions between school support and the cultural values were not significant predictors of teachers' accountability toward school management.

At the second (school) level, the school means of teachers' collectivism (β=0.08, t(178)=2.282, p=.024) and organizational support (β=0.11, t(178)=3.008, p=.003) were significant positive predictors for the school mean of teachers' external accountability toward school management. School size and the interactions between the school means of teachers' individualism and collectivism with the school mean of teachers' organizational support did not predict the school mean of teachers' accountability toward school management.

The amount of explained variance at the teacher level was 11% and at the school level was 28%. The total explained variance of the model predicting teachers' external accountability toward school management was 15%, which is a bit more than in the model predicting teachers' accountability toward parents.

CONTRIBUTION OF PRINCIPALS' EXTERNAL ACCOUNTABILITY TOWARD SCHOOL MANAGEMENT TO TEACHERS' EXTERNAL ACCOUNTABILITY TOWARD SCHOOL MANAGEMENT

Similar to including principals' accountability disposition toward parents for predicting the teachers' accountability toward parents in the same schools, we included principals' accountability toward school management as a predictor for teachers' accountability toward school management (see Table 4.38). Principals' external accountability toward school management significantly predicted teachers' external accountability to this audience (β=0.11, t(109)=3.567, p=.001), as did teachers' collectivism and organizational support. At the second level, the prediction by contribution of organizational support to the model including principal contribution was marginally significant (β=0.07, t(109)=1.784, p=.077), as was the interaction of collectivism with organizational support (β=0.05, t(109)=1.978, p=.050).

Of the variance, 9% is explained at the teacher level and 29% at the school level. Compared with the explained variances for the model without principals' external accountability scores as predictor in the six-country sample (see Appendix 3.6b, second part, columns M7 and M8), we saw a small change at the teacher and again a large change at the school level, the level of the included predictor: a 12 percent point increase.

Prediction of principals' accountability dispositions

Relationships between model variables

In this section, we report on our findings on the prediction of principals' accountability dispositions by their cultural values and their organizational (board) support. We also included principals' background variables (gender and seniority) in the analytical model and school size as school characteristic. Table 4.39 shows the results of running correlations for the principal study variables: cultural values, accountability dispositions, and principals' and schools' background variables. The many significant correlations allowed for building predicting models.

Table 4.39 Correlations Between Principal Study Variables

	1	*2*	*3*	*4*	*5*	*6*	*7*
(1) Gender	–						
(2) Seniority	.053						
(3) External accountability	.007	.433**					
(4) Internal accountability	−.192*	−.035	−001				
(5) Individualism	−.125	.057	−.017	.646**			
(6) Collectivism	.187*	−.002	−.062	.105	.024		
(7) Organizational support	−.155	−.108	−.447**	.276**	.312**	−.201*	
(8) School size	−.036	−.045	−.317**	.284**	.217*	−.104	.655**

Note: * $p < .05$, ** $p < .01$; Gender: 0=Female, 1=Male.

Because of the small number of principals within schools and the small number of countries (six) where principal data were collected, hierarchical analysis like HLM was not possible (see Chapter 3 on the study methods for a more elaborated discussion). Therefore, a stepwise multiple regression model was developed for each of the accountability dispositions. First, we included principals' background variables and secondly the cultural values and organizational support. At the third step, similar to the teacher models, we included interactions between the cultural values and organizational support. Then, school size was added to the model. As a final step, we included dummy variables for each country in order to acquire insight into the possible predictive value of the principals' respective countries. We selected *Hungary* as a reference group since the country mean of *Hungary* was closest to the general sample means of the principals' accountability dispositions. Table 4.40 shows the models for predicting principals' external and internal accountability.

Prediction of principals' external accountability

Our regression analysis included two models: the first included background variables, cultural variables, and organizational support. In the second model, we added the country dummy variables. The significant predictors in the first model were principals' gender (β=−0.20, $t(123)$=−2.44, p=.016), individualism (β=0.28, $t(123)$=3.30, p=.001), collectivism (β=0.34, $t(123)$=2.63, p=.010), and the interaction between individualism and organizational support (β=−0.19, $t(123)$=−2.30, p=.023). In regard to the gender effect, the minus sign of the β implied that male principals felt less externally accountable than their female counterparts. Furthermore, the more

Table 4.40 Regression Models for Predicting Principals' Accountability Without and With Dummy Variables for Countries

