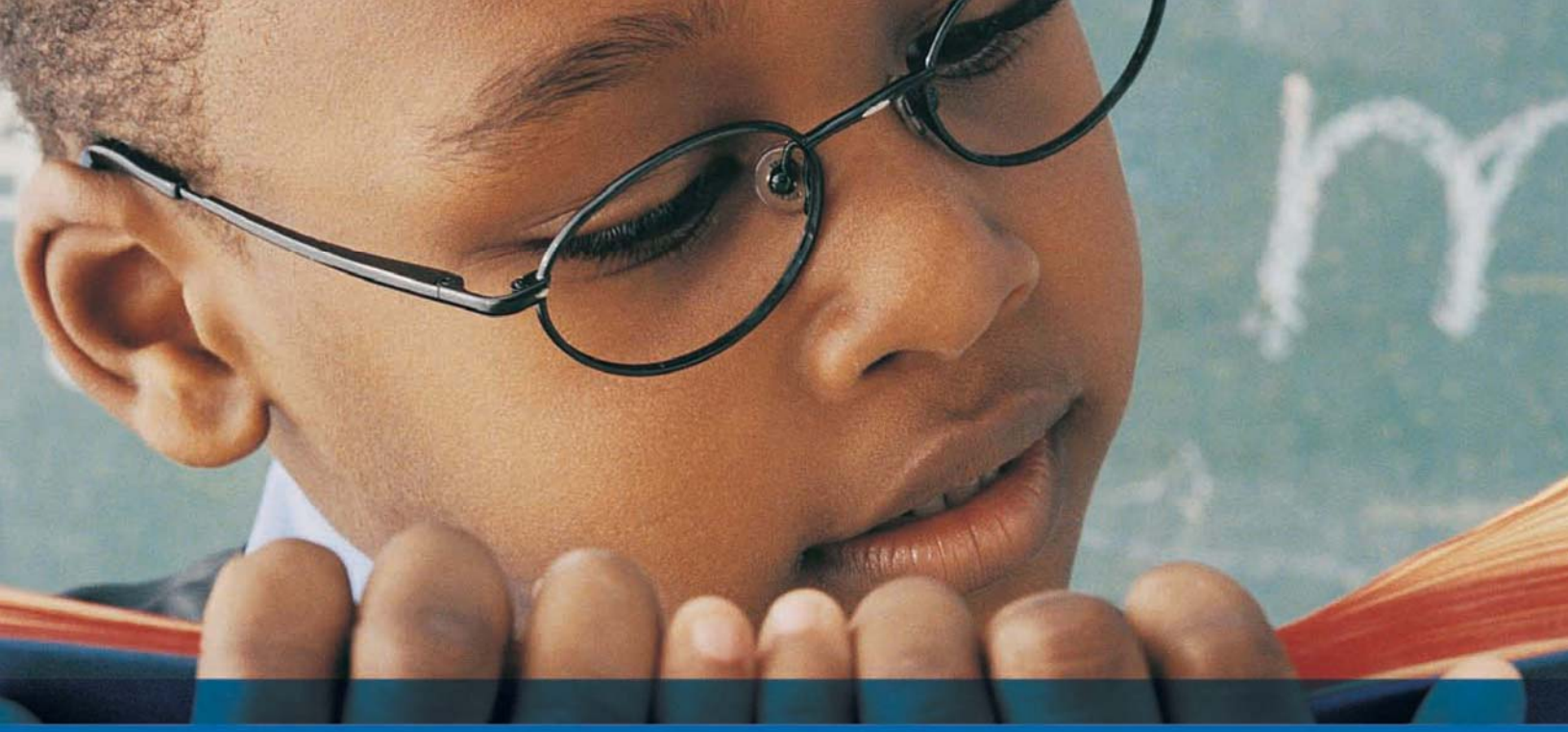

The Role of Social Capital in Comprehensive School Reform

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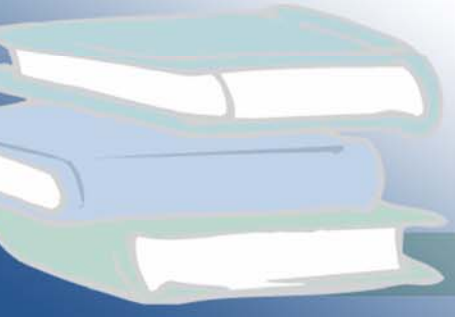
Abstract

Using data from a large-scale program evaluation of comprehensive school reform (CSR), we examine the role of social capital in the context of CSR. We evaluate a model where we consider social capital as an outcome of implementing CSR models. Further, using some outcome measures of successful implementation, such as teachers' perceived change in teaching practice, we evaluate the role of social capital in the implementation process of CSR. Findings based on cross-sectional data suggest that CSR seems to be related to the development of social network factors that we call "collegial foci" and social roles that teachers take on as mentors and learners. CSR's effects on some school capacity outcomes also seem mediated by the social network factors. Given the findings, we argue that social capital should be treated as an independent outcome goal of CSR that is of interest in and of itself.



