Effects of staff participation, morale, and shortage on organisational performance: An international survey

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Prior research has suggested that staff-centred organisational factors such as participation, morale and shortage can have a significant effect on organisational outcomes. However, relatively little attention has been paid to cross-country examination of these relationships specifically for educational organisations such as schools, colleges, and universities. In this study we looked at the link between staff-centred organisational factors and organisational performance, within the special context of high schools across nationally representative samples from 64 countries and economies. Our empirical results indicate large cross-country variations in the effect of factors such as staff participation, morale and shortage, on school performance. Implications are discussed.

Introduction

Staff is an important asset for any organisation, with most organisations spending significant amounts of resources on staff hiring, management, and development (Hinkin & Tracey, 2000). Staff is the basic building block of organisations and the primary vehicle for organisational change (Ang, 2002). Modern organisational behaviour theory posits that a happy staff is key to organisational success, and that motivated, committed, and satisfied staff members perform better, which ultimately leads to improvements in organisational performance. Staff-centred factors such as participation, morale, and shortage are not only inter-related but also play an important role in predicting organisational performance and effectiveness. When staff members switch or quit their jobs, they lose a source of income while the organisation loses productivity. Such turnover is expensive for organisations, not only because of the costs related with hiring and developing staff members, but also because it can affect the morale of remaining members (Cascio, 2006). In order to reduce turnover and improve morale, organisations often involve their staff directly in the organisational decision making processes (Pasmore & Fagans, 1992). In addition to contributing towards staff retention and satisfaction, such participation and involvement can help improve organisational performance.

Staff morale and organisational performance

According to Hacker (1997) morale can be defined as, "attitudes of individuals and groups toward their work, their environment, their managers, and the business." Bruce (2003) considered morale as an individual's feelings about her work and her organisation. Morale, attitude towards one's job, and job satisfaction are terms that are often used interchangeably in organisational behaviour literature. In today's competitive world, organisations spend significant proportions of their annual budgets on maintaining and improving staff morale, with an implicit understanding that morale has a significant influence on work performance. Although there are different approaches to measuring staff morale, and across organisations there can be a wide variation in workplace

characteristics and factors that affect such morale, the importance of staff morale within an organisational context cannot be ignored. From an organisational point of view, high morale is a desirable trait in staff members as it improves individual effort, which in turn positively impacts organisational performance (Howitt, 2002).

Briggs and Richardson (1992) examined the internal and external reactions to low morale using a sample of 78 school teachers and administrators enrolled in educational supervision courses, and found that teacher morale was significantly related with individual and organisational performance. Low teacher morale was associated with internal reactions such as more frustration, lack of confidence, resistance to change, excessive absence from work, lack of teaching quality and high turnover, and external reactions such as backbiting, open hostility, bickering, and high teacher turnover. Causes for low morale included factors such as lack of recognition, overload of extra duties, criticisms, and autocratic administration. Morale has spill-over effects, and a teacher with low morale can cause discouragement and lower morale of other teachers and co-workers around him which has the potential to negatively affect student performance. On the other hand, high morale is associated with improvements in efficiency, quality, cooperation, and productivity among co-workers (Kerlin & Dunlap, 1993). Educational processes and systems depend heavily on teachers, and school performance can suffer if teachers are not happy and satisfied. Hollinger (2010) emphasised the importance of school management in developing and maintaining teacher morale. If teacher morale is high, the school environment will be conducive to learning, collaborative, engaging, and productive. This will in turn reduce teacher attrition and turnover, and consequently improve school performance.

Koys (2001) and Dartey-Baah and Harlley (2010) argued that staff job satisfaction is a key to organisational success and that correct use of human resource management practices enhances the effectiveness of organisations. Satisfied and happy staff members are important because they positively affect organisational performance. Weakliem and Frenkel (2006) examined the relationship between staff morale and workplace productivity using a representative sample of Australian workplaces, and found that morale had a linear and positive relationship with organisational productivity. When morale was high, individual work effort and productivity increased and ultimately improved organisational productivity and performance. However, the degree of influence of morale on productivity varied as a function of work effort, job characteristics, and nature of the organisation.

Staff participation and organisational performance

Staff participation refers to the systematic involvement of staff members in organisational decision making processes (Wegge et al., 2010). This participation may comprise different types and levels. For instance, it can be direct or through representatives, long term or short term, and formal or informal. In organisational behaviour literature, staff participation is known to be a significant determinant of organisational performance predictors such as job commitment and job satisfaction (Bakiev, 2013; Becton, Matthews,

Hartley & Whitaker, 2009; Roca-Puig, Beltrán-Martin, Escrig-Tena & Bou-Llusar, 2007; Razzaq, Ayub, Arzu & Aslam, 2013; Steyrer, Schiffinger & Lang, 2008).

Previous research suggests that staff participation does not develop organisational commitment among staff members, but rather enhances it. In addition, staff participation plays a pivotal role in organisational change processes. Cohen and Kirchmeyer (1995) examined the relationship between organisational commitment and participation in nursing staff of two Canadian hospitals and found that staff participation played a significant role in fostering staff commitment. Staff involvement in short term decision making processes has a relatively weaker effect on individual organisational commitment as compared to their participation in long term decision-making processes. In order to maximise organisational performance, staff participation in long term decision making processes is thus recommended. Unterrainer, Palgi, Weber, Iwanowa and Oesterreich (2011) argued that staff participation in decision-making processes develops feelings of belongingness to the organisation and increases job satisfaction, staff loyalty and productivity, and decreases turnover. However, such results can only be achieved if the participation practices are embedded with true spirits, otherwise such practices have the potential to backfire and lead to resistance and discouragement among staff members that can in turn lead to poor performance (Heller, 1998, 2003; Strauss, 2006).

Staff participation is related to job satisfaction (Kim, 2003; Wood, van Veldhoven, Croon & de Menezes, 2012), and increase in job satisfaction leads to improvement in both individual and organisational performance (Bhatti & Qureshi, 2007; Brewer & Kellough, 2008; Ouedraogo & Leclerc, 2013; Vermeeren, Kuipers & Steijn, 2014; Wood et al., 2012; Yadollah & Zahra, 2010).