	External Accountability				*Internal Accountability*			
	Without Dummies		*With Dummies*		*Without Dummies*		*With Dummies*	
	B (SE)	*β*	*B (SE)*	*β*	*B (SE)*	*β*	*B (SE)*	*β*
(Constant)	2.67 (0.38)		2.70 (0.41)		3.34 (0.36)		3.27 (0.36)	
Seniority	0.01 (0.004)	0.13	0.01 (0.004)	0.12	0.01 (0.004)	0.14	0.005 (0.004)	0.12
Gender	−0.19 (0.08)	−0.20**	−0.09 (0.08)	−0.10	−0.07 (0.07)	−0.09	0.06 (0.07)	0.07
Individualism	0.14 (0.04)	0.28***	0.13 (0.04)	0.26***	0.06 (0.04)	0.14	0.05 (0.04)	0.10
Collectivism	0.21 (0.08)	0.34**	0.19 (0.08)	0.31*	0.26 (0.07)	0.48***	0.27 (0.07)	0.50***
Organizational support	0.09 (0.05)	0.18	0.07 (0.05)	0.14	0.02 (0.05)	0.03	−0.01 (0.05)	−0.03
Individualism x org. support	−0.10 (0.04)	−0.19*	−0.11 (0.04)	−0.22*	−0.02 (0.04)	−0.05	−0.03 (0.04)	−0.07
Collectivism x org. support	0.08 (0.05)	0.16	0.02 (0.05)	0.05	0.06 (0.05)	0.15	0.01 (0.04)	0.01
School size[a]	0.04 (0.07)	0.04	0.08 (0.09)	0.09	−0.08 (0.07)	−0.10	−0.08 (0.08)	−0.10
Being from Israel[b]			0.08 (0.12)	0.07			0.05 (0.11)	0.05
Being from the Netherlands			−0.42 (0.14)	−0.32***			−0.42 (0.12)	−0.36***
Being from South Africa			0.01 (0.15)	0.01			0.28 (0.13)	0.22*
Being from Spain			0.11 (0.22)	0.08			0.18 (0.19)	0.15
Being from Zimbabwe			0.15 (0.15)	0.12			0.18 (0.13)	0.15
R Square		0.18		0.29		0.11		0.32

Note: † $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$; Gender: Female=0, Male=1; [a]Student body/1,000; [b] *Hungary* is used as reference group.

principals adhered to individualistic or collectivistic values, the higher their external accountability dispositions. The negative-sign interaction between individualism and organizational support indicated that the more principals adhered to individualistic views, the weaker the relation between principals' organizational support and their external accountability. All other variables did not predict principals' external accountability. Overall, the model without country dummy variables explained 18% of the variance of principals' external accountability scores.

When country dummy variables were included, the gender of principals lost its predictive value. Individualism (β=0.26, t(118)=2.92, p=.004), collectivism (β=0.31, t(118)=2.27, p=.025), and the interaction between individualism and organizational support (β=−0.22, t(118)=−2.67, p=.009) still predicted principals' external accountability in the same way as without dummy variables. Additionally, being from *the Netherlands* (β=−0.32, t(118)=−3.03, p=.003) had a negative influence on principals' external accountability score, meaning that *Dutch* principals were less externally accountable than principals from other countries. Most notable is the extra amount of variance explained when including the country dummies. The model including the country variables explained 29% of the variance in principals' external accountability score, 11 percent points more than without country dummies.

Prediction of principals' internal accountability

The number of variables that predicted principals' internal accountability was lower than in the model predicting principals' external accountability. Within the model without country dummy variables, only collectivism (β=0.48, t(123)=3.55, p=.001) significantly predicted principal internal accountability. In other words, the more principals maintain collectivistic views, the higher their internal accountability disposition. All other variables failed to predict principals' scores and the model explained 11% of the variance in the principals' internal accountability.

When country dummy variables were included, collectivism still predicted principals' internal accountability (β=0.50, t(118)=3.65, $p < .001$). Additionally, being a *Dutch* principal (β=−0.36, t(118)=−3.52, p=.001) and being a principal from *South Africa* (β=0.22, t(118)=2.14, p=.035) proved also to be significant predictors. The positive coefficient for *South African* principals meant that principals from *South Africa* scored higher on internal accountability. For principals from *the Netherlands*, the opposite was true: being *Dutch* resulted in a lower score for principals' internal accountability. Similar to the external accountability model, the predictive value of the internal accountability model was higher when country dummies were

included: without these sets of variables, the explained variance was 11%, while with them explained variance rose to 32%. In both cases, this was due only to the scores of principals in a small number of countries.

Prediction of principals' accountability dispositions toward parents and school management

Relationships between model variables

We first ran correlations to explore the relations between the principals' accountability dispositions toward parents and school management with cultural values (individualism and collectivism) and perceived organizational support (Table 4.41). We also included personal background variables (gender, seniority) and school size. We concluded that the many significant correlations allowed for building predictive models similar to the models for external and internal accountability with stepwise regression. Again, we included as a last step the dummy variables for countries, with *Hungary* as the reference country. Table 4.42 shows the models for predicting principals' accountability toward parents and school management both with and without country dummies.