The Role of Social Capital in Comprehensive School Reform

Introduction

Comprehensive school reform (CSR) models are designed to change school- and classroom-level processes, including organization and governance, curriculum and instruction, professional development, and parental involvement. When implementing these core components, the CSR implementation may not only bring about changes in student achievement, but may also encourage changes in the way teachers collaborate with one another in their day-to-day lives, increasing what sociologists refer to as "social capital" (Burt, 1992; Coleman, 1988). Social capital is a resource that resides in social relations and helps individuals to achieve individual and group goals.

To date, however, most studies of CSR's effects have focused on student achievement (Borman, Hewes, Overman, & Brown, 2003). Evidence of CSR's effectiveness in raising student achievement has been elusive, in part because the relationship between CSR and student achievement is not simple. Schools may engage in many types of reforms (Herman et al., 1999), tailor reforms to fit their needs (Tyack & Cuban, 1995), and must meet the priorities of local education policies, which may conflict with the goals of CSR models (Bodilly, 1996; Smith et al., 1997). On the other hand, very few studies have focused on social capital among teachers as an outcome of implementing CSR programs, despite the fact that social capital in and of itself could be a legitimate outcome and goal in the context of CSR. With successful CSR implementation, even when schools drop their reform models, social capital may remain among teachers, strengthening the capacity of schools as agents of change for higher achievement. Furthermore, teachers' capacity to learn collectively and solve problems, acquired though the collegial collaboration, has been shown to be related to higher student achievement.

In order to fill this void in the literature, this study attempts to examine the mechanism of social capital accumulation in schools implementing CSR and the role CSR plays in this mechanism. Specifically, this study tests whether teachers accumulate more social capital as a result of implementing a CSR model. This question will be addressed in two steps. First, the analyses examine whether employment of CSR programs and implementation of CSR practices foster the development of what we call "structural dimensions" of social capital. We borrow the notion of collegial foci from Bidwell and Yasumoto (1997) and show how they can be intervening variables, as CSR may affect them. In the second step, we evaluate the relationship among CSR, the development of collegial foci (accompanying what we call "social roles" as mentors and learners), and the accumulation of social capital as school capacity. The dependent variable of this study, therefore, is teachers' collective capability to learn from one another and improve their educative capabilities.

Background: CSR and Social Capital

CSR is one of several ongoing movements in public schools. Like other programs, the long-term goal of CSR implementation is to produce growth in student achievement. Unlike other earlier reforms, a striking characteristic of the CSR approach is its comprehensiveness in changing schools, rather than reforming schools with a fragmented focus. CSR programs, based on research findings, have designed core components of the reform agenda, including improvements in pedagogy, decision-making processes, and

school–community relations, while also prescribing guidelines for implementation. Backed by a series of federal legislation, federal CSR programs, including the Comprehensive School Reform Demonstration Project (U.S. Department of Education, 2000b) and later, the No Child Left Behind Act (U.S. Department of Education, 2000a), require schools to align their curricula, technology, and professional development with a comprehensive school reform plan.

A growing body of studies demonstrates that CSR implementation has a positive impact on student achievement (Borman et al., 2003; Cook, Hunt, & Murphy, 2000; Ross & Lowther, 2004). Yet studies on CSR's effects focus more on the outcomes of implementation than the theory explaining why CSR implementation can make schools productive.

Literature on social capital, on the other hand, has shown that social capital is an important resource for positive changes in school reforms. Some researchers have related collegial relations to the successful implementation of early reform efforts (Peterson, McCarthy, & Elmore, 1996). Other researchers expressed similar insight by showing how teachers' professional communities are an important social base for sustaining organizational restructuring (Louis, Marks, & Kruse, 1996). This literature, however, does not have research design that allows an explicit comparison between the schools that are undergoing reforms and those that are not. Thus, it is not clear whether the implementation of school reforms serve as a catalyst for the accumulation of social capital. Below we discuss some theoretical connection between the employment of CSR and the accumulation of social capital by introducing the notion of collegial foci.

Theoretical Orientation: Collegial Foci

We conceptualize social capital in two dimensions. On one hand, there are structural properties of social capital. We elaborate on the notion of collegial foci, borrowing from Bidwell and Yasumoto (1997). On the other hand, social capital refers to school capacity or teachers' capability to sustain learning efforts, as well as their collective commitment to teaching. Below we propose to evaluate a mechanism where CSR affects the structural dimension of social capital, which in turn affects the social capital as school capacity.

Collegial foci is composed of teachers who interact with one another to exchange information, influence one another, and provide norms that are productive for accomplishing their collective goals. Bidwell and Yasumoto (1997), applying the notion of Feld's social focus (1981), show how dense collegial communication can make teachers more prone to collegial influence. Teachers' working together locally facilitates communication, collegial influence, and persuasion. Collegial interaction improves communication among individuals, allowing them to persuade one another to work for collectively important goals and to sanction individuals who deviate from those efforts, while reinforcing collective beliefs and trust among group members (Friedkin, 1998; Lin, 2001) It may allow teachers to learn collectively about what is necessary for successful school reform while fostering trust (Bryk & Schneider, 2002). There is early evidence that dense networking among teachers impacts the way teachers teach (Bidwell & Yasumoto, 1997), which affects student achievement (Yasumoto, Uekawa, & Bidwell, 2001).