Staff shortage and organisational performance

Previous research has identified staff shortage as a significant predictor of organisational performance (Boyne, James, John & Petrovsky, 2011; Dess & Shaw, 2001; Meier & Hicklin, 2008; Shaw, Gupta & Delery, 2005; Ton & Huckman, 2008; Hur, 2013). When there is a shortage of staff the responsibilities and workloads of existing staff members increase, which leads to mistakes and other inefficiencies, and negatively effects individual performance, client care, and ultimately organisational performance.

According to Ingersoll (2001) there is an increasing trend of teacher shortage and turnover in the U.S. education sector, especially at the school level, which ultimately affects school performance, with primary factors responsible for such shortage being compensation, work environment, stress, and management behaviour. The author argued that traditional education initiatives such as teacher recruitment programs cannot solve staffing issues (and improve school performance) unless the teacher turnover rate can be lowered. High teacher turnover rate is an indicator of underlying problems that can lead to turmoil and affect organisational functions. High turnover has particularly serious consequences in workplaces such as schools that need intensive interaction among participants and which rely upon commitment, continuity, and cohesion among staff. According to the authors, high turnover rates in academic institutions cause staffing issues that directly affect

student achievement, teacher quality, and ultimately lower institutional performance (Ingersoll & Smith, 2003).

In light of the preceding review of past research, and based on the premise that findings from other types of organisations may not be applicable to high schools due to often significant inter- and intra-country differences across organisations, the aim of this study is to examine the effect of staff-centred organisational traits on organisational performance, specifically for high schools. In a way our study is a follow-up of Cheema and Fuller-Hamilton (2017), who showed that school performance was linked to teacher participation, morale, and shortage, albeit in a race-based context. Our specific research questions are: (1) Is there a significant effect of teacher morale on school performance? (2) Is there a significant effect of teacher participation on school performance? and (3) Is there a significant effect of teacher shortage on school performance?

Method

Sample and participants

For the purpose of empirical analyses conducted in this study we extracted data from the international version of the *Program for International Student Assessment* (PISA) 2012 student and school surveys (OECD, 2012b). PISA is a literacy assessment of students who are close to finishing their compulsory schooling that was administered in 34 OECD and 30 non-OECD countries and economies in 2012. An attractive feature of PISA country/economy samples is that they are nationally representative of their respective student and school populations (OECD, 2012a).

The primary sampling unit in our analysis was school (N = 17,293) with the number of sampled schools ranging between 12 for Liechtenstein and 1,451 for Mexico (M = 270.20, SD = 254.30). The proportion of public (government funded) schools in country/economy sub-samples ranged from .07 for Hong Kong (China) to 1.00 for Israel, Perm (Russia), and Russia (M = .81, SD = .23). Based on sampling weights provided in the PISA 2012 school data file, the 17,293 surveyed schools are representative of a total of 417,360 schools in the 64 participating countries/economies (M = 6,521, SD = 12,013).

Variables

A total of five continuous variables were used for empirical analyses presented later in this paper of which three are staff centred predictors (participation, morale, and shortage), one captures inter-school and inter-country socioeconomic and cultural differences (school SES), and the remaining variable (school literacy score) measures organisational performance. A brief description of each of these variables follows.

Organisational performance
We used standardised student literacy scores reported in the PISA 2012 data file as a measure of school performance. This is appropriate because improvement in student outcomes such as literacy and achievement scores is a primary objective of most, if not all,

educational policies that are directly or indirectly implemented at the school level. We averaged student literacy scores in mathematics, reading, and science in order to obtain a single literacy score for each student. Literacy score for a school was computed as the average literacy score of all students sampled from that school. This mean school literacy score was standardised with a mean of 500 and standard deviation of 100 for the 34 OECD countries in our sample, and ranged from 347.73 for Peru to 574.91 for Shanghai (China) with M = 458.12 (SD = 51.84) for the 64 countries/economies in our sample.

Staff centred factors: Teacher morale

This scale is based on four items in the school questionnaire that asked the school principal about the morale of teachers employed by the school (OECD, 2013). A sample item included, "Think about the teachers in your school. How much do you agree with the following statement? Teachers work with enthusiasm." Response categories were 1 (strongly agree), 2 (agree), 3 (disagree), and 4 (strongly disagree). The reliability of this scale in our overall sample was .83 with country level mean reliability being .79 (SD = .06). Item responses were inverted and teacher morale was standardised to have a mean of 0 and a standard deviation of 1 for OECD countries included in the sample. Thus, higher scores on this scale are indicative of higher teacher morale. Teacher morale ranged from -0.64 for Japan to 0.70 for Austria (M = -0.01, SD = 0.32).

Staff centred factors: Teacher participation

This scale is based on twelve items in the school questionnaire that asked the school principal about the participation of teachers in decision making at school (OECD, 2013). A sample item asked whether or not the teachers had considerable responsibility for tasks such as, "Deciding on budget allocations within the school." Response categories were 1 (tick), and 2 (no tick). The reliability of this scale in our overall sample was .78 with country level mean reliability being .69 (SD = .10). Item responses were inverted and teacher participation was standardised to have a mean of 0 and a standard deviation of 1 for OECD countries included in the sample. Thus, higher scores on this scale are indicative of greater teacher participation. Teacher participation ranged from -0.56 for Vietnam to 1.98 for Hong Kong (M = -0.06, SD = 0.66).

Staff centred factors: Teacher shortage

This scale is based on four items in the school questionnaire that asked school principals about the shortage of qualified teachers at their school, for mathematics, reading, science, and other subjects (OECD, 2013). A sample item included, "Is your school's capacity to provide instruction hindered by a lack of qualified science teachers?" Response categories were 1 (not at all), 2 (very little), 3 (to some extent), and 4 (a lot). The reliability of this scale in our overall sample was .86 with country level mean reliability being .76 (SD = .14). Teacher shortage was standardised to have a mean of 0 and a standard deviation of 1 for OECD countries included in the sample. Higher scores on this scale are indicative of greater teacher shortage. Mean teacher shortage ranged from -1.04 for Poland to 1.44 for Thailand (M = 0.05, SD = 0.50).