Prediction of principals' accountability toward parents

The significant predictors in the model for principals' accountability toward parents without country dummies were principals' gender (β=−0.20, $t(123)$=−2.42, p=.017), collectivism (β=0.54, $t(123)$=4.20, $p < .001$), and

Table 4.41 Correlations Between Principal Variables and Accountability Toward Parents and School Management

	Accountability	
	Toward Parents	*Toward School Management*
(1) Gender	–.224**	–.179*
(2) Seniority	.135	.019
(3) External accountability	.557**	.572**
(4) Internal accountability	.425**	–.499**
(5) Individualism	–.032	.009
(6) Collectivism	.135	.098
(7) Organizational support	.025	.090
(8) School size	–.072	–.145

Note: * $p < .05$, ** $p < .01$; Gender: 0=Female, 1=Male.

Table 4.42 Regression Models for Predicting Principals' Accountability Toward Parents and School Management Without and With Dummy Variables for Countries

	Accountability Toward Parents				*Accountability Toward School Management*			
	Without Country Dummies		*With Country Dummies*		*Without Country Dummies*		*With Country Dummies*	
	B (SE)	*β*	*B (SE)*	*β*	*B (SE)*	*β*	*B (SE)*	*β*
(Constant)	1.92 (0.55)		1.31 (0.59)		2.68 (0.56)		2.35 (0.60)	
Seniority	0.01 (0.006)	0.12	0.01 (0.006)	0.08	–0.002 (0.007)	−0.03	−0.003 (0.006)	−0.04
Gender	−0.29 (0.12)	−0.20*	−0.21 (0.12)	−0.15†	–0.25 (0.12)	−0.17*	−0.12 (0.12)	−0.09
Individualism	0.09 (0.07)	0.12	0.02 (0.07)	0.03	0.09 (0.07)	0.11	0.008 (0.07)	0.01
Collectivism	0.49 (0.12)	0.54***	0.63 (0.13)	0.69***	0.31 (0.12)	0.35*	0.39 (0.13)	0.43**
Organizational support	−0.08 (0.08)	−0.10	−0.02 (0.08)	−0.03	0.04 (0.08)	0.06	0.06 (0.08)	0.08
Individualism x org. support	–0.10 (0.06)	−0.13	−0.06 (0.06)	−0.08	–0.09 (0.06)	−0.11	−0.08 (0.06)	−0.11
Collectivism x org. support	0.32 (0.08)	0.44***	0.19 (0.05)	0.27**	0.31 (0.08)	0.44***	0.19 (0.08)	0.27*
School size[a]	−0.09 (0.11)	−0.07	0.10 (0.09)	0.08	−0.19 (0.11)	−0.14	0.02 (0.13)	0.12
Being from Israel[b]			−0.01 (0.18)	−0.003			0.23 (0.18)	0.14
Being from the Netherlands			−0.49 (0.21)	−0.25*			−0.58 (0.21)	−0.30**
Being from South Africa			−0.09 (0.22)	−0.04			0.001 (0.22)	0.001
Being from Spain			0.82 (0.33)	0.42*			0.65 (0.33)	0.33†
Being from Zimbabwe			−0.33 (0.22)	−0.16			−0.14 (0.23)	−0.07
R Square		0.24		0.36		0.19		0.33

Note: † $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$; Gender: Female=0, Male=1; [a] Student body/1,000; [b] *Hungary* is used as reference group.

the interaction between collectivism and organizational support (β=0.44, t(123)=4.17, $p < .001$). Male principals felt less accountable toward parents than their female counterparts. The more principals adhered to collectivistic values, the higher their accountability toward parents. The interaction between collectivism and organizational support indicated that the more principals held to collectivistic views, the stronger the relationship between principals' organizational support and accountability toward parents. None of the other variables predicted principals' accountability toward parents. Overall, the model without country dummy variables explained 24% of the variance of principals' accountability toward parents.

When country dummy variables were included, the predictive value of gender of principals became marginally significant (β=−0.15, t(118)=−1.77, p=.079). Collectivism (β=0.69, t(118)=5.01, $p < .001$) and the interaction between collectivism and organizational support (β=0.27, t(118)=2.52, p=.013) still predicted principals' accountability toward parents in the same way as without dummy variables. Additionally, being from *the Netherlands* (β=−0.25, t(118)=−2.36, p=.020) had a negative influence on principals' external accountability score, meaning that *Dutch* principals were less accountable toward parents than principals from other countries. *Spanish* principals felt significantly more accountable toward parents than their colleagues in other countries (β=0.42, t(118)=2.48, p=.015). Most notable is the extra amount of variance explained when including the country dummies. The model including the country variables explained 36% of the variance in principals' accountability toward parents, 12 percent points more than in the model without country dummies.