One informal dimension that was not fully investigated in the literature was that of the social roles of learners and mentors in the collegial foci. When teachers with varying levels of knowledge, as well as diversity of pedagogical interests, interact in the collegial foci, the learning takes place in a way to assign roles to the participants. Those who bring in new sources of knowledge are mentors, while those who

receive are learners. In the presence of collegial foci, participants learn to know to whom they should turn with certain problems. As a collegial foci develops, individual teachers begin to develop social roles as learners and mentors.

Such informal social structure is important for maintaining the high standards of teaching, yet its empirical implication must be examined. Without a well-designed working environment, the development of informal social structure may not benefit all participants equally. Literature on teacher culture points out that at least in the U.S. context, teachers have traditionally tended to work in isolation of colleagues (Lortie, 1975; Jackson, 1990). This is not to say that teachers have been alienated from one another. Rather, classic studies of school workplace suggest that teachers receive their psychic rewards primarily through interactions with students, rather than from interactions with colleagues. A recent study also shows that the development in informal social structure would increase workloads for teachers (Johnson, 2003). More importantly, it could bring negative results such as reducing professional autonomy or increasing competition for recognition. For this reason, the emergence of informal social structure in school organizations may conflict with the ethos of the teaching occupation and thus does not guarantee a gain in other components of social capital, i.e., social capital as school capacity.

Ideally, as a result of schools' developing collegial foci, teachers' collaboration should increase collective capabilities, such as the ability to monitor students' academic progress, to learn from each other, and to share goals and missions. To ensure the development of an informal social structure being associated with building social capital among teachers and further improve school capacity, a supportive working environment for informal social capital is crucial. CSR implementation encourages collaboration, involvement in decision making, and sharing goals for school development, rather than competition among teachers. This feature of CSR implementation helps schools retain the positive value of informal social structure to social capital.

How CSR Implementation Builds Social Capital

The association of CSR implementation and the development of collegial foci and informal structure could be characterized by social roles that teachers obtain as learners and mentors. Traditionally, teaching was an individualistic occupation, if no large-scale intervention, like CSR, was present in the school. Teachers were mostly likely working alone in their classrooms with students and that is how they collected their psychic rewards, as depicted by classic case studies of school teachers. Yet, teachers today are in an environment marked by various reform efforts, including CSR, as well as other nationally mandated accountability systems. In this environment, there are several potential reasons for teachers to develop an informal locus of learning with colleagues. In the following paragraphs, we state the reasons that justify the linkage between CSR and the development of social capital's structural dimensions.

The first reason is an explicit requirement of CSR that is oriented to collegial collaboration. Although CSR adoption is voluntary for some schools, once adopted, a successful implementation requires all personnel involved to work collectively. To process the implementation, teachers have to work toward implementing the shared goals collectively. Most CSR models, however, have not explicitly set a goal of implementation for building social capital, according to the design. Still, collective activities in CSR implementation such as sharing goals and participating in activities for professional development can improve the commitment and network among teachers within schools, which simultaneously improves the value of social capital among teachers.

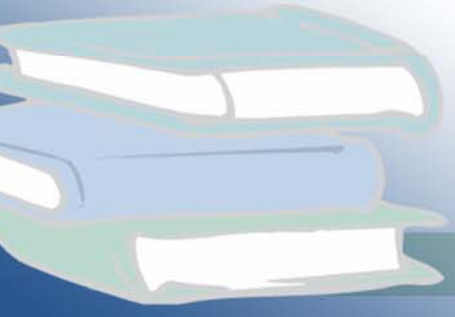
The second reason for teachers to develop collegial foci is that the increased need to collaborate in CSR schools is related to the increase of uncertainty at work and teachers' coping strategies with uncertainty in the working environment. Traditionally, much of teachers' work has been to respond to the uncertainty created in the classroom, including the problem of classroom discipline. When teachers are made to develop curriculum and to learn pedagogical strategies that are not their own, they may turn to their colleagues even more. The comprehensiveness in CSR implementation not only means the broad coverage in the changes, but also the scope of involvement by teachers. One distinct feature of CSR is that implementing core components requires teachers to work collectively rather than individually. Creating shared goals, integrating professional development into instruction, setting goals for student achievement, and allocating responsibilities are examples of required collaboration.

The third reason why CSR implementation would encourage the development of collegial foci lies in the adaptation process itself. The adoption of some CSR models requires commitments or a voting and consensus process from school staff. For example, the adoption of many CSR models requires the approval of at least 90% of full-time staff and representatives from the community. The adoption of many CSR models requires teachers to participate in some preimplementation. Teachers are expected to attend weekly or biweekly meetings to discuss past experiences and identify priorities for future reform. After CSR's formal adoption, all faculty are required to attend weekly study meetings for professional development (Herman et al., 1999). The intensive meetings provide teachers more opportunities to create social structures, either formally or informally. Within the social structure endorsed by CSR, teachers are encouraged to work collectively rather than competitively.[1]

Research Question and Hypothesis

To further our understanding of the role of CSR on social capital development, we ask two research questions that accompany a set of hypotheses. We first ask how CSR programs are related to the concepts of collegial foci and teachers' social roles as mentors and learners. Based on our discussion about CSR and its consequences on collegial relations in school, we expect that in schools employing CSR and implementing its practices, particularly those related to shared decision making-structure, teachers are more likely to be participants of collegial foci, assuming roles of mentors and learners. We then ask if collegial foci and social roles are related to the level of social capital that CSR schools develop. We hypothesize that employment and implementation of CSR is positively related to the levels of social capital outcomes, and this relationship is mediated by the collegial foci and social roles that develop in CSR schools.