School socioeconomic status (SES)
This variable captures the socioeconomic, cultural, and other differences across schools and countries included in our sample. The value of this variable was computed separately for each school and represents the average economic and sociocultural scores of all students sampled from that school. The student level SES scores were reported in the PISA 2012 student data file and were based on five factors: family wealth, home educational resources, cultural possessions, parental education, and parental occupation (OECD, 2012a). School SES was standardised with a mean of 0 and a standard deviation of 1 for OECD countries, and in our overall sample ranged from -2.40 for Vietnam to 0.61 for Iceland (M = -0.45, SD = 0.65). Higher values of this variable are indicative of higher school SES.

Analytical method

We computed summary statistics by country for each of the five continuous variables included in this study. In order to predict school literacy score at country level we estimated two multiple regression equations. The first equation predicted literacy score from school SES and is represented by the expression in (1).

$$Y_{ij} = \alpha_j + \beta_j \left(School\ SES\right)_{ij} + \varepsilon_{ij} \qquad (1)$$

where Y is mean literacy score for school i in country j, α and β are intercept and slope coefficients respectively for country j, and ε is the school- and country-specific error term. The second regression equation added three additional predictors, teacher morale, teacher participation, and teacher shortage to (1), and is represented by the expression in (2).

$$Y_{ij} = \alpha_j + \beta_j \left(School\ SES\right)_{ij} + \sum_{k=1}^{3} X_{kij} + \varepsilon_{ij} \qquad (2)$$

where X_k represents the K = 3 teacher-centred predictors. For each regression equation we computed the multiple R^2 value and evaluated the significance of change in R^2 separately for each country. For the second regression equation we also computed adjusted R^2 and f^2 in order to facilitate effect size interpretation for the full model. Overall, we estimated a total of 128 regression equations, two for each country/economy in our sample. We also computed zero order Pearson product moment coefficients of correlation in order to examine the bivariate relationship of each individual independent variable with school literacy score.

School sampling weights were incorporated in all of our computations, tests of hypothesis were evaluated at 5% level of significance, and underlying assumptions of all estimated regression models were evaluated. All effect size interpretations are based on Cohen (1992).

Results

Descriptive statistics for school literacy score and its predictors are presented in the Appendix (Tables A1 and A2) for OECD and non-OECD sub-samples respectively. Since all variables are standardised for the OECD sub-sample, the interpretation of these statistics is relative. For example, the mean school literacy score of 501.13 for Australia means that a typical Australian school had a literacy score that exceeded the OECD average of 500. Similarly, the mean school literacy score of 389.91 for Argentina means that a typical Argentinean school had a literacy score that fell approximately 110 points below the OECD average. Summary statistics for school SES and the three teacher-related factors presented in Tables 1 and 2 can be interpreted in a similar manner. These four variables are standardised with a mean of 0 and a standard deviation of 1 for the OECD sub-sample. The mean school literacy score value presented in the last row of Tables A1 and A2 is the weighted cross-country average of mean school literacy scores and thus is slightly different from the weighted mean student level estimate. Summary statistics presented in Tables A1 and A2 suggest that, compared to their non-OECD counterparts, on average OECD countries tend to have higher literacy, school SES, teacher morale, and teacher participation and lower teacher shortage scores.

Proportion of explained variation

Model summary results for multiple regression equations (1) and (2) are presented in Tables 1 and 2 respectively for OECD and non-OECD countries. R^2 values for equation (1) suggest that school SES is a strong predictor of literacy, and by itself is capable of explaining anywhere between 7.2% (Norway) and 78.8% (Luxembourg) of the variation in school literacy score in the OECD sample (M = 47.76%, SD = 19.92%). In the non-OECD sample, comparable figures ranged between 0.2% for Thailand and 75.7% for Uruguay (M = 37.35%, SD = 18.80%). The mean R^2 value for the entire sample of 64 countries/economies was 42.88% (SD = 19.95%). The large variability in these percentages across countries highlights the importance of conducting country level analyses of this relationship. R^2 values for multiple regression equation (2) are presented in the third column of Tables 1 and 2. These values reflect the contribution of the three teacher-related factors (morale, participation, and shortage) in addition to school SES towards explaining the total variation in literacy, and suggest that these four predictors are capable of explaining anywhere between 15.2% (Iceland) and 80.5% (Denmark) of the variation in school literacy score in the OECD sample (M = 50.74%, SD = 18.68%). In the non-OECD sample the percentage of variation in school literacy that can be explained by school SES ranged between 5.50% for Thailand and 76.0% for Uruguay (M = 41.46%, SD = 17.93%). The mean R^2 value for the entire sample of 64 countries/economies was 46.39% (SD = 18.77%).

In order to isolate the effect of the three teacher-related factors on literacy we tested the hypothesis that the difference in R^2 between regression equations (1) and (2) was significantly different from zero. Results of this test are summarised in column four of Tables 1 and 2. The ΔR^2 values for OECD countries ranged from a minimum of 0.2% for

Table 1: Effect size measures for multiple regression models predicting school performance from teacher centred predictors and school SES — OECD countries