Prediction of principals' accountability toward school management

In the model for principals' accountability toward school management without country dummies, we saw the same predictors and in the same direction as for accountability toward parents: principals' gender (β=−0.17, t(123)=−2.06, p=.041), collectivism (β=0.35, t(123)=2.60, p=.011), and the interaction between collectivism and organizational support (β=0.44, t(123)=3.97, $p < .001$). Male principals felt less accountable toward school management than their female counterparts. The more principals adhered to collectivistic values, the higher their accountability toward school management. The interaction between collectivism and organizational support indicated that the more principals adhered to collectivistic values, the stronger the relationship between principals' organizational support and their accountability toward school management. All other variables did not

predict principals' accountability toward school management. Compared to the general external accountability model (Table 4.40) of the predictors, only collectivism had a similar role. Overall, the model without country dummy variables explained 19% of the variance of principals' accountability toward school management, a bit less than for accountability toward parents.

When country dummy variables were included, the predictive value of principals' gender disappeared. Collectivism (β=0.43, t(118)=3.04, p=.003) and the interaction between collectivism and organizational support (β=0.27, t(118)=2.45, p=.016) still predicted principals' accountability toward parents in the same way as without dummy variables.

Additionally, again, being from *the Netherlands* (β=−0.30, t(118)=−2.78, p=.006) had a negative influence on principals' external accountability score, whereas the positive relationship for *Spanish* principals was marginally significant (β=0.33 t(118)=1.94, p=.055). *Dutch* principals were less accountable toward school management than principals from other countries. Again, there was a considerable extra amount of variance explained when including the country dummies: 33% of the variance in principals' accountability toward school management, 14 percent points more than in the model without country dummies.

Prediction of accountability: summary

Teachers' accountability

The first notable finding on predicting teachers' external and internal accountability is the similarity of the signs of most significant coefficients. All coefficients had a positive sign, indicating that a higher score on one of these predictors increased teachers' accountability disposition. Organizational support and collectivism were the strongest predictors of teachers' accountability disposition at the teacher level. For external accountability, these were the only predictors at the teacher level. For internal accountability, other than individualism and collectivism, gender was a predictor as well (female teachers were more internally accountable). At the school level, the models differed from each other except for the school mean of collectivism that predicted both types of accountability. Internal accountability was also predicted by individualism and organizational support. In addition, principals' accountability proved to be a significant predictor of their respective school teachers' accountability: principals' external accountability predicted their teachers' external accountability, and principals' internal accountability predicted their teachers' internal accountability.

In sum, in all eight countries, external and internal teachers' accountability were considerably related to the cultural values teachers held, more so with collectivism than with individualism. Organizational support was an even stronger predictor: the more teachers experienced support in their work, the more they felt both externally and internally accountable. Principals' external and internal accountability were also strong predictors of their respective teachers' external and internal accountability.

Teachers' accountability toward parents and school management

The first notable finding for accountability, specifically toward parents and school management, is the similarity of the predictors at the teacher level with those for predicting external accountability in general (for no specific audience). Within all three predictive models, teachers' collectivistic views and organizational support were important predictors of teachers' external accountability. Teachers' individualistic views failed to predict teachers' accountability scores in all three models (general, parents, and management). At the school level, more variations were found among the three predictive models. Most notable was the predictive value of the school means of teachers' collectivism in the models predicting accountability dispositions toward parents and school management, where this predictor failed to predict the teachers' general external accountability. Also notable was the failure of the school mean of teachers' organizational support to predict teachers' accountability dispositions toward parents. A final interesting finding is that the total amount of variance at the school level was substantively lower for the model predicting teachers' accountability dispositions toward parents (12%) than for the model predicting teachers' accountability dispositions toward school management (25%) and for general external accountability. Of the total variance, 19% was located at the school level.

Principals' accountability

Comparing the models that predicted teachers' external and internal accountability and the models that predicted principals' external and internal accountability, we see a similar trend. In all four models, the cultural values and organizational support played a predictive role, and both teachers' and principals' accountability disposition could be predicted to a reasonable degree. Female principals feeling a bit more externally accountable than their male colleagues is another feature of this model. The added explained variance in the model by including country dummy variables is

striking, specifically that mainly one country, *the Netherlands*, is responsible for this effect.

Principals' accountability toward parents and school management

The models for predicting principals' accountability toward parents and school management follow the lines of the model for principals' external accountability, with collectivism and the interaction between collectivism and organizational support being the strongest predictors. Also, the gender effect and the added explained variance by the country dummies are noteworthy. Female principals feel somewhat more accountable toward parents and school management than do male principals.

Notes

1 The results of these tests are available from the authors on request.
2 Results for the Bonferroni post hoc test are available from the authors on request.