[1] The importance of CSR implementation to building social capital among teachers becomes even more significant in terms of some findings on CSR implementation. One reported problem for CSR implementation is the turnover in school faculty. The turnover rate is usually higher in schools where model designs require large changes in school faculty (Smith et al., 1997) and senior teachers are less likely to apply the reform's instructional practice when the reform is mandated (Ross & Lowther, 1997; Slaton, Atwood, Shake, & Hales, 1997). One explanation for the higher turnover rate is the resistance to the changes. The resistance reflects that some teachers believe what they currently do is better than what the developer asks them to do. This resistance could be a damaging factor to CSR implementation and other activities for school improvement if a voting or consensus process has not been passed among teachers. In fact, a higher turnover rate could be a good indication for CSR implementation if the majority of teachers approved the CSR adoption. That is, the implementation immediately puts teachers in collaborative settings and promotes common tasks. At the same time, implementation refreshes social structures among teachers through the aligning and sharing of goals and responsibilities for school improvement. In other words, the CSR implementation becomes functional to social capital.



Data

In 2002 and 2004, we collected data from teachers and principals from 649 schools in 21 districts and 16 states. Based on the list of schools provided by CSR model developers, we recruited the schools that use CSR models to participate in our survey. The comparison schools were selected to match two of the CSR schools' characteristics—school minority composition and percentage of students receiving free of reduced price lunch. As a preparatory, exploratory analysis for future longitudinal analysis, we use only the second wave of data from 2004 in this paper. Our analytical sample is only one third of the full sample partly because of missing response problems typical of longitudinally-designed data collection, and largely because one of the important variable has extensive missing case problems. Table A-1 in the appendix shows descriptive statistics of the variables involved. Comparison of our analytical sample and the full sample (see the column "difference") does not suggest that the two samples are systematically different. Furthermore, we monitored the difference of results between the model that uses the implementation measure (our analytical sample) and the model that does not (full sample), so the results do not depend on the samples.

Variables

Dependent Variables: Social Capital Outcomes as School Capacity

We conceive of school capacity as our social capital outcome measure. The capacity refers to that which a school possesses to make meaningful changes in its educational practices (Spillane & Thompson, 1997). To focus on social dimensions, we selected three social capital indicators as our outcome measures: (1) teachers' collective commitment to teaching, (2) the levels of collegial influence, and (3) collective monitoring capability of teachers over students. The first is the measure of teachers' collective commitment to teaching, which considers the degree to which teachers are collectivized in terms of their pursuit of teaching mission. This is a composite of the following five questions:

- At this school, we have a common understanding of the objectives we are trying to achieve with students.
- Goals as priority for the school are clear.
- Most teachers at this school have values and philosophies of education similar to my own.
- Most of my colleagues share my beliefs and values about what the central mission of the school should be.
- Most of my colleagues share a focused vision for student learning.

The second measure is the level of collegial influence on individual teachers. Conceptually, we aim to capture/measure the extent to which teachers are open to the influence of their colleagues in making decisions about their everyday classroom activities. Being flexible to collegial influences in this way may be a social asset of a school organization. In the surveys, teachers were asked to report who is influential in making decisions about classroom decisions. We used the average influence from (a) lead teachers, department heads, or mentor teachers; (b) teams of teachers; and (c) individual teachers.

Finally, teachers may vary in the degree to which they are capable of collectively monitoring students in their social or academic progress. To the extent that teaching is not only about imparting knowledge but also about teachers' collectively guiding students, collective monitoring could be a social capital asset for teachers. Such organizations would be quick to respond to the needs of students. In the survey, teachers were asked if they collectively work together, "diagnosing individual students with other teachers (discussing specific students and arranging appropriate help)."

Independent Variables: Comprehensive School Reform Models

We use two variables as independent variables. The first is the indicator of CSR programs, as well as the indicator for being comparison schools. The other variable is to treat the fidelity level of implementation as one of the CSR components. We discuss the two below.

CSR Models

The CSR schools and their comparison schools are differentiated by a set of dummy variables. This paper examines four CSR models—CSR Model A, CSR Model B, CSR Model C, and CSR Model F. Smaller models that are not CSR are grouped as "other." Comparison schools constitute a reference group category by being omitted in the regression models.