Country	R_1^2	R_2^2	ΔR^2	*p*	Adj. R_2^2	f_2^2	Effect size
Australia	.556	.565	.009	< .001	.565	1.30	large
Austria	.572	.644	.072	< .001	.644	1.81	large
Belgium	.583	.616	.033	< .001	.615	1.60	large
Canada	.162	.203	.041	< .001	.202	0.25	large
Chile	.610	.653	.043	< .001	.653	1.88	large
Czech Republic	.618	.652	.034	< .001	.652	1.88	large
Denmark	.784	.805	.021	< .001	.805	4.13	large
Estonia	.153	.213	.059	< .001	.206	0.27	large
Finland	.394	.398	.005	.094	.396	0.66	large
France	.529	.536	.006	< .001	.536	1.15	large
Germany	.671	.686	.014	< .001	.686	2.18	large
Greece	.303	.311	.009	< .001	.310	0.45	large
Hungary	.503	.519	.016	< .001	.519	1.08	large
Iceland	.137	.152	.016	.512	.125	0.18	medium
Ireland	.709	.713	.005	.016	.712	2.49	large
Israel	.407	.421	.014	< .001	.419	0.73	large
Italy	.520	.525	.005	< .001	.525	1.10	large
Japan	.661	.676	.015	< .001	.675	2.08	large
Korea	.314	.461	.147	< .001	.460	0.85	large
Luxembourg	.788	.796	.008	.702	.773	3.89	large
Mexico	.351	.354	.004	< .001	.354	0.55	large
Netherlands	.346	.359	.013	< .001	.357	0.56	large
New Zealand	.362	.423	.062	< .001	.418	0.73	large
Norway	.072	.283	.211	< .001	.280	0.40	large
Poland	.484	.488	.004	< .001	.487	0.95	large
Portugal	.614	.625	.011	< .001	.623	1.66	large
Slovak Republic	.622	.626	.004	< .001	.625	1.67	large
Slovenia	.203	.227	.025	.001	.222	0.29	large
Spain	.453	.456	.002	< .001	.455	0.84	large
Sweden	.622	.646	.024	< .001	.645	1.82	large
Switzerland	.177	.183	.005	.012	.181	0.22	medium
Turkey	.597	.623	.026	< .001	.623	1.65	large
United Kingdom	.650	.666	.016	< .001	.666	1.99	large
USA	.710	.749	.039	< .001	.749	2.99	large
Mean	.478	.507	.030	.039	.505	1.36	

Note. N = 11,222. Subscripts 1 and 2 refer to regression equations 1 and 2 respectively. Effect size interpretation based on f^2 as defined by Cohen (1992): Small, 0.02; Medium, 0.15; Large, 0.35. R_1^2 significant for all countries/economies at 5% level of significance.

Table 2: Effect size measures for multiple regression models predicting school performance from teacher centred predictors and school SES — non-OECD countries

Country	R_1^2	R_2^2	ΔR^2	*p*	Adj. R_2^2	f_2^2	Effect size
Argentina	.429	.443	.014	< .001	.443	0.79	large
Brazil	.370	.378	.007	< .001	.378	0.61	large
Bulgaria	.352	.361	.009	.001	.359	0.56	large
Colombia	.488	.508	.020	< .001	.507	1.03	large
Costa Rica	.570	.594	.025	< .001	.592	1.47	large
Croatia	.322	.342	.019	.013	.335	0.52	large
Hong Kong-China	.224	.232	.008	.160	.226	0.30	large
Indonesia	.237	.269	.031	< .001	.269	0.37	large
Jordan	.123	.175	.051	< .001	.173	0.21	medium
Kazakhstan	.322	.339	.017	< .001	.338	0.51	large
Latvia	.268	.276	.008	.054	.272	0.38	large
Liechtenstein	.271	.522	.252	.369	.249	1.09	—
Lithuania	.357	.376	.019	< .001	.373	0.60	large
Macao-China	.074	.102	.028	.739	.012	0.11	—
Malaysia	.498	.513	.015	< .001	.513	1.05	large
Montenegro	.497	.537	.039	.263	.499	1.16	large
Perm-Russia	.401	.459	.057	< .001	.456	0.85	large
Peru	.562	.584	.023	< .001	.584	1.41	large
Qatar	.309	.484	.175	< .001	.470	0.94	large
Romania	.576	.579	.003	< .001	.579	1.38	large
Russia	.242	.263	.021	< .001	.263	0.36	large
Serbia	.493	.524	.032	< .001	.521	1.10	large
Shanghai-China	.586	.603	.018	< .001	.601	1.52	large
Singapore	.549	.604	.055	< .001	.595	1.53	large
Taiwan	.741	.756	.015	< .001	.755	3.09	large
Thailand	.002	.055	.054	< .001	.055	0.06	small
Tunisia	.114	.191	.078	< .001	.189	0.24	medium
UAE	.282	.317	.036	< .001	.314	0.46	large
Uruguay	.757	.760	.003	.049	.759	3.16	large
Vietnam	.190	.292	.101	< .001	.292	0.41	large
Mean	.374	.415	.041	.055	.399	0.91	

Note. N = 6,071. Subscripts 1 and 2 refer to regression equations 1 and 2 respectively. Effect size interpretation based on f^2 as defined by Cohen (1992): Small, 0.02; Medium, 0.15; Large, 0.35. R_1^2 significant for all countries/economies except Liechtenstein and Macao (China) at 5% level of significance.

Spain to a maximum of 21.1% for Norway (M = 2.99%, SD = 4.26%). Thus, for Norway the three teacher-related factors explained 21.1% of the total variation in literacy over and above that explained by school SES alone. The comparable figure for Spain was only 0.2%. The ΔR^2 values for non-OECD countries ranged from a minimum of 0.3% for Uruguay to a maximum of 25.2% for Liechtenstein (M = 4.11%, SD = 5.30%). The mean

ΔR^2 value for the entire sample of 64 countries/economies was 3.52% (*SD* = 4.77%). It is important to note here that not all of the ΔR^2 values were significantly different from zero. This is especially true for countries/economies with small sample sizes. For example, although the ΔR^2 value of 25.2% was quite large for Liechtenstein, the hypothesis H_0: $\Delta R^2 = 0$ could not be rejected given the very small number of schools sampled from this country (weighted $n = 12$). On the other hand, the somewhat very small ΔR^2 value of 0.3% for Romania turned out to be significant given the large weighted *n* value of 2,995 for this country.

The last column of Tables 1 and 2 summarises the overall effect of school SES and the three teacher-centred factors on literacy for OECD and non-OECD countries respectively. With a few exceptions this effect was large and statistically significant. The only cases where both R_1^2 and ΔR^2 were simultaneously not significantly different from zero were those of Liechtenstein and Macao (China). Thus, for only these two countries neither school SES nor the three teacher-centred factors had any effect on literacy.