Implementation of Governance

We conceived of the level of CSR implementation as being how closely teachers follow what is recommended by CSR model developers. Our surveys from developers and teachers provide information necessary to derive this measure of closeness between the recommended and implemented practice (Kurki, Aladjem, & Carter, 2005). Our particular interest here is of shared decision making as stressed by CSR models; if CSR implementation matters to the formation of social capital, it should be through teachers' collaborating with one another over the everyday decisions they make with colleagues. Both teachers and model developers were asked the following questions about (a) what emphasis the school gives to "sharing decision-making authority among staff and administrators," (b) how much influence different education stake holders have on selecting various types of instructional strategies, and (c) whether the teachers participate in the learning community and task committees.[2] Given the responses from the model developers (ideal implementation) and teachers (actual implementation), we used the following algorithm to derive a measure of closeness by calculating the Euclidian distance between the two. X and Y are standardized before entering this algorithm, so the differences of survey response

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[2] The survey items used are:

(Q4) Please indicate the emphasis placed on each of these goals/strategies within your school this year.

- *Sharing decision-making authority among staff and administrators*

(Q5) How much influence do the district, school committee, principal, and individual teachers have on the following decisions?

- *Selecting instructional materials*
- *Selecting topics and skills to be taught*
- *Selecting teaching techniques*
- *Creating student ability groups for instruction in each classroom*
- *Allocating instructional time for each academic subject*

(Q23) Since September 2000, how frequently did you engage in each of the following activities for English/language arts or mathematics?

- *Participating in a learning community (teacher collaboratives, networks, or study groups)*
- *Participating in a committee or task force focused on curriculum and instruction*

categories are adjusted for, where *I* is the measure of implementation, *X* and *Y* contain survey information from, respectively, teachers and model developers, and *n* is a number of survey items used.

$$I = \sum_{1}^{n} (X_{Ideal} - Y_{actual})^2 / n$$

In reality, we would only have this measure for treatment schools with CSR programs, but in this study we also derived the measure for comparison schools. Recall that in this study, every treatment school was matched up with a comparison school. To derive the measures for comparison schools, we borrowed their paired schools' model developer information. Thus, the measure here is our attempt to approximate the CSR and comparison schools' CSR-likeness. With or without actual CSR programs, schools could be doing CSR-like practices. Thus, by entering the implementation measure into our regression model simultaneously with CSR program indicators, we aim to separately evaluate the independent effects of having CSR programs at school and actually implementing CSR-like practices. Further details about the derivation of implementation measures can be found in Kurki, Aladjem, and Carter (2005).

Intervening Variables: Collegial Foci and Social Roles

Intervening variables mean that these measures mediate the relationship between CSR (the independent variables) and the social capital capacity (the dependent variables). The two concepts capture the structural configuration of collegial networks found in schools. The first is a concept of collegial foci. It captures the extent to which a collegial network is established in the workplace. In the survey, teachers were asked how often they participate "in a learning community (teacher collaborative, networks, or study groups)."

We also have a concept of social roles. Individuals, when interacting with one another in terms of learning, may develop social roles, some as mentors and others as learners. The more social roles individuals obtain among themselves, the richer the web of social networks, as the social roles stabilize social relations as the locus of learning. In our survey, teachers were asked how often they act "as a coach or mentor to other teachers or staffing your school" and receive "coaching or mentoring from other teachers or staff in your school." The average of the two survey items were used to indicate a teacher's level collegial foci indicator.

Both collegial foci and social role measures are originally measured at the individual level. We are also interested in the implication of schoolwide social networks. To evaluate this, we created school-mean versions of collegial foci and social roles measures. To remove obvious correlations between the individual-level scores and school means, we centered the individual-level scores at the school mean.

Covariates

We used one individual-level covariate and six school-level covariates. Subject matter of the teachers was either mathematics or English. We controlled for this difference because the practices found in these subject fields could create different needs for collegial networking. As school-level covariates, we controlled for years of reform implementation, percentage of free and reduced priced lunch, the level of challenges reported by the principals, school size, and middle school status. Years of implementation must add more social capital to the teachers; thus, to control for this fact, we have grouped schools into

recent implementers (0–2 years of implementation), middle-age implementers (3–5 years of implementation), and old implementers (5 or more years of implementation). We coded comparison schools as having 0 years of implementation. Percentage of free and reduced price lunch status, as well as the levels of challenges principal reported, may provide a context in which social capital can be produced and maintained. School size may be negatively related to the levels of social capital because individuals may experience alienation as a result of having social distance in large social space. Finally, some of our schools are middle schools, while the rest are elementary schools. To control for the unknown effect of this, we created a dummy variable indicating this difference. For the ease of interpretation, we converted all the interval scales into *Z*-scores.