Multiple regression results

Standardised coefficient estimates for multiple regression equation (2) are presented in columns 2-5 and zero-order correlations with school performance are presented in columns 6-9 of Tables 3 and 4 for OECD and non-OECD countries respectively. These estimates show the effect of each individual predictor on school performance while holding all other predictors constant. For example, in Table 3 the standardised partial slope coefficient estimates for USA suggest that while holding all else constant, for each one standard deviation increase in the value of the predictor, an increase in school SES caused school performance to increase by 0.75 *SD*, increases in teacher morale and participation raised performance by 0.17 *SD* and 0.08 *SD* respectively, and an increase in teacher shortage at school lowered school performance by 0.11 *SD*. In the OECD sample, the effect of school SES on school performance ranged between 0.20 *SD* for Norway and 0.88 *SD* for Luxembourg ($M_\beta = 0.66$, $SD_\beta = 0.17$); the effect of teacher morale on school performance ranged between -0.13 *SD* for Japan and 0.17 *SD* for USA ($M_\beta = -0.01$, $SD_\beta = 0.07$); the effect of teacher participation on school performance ranged between -0.19 *SD* for Austria and 0.47 *SD* for Norway ($M_\beta = 0.05$, $SD_\beta = 0.12$); and the effect of teacher shortage on school performance ranged between -0.24 *SD* for Austria and 0.18 *SD* for Norway ($M_\beta = -0.03$, $SD_\beta = 0.11$).

In the non-OECD sample, the effect of school SES on school performance ranged between -0.01 *SD* for Thailand and 0.88 *SD* for Taiwan ($M_\beta = 0.57$, $SD_\beta = 0.20$); the effect of teacher morale on school performance ranged between -0.24 *SD* for Liechtenstein and 0.46 *SD* for Qatar ($M_\beta = 0.02$, $SD_\beta = 0.14$); the effect of teacher participation on school performance ranged between -0.20 *SD* for Liechtenstein and 0.19 *SD* for Singapore ($M_\beta = 0.04$, $SD_\beta = 0.10$); and the effect of teacher shortage on school performance ranged between -0.30 *SD* for Liechtenstein and 0.19 *SD* for Perm (Russia) ($M_\beta = -0.01$, $SD_\beta = 0.11$).

Table 3: Multiple regression results for the model predicting school performance from teacher centred predictors and school SES — OECD countries

Country	SES	Morale	Part.	Shrt.	SES	Morale	Part.	Shrt.
Australia	0.73***	-0.06***	-0.03	-0.07***	.75	-.09	.21	-.29
Austria	0.70***	0.07***	-0.19***	-0.24***	.76	.10	-.15	-.32
Belgium	0.76***	0.08***	0.02	-0.14***	.76	.16	.27	-.11
Canada	0.38***	0.04**	0.16***	-0.11***	.40	.01	.21	-.16
Chile	0.75***	0.02*	-0.05***	-0.22***	.78	.06	.21	-.38
Czech Republic	0.75***	0.01	-0.07***	-0.18***	.79	.13	-.01	-.34
Denmark	0.85***	-0.06***	-0.01	0.14***	.89	-.26	-.15	.26
Estonia	0.41***	0.14**	0.15***	-0.11*	.39	.10	.17	-.10
Finland	0.63***	-0.06*	0.03	-0.01	.63	.06	.11	-.25
France	0.72***	-0.03***	0.08***	~0	.73	.04	.18	.01
Germany	0.79***	-0.10***	-0.03***	-0.09***	.82	-.15	.09	-.31
Greece	0.54***	-0.02	0.07***	-0.06**	.55	.03	.08	-.12
Hungary	0.71***	-0.12***	0.02*	0.06***	.71	-.10	.11	-.02
Iceland	0.31***	-0.04	0.09	-0.08	.37	-.13	.18	-.18
Ireland	0.86***	0.01	-0.01	0.07**	.84	-.11	.29	-.10
Israel	0.66***	-0.09***	0.03	-0.06*	.64	~0	.16	.08
Italy	0.73***	-0.01	-0.04***	0.05***	.72	-.02	.07	~0
Japan	0.84***	-0.13***	-0.04***	-0.02**	.81	-.02	.25	-.01
Korea	0.50***	~0	0.38***	0.15***	.56	-.02	.46	.06
Luxembourg	0.88***	0.08	0.05	0.03	.89	.15	.21	-.33
Mexico	0.59***	-0.04***	0.04***	-0.01**	.59	-.03	.04	-.20
Netherlands	0.59***	0.02	0.05*	0.12***	.59	.01	-.06	.11
New Zealand	0.57***	-0.09*	-0.04	-0.20***	.60	-.16	.14	-.37
Norway	0.20***	0.01	0.47***	0.18***	.27	.05	.48	.01
Poland	0.69***	0.02*	0.04***	-0.04***	.70	-.03	.14	-.09
Portugal	0.76***	0.01	0.10***	-0.02	.78	-.10	.26	-.12
Slovak Republic	0.77***	0.06***	-0.01	-0.02	.79	.25	-.06	-.24
Slovenia	0.49***	-0.13***	0.04	-0.09*	.45	-.03	.09	.02
Spain	0.66***	-0.01	0.05***	-0.01	.67	.05	.26	-.09
Sweden	0.83***	-0.05***	-0.08***	0.09***	.79	-.09	.03	-.15
Switzerland	0.43***	-0.02	0.07**	0.03	.42	.04	.01	.07
Turkey	0.75***	-0.11***	0.12***	0.09***	.77	-.08	.34	-.08
United Kingdom	0.76***	0.05***	0.09***	-0.05***	.81	.04	.33	-.34
USA	0.75***	0.17***	0.08***	-0.11***	.84	.32	.33	-.32
Mean	0.66	-0.01	0.05	-0.03	.67	~0	.16	-.13

Note. N = 11,222. Part. = Participation. Shrt. = Shortage. Cohen's (1992) effect size guidelines for interpretation of zero-order correlations: Small, .10; Medium, .30; Large, .50.
*p < .05. **p < .01. ***p < .001.