Analysis Plan

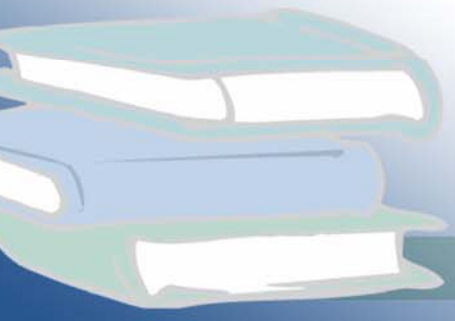
The first set of analyses examines how CSR models are related to the formation of collegial network or foci, as well as social roles created in them. We model the measures of collegial foci and social roles as outcome variables, using a random coefficient model, which is the simplest case of hierarchical linear model. In this model, only the intercepts are modeled as random effects. The following equation represents our analytical model. The units of analyses are teachers nested within schools where *u_k* and *e_jk* are randomly distributed.

$$Y_{jk} = \beta_0 + B_1^{'} * CSR_k + \beta_2 * Individual\_IMP_{jk} + \beta_3 * School\_Mean\_IMP_k$$
$$+ B_2^{'} * Co\,\mathrm{var}\,iates + u_k + r_{jk}$$

The postscript *i* indexes a teacher and *j* a school. Because teachers are nested within schools, we cannot justify the independent assumption of residuals, which are necessary to conduct a statistical testing of coefficients. Thus, by estimating school-specific effect *u_k*, we remove the effect of schools from the individual level residual *e_jk*; hence, both can be assumed to be randomly distributed.

We assess the effects of CSR models by using two independent variables, CSR model indicators and the implementation level of governance components. As described earlier, CSR represents a series of dummy variables corresponding to four major CSR models, other models, and comparison schools, while *B1* contains the coefficients derived for them. In contrast, *IMP* is the level of governance component implementation. One version of this variable is an individual-level implementation measure that is centered around the school mean, while the other is a school mean implementation. By using the two measures, we assess the level at which implementation makes a difference (individual level vs. school level). The derived coefficients are the net of covariates described earlier.

The second set of analysis models four social capital measures, including teachers' collective monitoring capability, teachers' collective commitment, and collegial influence. The modeling strategy remains similar, yet we use the following models to test our hypothesis that CSR affects social capital by creating collegial foci and social roles for teachers. The latter factors, such as collegial foci and social roles are considered intervening variables. To test this mediating mechanism, we will need the following two models. Note that the scales for collegial foci (*FOCI*) and social role (*ROLE*) are entered both as an individual-level variable and as a school-mean variable, so we can identify the levels at which these measures have effects.



$$Model1: Y_{jk} = \beta_0 + B_1^{'} * CSR_k + \beta_2 * Individual\_IMP_{jk} + \beta_3 * School\_Mean\_IMP_k$$
$$+ B_2^{'} * Co\,\text{var}\,iates + u_k + r_{jk}$$
$$Model2: Y_{jk} = \beta_0 + B_1^{'} * CSR_k + \beta_2 * Individual\_IMP_{jk} + \beta_3 * School\_Mean\_IMP_k$$
$$+ B_2^{'} * Co\,\text{var}\,iates + \beta_4 * IndividualFOCI_{jk} + \beta_5 * IndividualROLE_{jk} +$$
$$+ \beta_6 * schoolMeanFOCI_k + \beta_7 * schoolMeanROLE_k$$
$$+ u_k + r_{jk}$$

If collegial foci and social roles mediate the relationship between CSR and the outcome measures, we shall observe the reduction of CSR related coefficients when we add the intervening factors in model 2.

Results

Analysis 1

Table 1 reports the results of our first analysis. Though restricted in the cross-sectional nature of the data, we examined whether collegial foci and social roles can be considered results of CSR implementation, as well as implementation of CSR's governance component. The results mostly meet our expectation that the two social elements in school organizations are promoted when schools use CSR and implement the governance practices. For collegial foci outcome, the schools that employ major CSR programs, as well as a group of lesser-known CSR programs that were coded as "Other," had positive coefficients, indicating that their teachers are more embedded in a collegial network than those in comparison schools. In particular, CSR Models B and C schools are significantly higher in collegial networking than the reference group and the other reform model schools. The schools that previously had CSR but became comparison schools also had a higher mean score. Furthermore, implementation of governance, measured both at individual and school levels, has positive coefficients that are significant. Note that the coefficient of school-mean level implementation scores are much higher than the individual-level scores.

Table 1. Predicting Collegial Foci and Social Roles

	Collegial Foci (*n* = 1242)			Social Roles (*n* = 1280)		
	Estimates	Errors		Estimates	Errors	
Intercept	0.48	(0.34)		1.47	(0.33)	***
3–5 years of implementation	-0.41	(0.17)	*	-0.17	(0.16)	
5 or more years of implementation	-0.24	(0.12)	+	-0.23	(0.12)	+
English teacher	0.06	(0.07)		0.16	(0.07)	*
Mathematics teacher (reference)	0.00	.		0.00	.	
Percentage free/reduced lunch (*Z*-score)	-0.12	(0.08)		-0.09	(0.07)	
School Size (*Z*-score)	-0.01	(0.05)		0.00	(0.04)	
Not making AYP status (2003–2004)	0.02	(0.09)		-0.15	(0.09)	+
School has middle grades	0.25	(0.09)	**	0.09	(0.09)	
Challenging environment (*Z*-score)	-0.02	(0.04)		0.01	(0.04)	
CSR Model A	0.42	(0.27)		0.39	(0.26)	
CSR Model B	1.69	(0.50)	***	0.73	(0.49)	
CSR Model C	0.98	(0.30)	**	0.52	(0.29)	+
CSR Model F	0.17	(0.15)		0.33	(0.14)	*
Other reform models	0.35	(0.16)	*	0.31	(0.15)	*
Comparison school (reference)	0.00	.		0.00	.	
Previous CSR	0.28	(0.14)	*	0.25	(0.13)	+
Implementation of governance component						
Individual score (*Z*-score, school-mean centered)	0.10	(0.03)	**	0.08	(0.03)	*
School mean (*Z*-score)	2.39	(0.49)	***	1.30	(0.48)	**
School-level variance	0.20	(0.05)	***	0.13	(0.04)	***
Residual variance	1.22	(0.06)	***	1.34	(0.06)	***