Table 4: Multiple regression results for the model predicting school performance from teacher centred predictors and school SES — non-OECD countries

Country	SES	Morale	Part.	Shrt.	SES	Morale	Part.	Shrt.
Argentina	0.64***	0.08***	0.08***	0.06***	.65	.08	.16	.07
Brazil	0.58***	-0.02***	0.05***	-0.06***	.61	-.10	.18	-.28
Bulgaria	0.60***	-0.02	0.06*	0.09***	.59	.01	.11	-.03
Colombia	0.70***	0.12***	-0.01*	-0.07***	.70	.04	.13	-.20
Costa Rica	0.76***	0.08**	0.10***	0.14***	.75	.02	.22	-.04
Croatia	0.60***	0.09*	-0.10*	-0.04	.57	.01	.05	-.15
Hong Kong-China	0.44***	-0.02	0.02	-0.08	.47	-.14	.23	-.22
Indonesia	0.44***	0.05***	0.09***	-0.13***	.49	.07	.18	-.26
Jordan	0.30***	0.04	0.15***	-0.12***	.35	.14	.25	-.22
Kazakhstan	0.58***	-0.09***	-0.01	0.09***	.57	-.08	.02	.04
Latvia	0.52***	0.07*	-0.05	0.02	.52	.01	-.05	.09
Liechtenstein	0.54	-0.24	-0.20	-0.30	.52	-.40	-.01	-.48
Lithuania	0.57***	0.08**	0.11***	-0.02	.60	.14	.19	-.09
Macao-China	0.22	-0.10	0.11	-0.03	.27	-.12	.24	-.10
Malaysia	0.71***	0.01	0.07***	0.11***	.71	-.08	.08	.03
Montenegro	0.75***	-0.15	-0.08	-0.14	.71	-.02	.08	-.09
Perm-Russia	0.62***	0.10***	0.14***	0.19***	.63	.13	.17	.14
Peru	0.69***	0.10***	0.09***	-0.06***	.75	.22	.33	-.27
Qatar	0.37***	0.46***	0.05	0.02	.56	.61	.11	-.21
Romania	0.76***	0.04**	0.04**	0.04***	.76	-.07	.11	-.03
Russia	0.46***	0.01*	0.10***	-0.09***	.49	.11	.23	-.13
Serbia	0.77***	0.18***	-0.03	0.03	.70	.01	.22	-.35
Shanghai-China	0.74***	-0.01	0.09***	-0.08***	.77	.13	.18	-.26
Singapore	0.74***	0.09	0.19***	0.11*	.74	.18	.23	-.06
Taiwan	0.88***	-0.12***	0.02	0.03*	.86	-.02	.22	-.17
Thailand	-0.01	0.16***	0.14***	~0	-.04	.19	.17	-.03
Tunisia	0.37***	-0.22***	-0.12***	0.13***	.34	-.20	-.09	.07
UAE	0.46***	0.10**	0.17***	-0.02	.53	.28	.26	-.12
Uruguay	0.86***	0.05**	0.02	0.01	.87	.21	.19	-.24
Vietnam	0.50***	-0.24***	-0.13***	-0.17***	.44	-.21	-.01	-.13
Mean	0.57	0.02	0.04	-0.01	0.58	.04	.15	-.12

Note. N = 6,071. Part. = Participation. Shrt. = Shortage. Cohen's (1992) effect size guidelines for interpretation of zero-order correlations: Small, .10; Medium, .30; Large, .50.
*p < .05. **p < .01. ***p < .001.

In order to get an overall feel of how various predictors in equation (2) affect school performance the direction and significance of effects presented in Tables 3 and 4 are summarised in Table 5. These figures show that school SES had a positive and significant effect on school performance in 61 of the 64 countries/economies in our sample. The effect of teacher-related factors on school performance represented a mixed bag, with the

effect of teacher morale being generally negative in OECD countries and positive in non-OECD countries, the effect of teacher participation being generally positive in both OECD and non-OECD countries, and the effect of teacher shortage being generally negative in OECD countries and not significant in non-OECD countries. These results suggest that the effect of teacher-related factors on school performance varies greatly across countries.

Table 5: Summary of multiple regression results for the model predicting school performance from teacher centred predictors and school SES

Sample	Direction of effect	School SES	Teacher-related factors		
			Morale	Participation	Shortage
OECD	Positive	34	9	16	9
	Negative	0	13	7	17
	No effect	0	12	11	8
Non-OECD	Positive	27	15	16	10
	Negative	0	6	5	8
	No effect	3	9	9	12

Note. The figures in this table represent numbers of countries/economies. Total number of sampled countries/economies = 64.

Pearson product moment correlations

Coefficients of correlation between school performance and each individual predictor are presented in the last four columns of Tables 3 and 4 for OECD and non-OECD countries respectively. Since these are zero order correlations, their squared values equal the proportion of variation in school performance that can be explained individually by each predictor while ignoring the effect of all other predictors. For example, in Table 3 the figures for USA suggest that in a simple linear regression of school performance on teacher participation the proportion of total variation explained, $R^2 = (.33)^2 = .11$ or 11%. These bivariate associations can be used to assess the suitability of each predictor for inclusion in regression equation (2) for country level studies. In the current study we always retained all predictors in the regression model in order to allow comparisons across countries. For individual country level studies this consideration may not be important.

Discussion

Prior research has suggested that staff centred organisational factors such as participation, morale, and shortage can have a significant effect on organisational outcomes. However, relatively little attention has been paid to the examination of these relationships specifically for educational organisations such as schools, colleges, and universities. In this study we looked at the link between staff centred organisational factors and organisational performance within the special context of high schools across nationally representative samples from 64 countries and economies. Our empirical results indicate large cross-country variations in the effect of factors such as staff participation, morale and shortage on school performance.

Our empirical results have a number of implications. First, school SES turned out to be the single most important predictor of school performance. Since our school SES variable was based on averaged individual student level attributes such as parental education, parental occupation, family wealth, etc., this shows the importance of individual level characteristics (even when averaged by school) in explaining the variation in mean literacy at the school level. The large, positive, and significant effect of school SES on school performance was almost universal which lends credence to the idea that no matter how well-funded schools are, their impact on student learning has a limit and that a significant proportion of variability in literacy is directly attributable to student level factors.

Second, there was large variability in the observed effects of teacher-centred predictors on school performance. For some countries such as the U.S. these effects matched prediction, with teacher morale and participation having positive effects, and teacher shortage having a negative effect on school performance. On the other hand, for some countries these effects were either not significant or had unexpected signs. For example, the estimates for Denmark showed a negative effect of teacher morale on school performance, no effect of teacher participation, and a positive effect of teacher shortage. For this country the combined effect of these three predictors was an increase of 2.1% in the amount of total variation in school performance explained over and above that explained by school SES alone. In layman's terms our results suggest that teacher-centred factors do not have a large effect on high school performance in a country like Denmark. Such cross-country differences in the effect of teacher-related factors on school performance are important as they indirectly point to the existence of country- and organisation-specific differences in socio-cultural practices. In other words, what works for one country or organisation may not be applicable to others. The large variability in cross-country regression estimates in our study certainly supports the importance of country-specific studies of teacher-related sources of variance in school performance.

Third, in spite of the large variability in the effects of teacher-centred factors on school performance, we note that all three teacher-related factors considered in this study (morale, participation, and shortage) had large and significant partial effects in the expected direction for several countries. For example, using 0.1 *SD* as cutoff for a significant partial effect in the expected direction, teacher morale raised school performance in Estonia, Colombia, Qatar, Thailand, Serbia and USA; teacher participation raised school performance in Canada, Jordan, Korea, Lithuania, Norway, Perm (Russia), Singapore, Thailand, Turkey and UAE; and teacher shortage lowered school performance in Austria, Belgium, Canada, Chile, Czech Republic, Estonia, Indonesia, Jordan, New Zealand, USA and Vietnam. These results point to the importance of staff-centred factors in explaining variation in organisational performance.

Although our study generated significant results it has several limitations. First, the three teacher-centred measures, morale, participation, and shortage, are based on survey items administered to school principals and not to school teachers. It is plausible that teacher responses to some of these questions could have been different, especially in cases where rivalry between teachers and school administration is strong. Unfortunately, given the nature of data used in this study, there is no way for us to test this hypothesis. Thus, the

inferences based on these data are reliable only to the extent that school principals provided accurate responses to survey items. Second, although the countries represented in our study form a fairly diverse sample, our empirical results should not be generalised to countries not included in this sample. Given the large variability in the effect of predictors included in this study on school performance, such generalisation may result in inaccurate inferences and predictions. Third, we looked at the relationship between organisational performance and staff-centred factors in the special context of high schools. Thus, our empirical results and corresponding conclusions may not be applicable to other types of educational organisations such as primary or elementary schools, colleges, universities, etc.

There are several directions in which work presented in this study can be extended. One way to do this is to sample schools from additional countries that were not included in our sample. As noted earlier, the presence of large variability in effects of predictors observed in our empirical results points to the importance of country-specific studies that take into consideration the country- and organisation-specific sociocultural factors that affect organisational performance without worrying about validity of cross-country comparisons. A second way is to replicate our method in other educational settings such as primary and elementary schools, and institutions of higher education.

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Appendix: Descriptive statistics for school literacy score and its predictors, for OECD and non-OECD countries

Table A1: Descriptive statistics for school literacy score and its predictors - OECD countries (*N* = 11,222)

Country	*n*	School literacy score		School SES		Teacher-related factors					
						Morale		Partici-pation		Shortage	
		M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Australia	758	501.13	58.44	0.15	0.47	0.06	0.96	0.33	0.99	0.23	1.07
Austria	186	448.47	73.05	-0.22	0.61	0.70	0.78	0.03	0.98	0.08	0.95
Belgium	276	473.31	84.15	-0.08	0.57	-0.36	0.95	0.34	0.84	0.21	0.97
Canada	870	510.80	52.23	0.26	0.52	0.26	0.94	-0.05	0.99	-0.21	0.93
Chile	220	393.40	66.14	-0.81	0.94	-0.22	1.04	-0.28	1.05	0.86	1.28
Czech Republic	242	486.50	65.34	-0.17	0.41	-0.16	0.78	0.25	0.85	-0.31	0.78
Denmark	295	502.74	67.18	0.44	0.53	0.31	0.95	0.06	1.07	-0.09	0.72
Estonia	205	516.60	41.83	-0.14	0.52	0.13	0.96	0.18	0.99	0.08	0.75
Finland	307	505.41	72.04	0.18	0.48	0.23	0.83	0.12	0.91	-0.35	0.76
France	212	449.95	65.46	-0.30	0.43	-0.43	0.94	0.26	0.62	-0.18	0.82
Germany	196	476.04	79.44	-0.04	0.51	-0.02	0.95	0.29	1.00	0.56	0.87
Greece	186	426.32	65.80	-0.43	0.71	-0.28	1.10	-0.77	0.57	-0.35	0.85
Hungary	198	443.15	71.70	-0.50	0.70	0.07	1.00	0.33	0.74	-0.62	0.67
Iceland	127	482.33	44.78	0.61	0.42	0.48	0.87	0.12	0.83	0.29	0.82
Ireland	167	503.56	45.10	0.00	0.42	0.32	1.01	0.13	0.78	-0.08	0.85
Israel	161	446.85	85.21	0.01	0.49	0.13	0.97	0.01	1.01	0.47	1.14
Italy	1,097	453.94	78.39	-0.25	0.69	-0.60	0.95	0.33	0.68	0.13	0.97
Japan	190	514.16	71.38	-0.22	0.39	-0.64	0.94	-0.90	1.13	-0.25	0.86
Korea	156	523.95	51.31	-0.03	0.37	-0.31	1.03	0.16	1.06	-0.08	0.95
Luxembourg	42	488.85	57.12	0.13	0.61	0.04	0.77	-0.09	0.86	1.01	0.93