Notes. Significance: + if $p < .10$. * if $p < .05$. ** if $p < .01$. *** if $p < .001$. Two tail test.

For social roles, we observed the same trend. CSR programs are all higher in average scores than the comparison schools, and the effects for CSR Model F and other reform models particularly, and CSR Model C schools to a lesser extent, are statistically significant. The schools that previously had CSR models have a higher means in outcome, though its statistical significance is marginal. Finally, the implementation measures, both at individual and school levels, have positive effects on the outcome.

Analysis 2

Table 2 reports the results of the second set of analyses that consider three social capital measures—collective commitment, collegial influence, and teachers' monitoring capability of students. For each scale, we use model 1 to assess the main effects of CSR models and the implementation of governance component. In model 2, we add measures of collegial foci and social roles in order to confirm their main effects, as well as to monitor the changes in CSR effects. Reduction in coefficients of CSR models or CSR implementation measure supports our hypothesis that CSR affects social capital outcomes through collegial foci and social roles created among teachers.

Table 2. Modeling Social Capital Outcomes (*Z*-scores)

	1. Collective commitment (*n* = 1244)			2. Collegial influence (*n* = 1149)			3. Monitoring capability for students (*n* = 1244)											
Intercept	-0.70	0.28	*	-0.93	0.31	**	-0.76	0.29	**	-1.36	0.29	***	-0.77	0.28	**	-1.14	0.26	***
3–5 years of implementation	-0.13	0.13		-0.11	0.13		-0.19	0.13		-0.18	0.12		0.00	0.13		0.01	0.11	
5 or more years of implementation	-0.10	0.12		-0.09	0.12		-0.14	0.12		-0.14	0.11		0.04	0.12		0.04	0.10	
0–2 years of implementation (reference)	0.00	.		0.00	.		0.00	.		0.00		.	0.00		.	0.00	.	
English teacher	-0.06	0.05		-0.07	0.05		0.13	0.06	*	0.11	0.06	+	0.20	0.06	***	0.16	0.05	**
Mathematics teacher	0.00	.		0.00	.		0.00	.		0.00		.	0.00		.	0.00	.	
Percentage free/reduced lunch (*Z*-score)	0.01	0.06		0.02	0.06		0.00	0.07		0.04	0.06		0.02	0.06		0.06	0.05	
School size (*Z*-score)	-0.06	0.04		-0.06	0.04		0.03	0.04		0.03	0.03		-0.07	0.04	+	-0.06	0.03	*
Not making AYP status (2002–2003)	-0.06	0.07		-0.04	0.07		-0.12	0.08		-0.07	0.07		-0.12	0.07	+	-0.08	0.06	
School has middle grades	-0.04	0.08		-0.05	0.08		0.03	0.08		-0.03	0.07		0.18	0.07	*	0.14	0.06	*
Challenging environment (*Z*-score)	-0.08	0.04	*	-0.08	0.04	*	-0.01	0.04		-0.01	0.03		-0.05	0.04		-0.06	0.03	+
CSR Model A	0.20	0.23		0.13	0.23		0.48	0.24	*	0.35	0.21	+	0.09	0.23		-0.04	0.20	
CSR Model B	0.93	0.40	*	0.84	0.40	*	1.18	0.41	**	0.68	0.38	+	0.68	0.40	+	0.28	0.36	
CSR Model C	0.05	0.25		-0.01	0.25		0.37	0.26		0.21	0.24		0.14	0.25		-0.03	0.22	
CSR Model F	0.04	0.15		0.03	0.15		0.12	0.15		0.10	0.13		0.03	0.15		0.01	0.13	
Other reform models	0.14	0.13		0.11	0.13		0.03	0.13		-0.04	0.12		-0.02	0.13		-0.08	0.11	
Comparison school (reference)	0.00	.		0.00	.		0.00	.		0.00	.		0.00	.		0.00	.	

Note: Significance: + if $p < .10$; * if $p < .05$; ** if $p < .01$; *** $p < .001$ Two tail test.