Mexico	1,451	395.56	49.83	-1.47	1.10	0.19	1.01	-0.82	0.76	0.62	1.05
Netherlands	159	493.30	79.76	0.16	0.40	-0.20	0.83	0.05	0.86	0.51	0.86
New Zealand	154	506.77	64.01	-0.06	0.47	0.26	0.99	0.76	1.01	0.20	1.02
Norway	179	499.01	58.67	0.39	0.29	0.35	0.96	-0.10	0.83	0.43	0.80
Poland	181	533.73	69.18	-0.17	0.61	-0.16	0.91	0.53	0.52	-1.04	0.23
Portugal	185	466.78	55.91	-0.64	0.71	-0.24	1.00	-0.51	0.69	-0.79	0.66
Slovak Republic	231	452.36	67.86	-0.38	0.59	-0.19	0.82	0.50	0.75	-0.16	0.76
Slovenia	318	449.91	63.80	-0.28	0.60	-0.36	0.80	0.41	0.68	-0.69	0.61
Spain	880	492.03	41.95	-0.21	0.55	-0.36	0.99	-0.23	0.72	-0.71	0.66
Sweden	207	486.43	70.07	0.29	0.49	0.48	0.88	0.54	0.82	-0.05	0.87
Switzerland	383	507.30	52.32	0.14	0.48	0.37	0.89	-0.13	1.05	0.05	0.88
Turkey	169	431.00	76.46	-1.83	0.78	-0.28	1.21	-1.32	0.94	0.95	0.95
UK	479	508.18	60.54	0.32	0.45	0.42	0.88	0.55	0.79	-0.23	0.85
USA	155	473.91	70.58	0.02	0.67	0.07	1.00	-0.35	1.11	-0.50	0.80
Mean	330	477.76	64.03	-0.15	1.00	0.00	0.94	0.02	0.87	0.00	0.85

Table A2: Descriptive statistics for school literacy score and its predictors - non-OECD countries (N = 6,071)

Country	*n*	School literacy score		School SES		Teacher-related factors					
						Morale		Participation		Shortage	
		M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Argentina	220	389.91	55.94	-0.88	0.69	-0.02	0.92	-0.38	0.65	-0.08	0.95
Brazil	826	366.14	63.04	-1.51	0.96	-0.45	1.10	-0.43	0.89	0.30	1.12
Bulgaria	188	379.83	74.44	-0.86	0.93	0.06	0.94	-0.22	0.93	-0.73	0.53
Colombia	340	374.80	54.64	-1.56	0.91	0.17	0.90	-0.62	1.01	0.70	1.33
Costa Rica	189	418.11	53.94	-1.11	1.03	0.18	1.06	-0.35	0.79	-0.07	0.85
Croatia	163	474.05	56.56	-0.30	0.45	-0.20	0.91	-0.01	0.88	-0.46	0.76
Hong Kong-SAR	148	539.30	64.42	-0.79	0.62	-0.41	0.93	1.98	0.80	-0.16	0.94
Indonesia	208	371.07	44.67	-1.97	0.70	0.54	0.91	0.48	1.13	0.46	0.88
Jordan	232	393.37	51.67	-0.54	0.58	-0.21	1.08	-1.50	0.75	0.95	1.44
Kazakhstan	217	423.85	45.24	-0.41	0.42	0.43	0.91	-1.00	0.87	0.29	1.17
Latvia	203	478.87	48.47	-0.53	0.62	0.20	0.82	0.61	0.96	-0.42	0.79
Liechtenstein	12	489.21	56.07	0.19	0.35	0.23	0.83	0.40	0.98	0.14	0.84
Lithuania	216	453.20	50.98	-0.44	0.49	0.20	0.91	0.61	0.99	-0.59	0.62
Macao-China	45	508.69	54.81	-0.78	0.55	-0.48	0.90	0.66	1.12	0.10	1.25
Malaysia	164	411.71	43.60	-0.80	0.56	0.54	0.93	-1.16	1.02	0.26	0.82
Montenegro	50	399.13	54.50	-0.41	0.56	0.06	0.91	-0.85	0.71	-0.51	0.72
Perm-Russia	62	455.92	50.83	-0.38	0.43	-0.17	0.83	0.43	0.68	0.66	1.00
Peru	237	347.73	61.37	-1.59	0.95	-0.17	0.98	0.18	0.95	0.60	1.02
Qatar	155	379.88	72.43	0.38	0.54	0.60	0.86	-0.05	2.04	-0.06	1.18
Romania	178	430.40	66.22	-0.67	0.86	-0.19	0.87	-0.27	0.90	-0.45	0.71
Russia	222	466.56	46.05	-0.35	0.44	-0.12	0.85	-0.22	0.88	0.32	1.08
Serbia	140	421.69	60.85	-0.42	0.51	-0.32	0.93	0.18	0.74	-0.63	0.69
Shanghai-China	154	574.91	53.50	-0.49	0.59	-0.02	0.95	-0.84	1.29	0.94	1.26
Singapore	164	548.25	61.70	-0.24	0.49	0.10	0.94	-0.25	1.10	0.03	0.84
Taiwan	160	507.82	67.41	-0.56	0.45	-0.25	0.87	0.60	1.17	0.00	1.16
Thailand	239	437.02	53.55	-1.94	0.66	-0.11	0.99	1.68	1.40	1.44	0.99
Tunisia	151	366.08	50.92	-1.33	0.71	-0.55	1.28	-1.17	0.77	-0.22	0.91

UAE	446	431.13	67.73	0.24	0.60	0.36	0.96	-0.84	1.25	0.11	1.41
Uruguay	180	393.64	70.98	-1.01	0.84	-0.18	0.92	-0.45	0.87	0.25	1.05
Vietnam	162	443.56	59.46	-2.40	0.70	-0.24	0.82	-1.56	0.50	0.29	1.13
Mean	202	435.86	57.20	-0.78	0.64	-0.02	0.93	-0.14	0.97	0.11	0.98

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