Table 2. Modeling Social Capital Outcomes (*Z*-scores), (continued)

	1. Collective commitment (*n* = 1244)						2. Collegial influence (*n* = 1149)						3. Monitoring capability for students (*n* = 1244)					
Previous CSR	0.21	0.15		0.18	.015		0.26	0.15	+	.017	.013		.02	0.14		-0.06	0.12	
Levels of Implementation (Governance)																		
Individual score (*Z*-score, school-mean centered)	0.07	0.03	*	0.05	0.03	*	0.05	0.03		0.03	0.03		0.12	0.03	***	0.08	0.03	**
School mean (*Z*-score)	1.33	0.40	**	1.03	0.41	*	1.10	0.42	**	0.37	0.38		1.20	0.40	**	0.46	0.36	
Collegial foci																		
Individual score (*Z*-score, school-mean centered)				0.05	0.03					0.17	0.03	***				0.21	0.03	***
School mean (*Z*-score)				0.14	0.09					0.06	0.08					0.15	0.08	*
Social role																		
Individual score (*Z*-score, school-mean centered)				0.09	0.03	**				0.13	0.03	***				0.28	0.03	***
School mean (*Z*-score)				0.04	0.09					0.43	0.08	***				0.23	0.08	**
Variance																		
School level variance	0.14	0.03	***	0.13	0.03	***	0.11	0.03	***	0.05	0.02	*	0.09	0.03	**	0.04	0.02	*
Residual variance	0.75	0.04	***	0.74	0.04	***	0.88	0.04	***	0.84	0.04	***	0.89	0.04	***	0.76	0.04	***

Note: Significance: + if $p < .10$; * if $p < .05$; ** if $p < .01$; *** $p < .001$ Two tail test.

General trends across three outcomes seem to converge: CSR effects, both of models and of implementation, are reduced as a result of entering collegial foci and social role measures. For all three outcomes, CSR Model B schools are consistently high. Its difference from the comparison school is statistically significant; however, when we add collegial foci and social role measures, some of CSR Model B's advantage is minimized. Furthermore, the effects of implementation are also positive and mostly statistically significant. Noteworthy is the fact that in most case,s it is the school-mean implementation scores that had a larger effect than individual-implementation scores. It is interesting to note that for collegial influence outcome, we didn't find an individual-level effect of implementation. This may suggest that for individual teachers to be collegially influenced, it takes an entire school's reform compliance.

The behaviors of covariates were also noteworthy. English teachers seem more likely to be influenced by their colleagues and to monitor their students more closely than mathematics teachers. The challenging environments, measured by principal reports and "not making AYP (adequate yearly status)," seem negatively related to the levels of social capital outcomes.

Discussion and Conclusion

School improvement efforts, not least of all CSR, concentrate on raising student achievement. Evaluations of CSR and other reform strategies similarly pay greater relative attention to student achievement as the main outcome of interest. A large and important body of literature, however, points to the important role social capital plays in improving organizational performance in general, and in the successful implementation of school reform in particular. Where organizations are able to build social capital, performance improves. Where schools build social capital, student achievement improves.

This paper has examined the relationship between CSR and social capital by examining two structural, enabling conditions of social capital as well as some key manifestations of social capital. This examination has been animated by a conceptual framework that posits that social capital exists in organizations where two structural features characterize the social relations of individuals within the organizations in question. We refer to these structural features as "collegial foci" and "social roles." By collegial foci, we mean the existence of formal and informal relationships and networks within the organization that foster or enable communication and professional exchange among, in this case, teachers and other educational professionals. By social roles, we mean the existence of formal and informal roles, such as lead or mentor teacher, played by individuals within schools. In this paper we have examined the association between CSR models and collegial foci and social roles. We have also examined the relationship between CSR models and certain key manifestations of social capital, namely collective commitment, collegial influence, and student monitoring.

Results of our analyses strongly confirm the association between certain CSR models and collegial foci and social roles. Some CSR models are strongly related to collegial foci and social roles. This appears to be the case in schools that have implemented their CSR models for at least 3 years. It is worth noting that this is consistent with the literature on the effects of CSR on student achievement. We then examined the association between CSR and certain social capital outcomes and demonstrated that particular CSR models appear to improve collective commitment, collegial influence, and student monitoring through collegial foci and social roles.

While the literature on the impact of CSR on student achievement is at best mixed—Herman et al. (1999) and Borman et al. (2003) found limited effects for a very few certain models—there is substantial literature on the impact of high levels of social capital on student achievement. Little attention has been paid in the CSR literature to the role of CSR models in building social capital in schools. Our analyses clearly demonstrate that at least some CSR models are effective in building social capital within schools. Demonstrating the direct impact of CSR on student achievement has been elusive for a number of reasons, not least of which are the intractable technical design and methods issues. Here we have observed clear connections to this important intermediate outcome. While this study has focused on cross-sectional analyses, we have the ability to test these relationships longitudinally and will do so.

Appendix

Table A-1. Descriptive Statistics

Variable	Analytical Sample						Full Sample		
	n	Mean or %	STD	Min	Max		*n*	Mean or %	Difference
School capital as dependent variable									
Collective commitment	1280	3.24	0.55	1.00	4.00		3754	3.19	0.05
Collective monitoring	1258	3.17	1.14	1.00	5.00		3664	3.15	0.02
Collegial Influence	1234	2.68	0.83	1.00	4.00		3604	2.69	-0.02
Independent measures									
Collegial foci (individual level)	1244	2.32	1.21	1.00	5.00		3636	2.37	-0.05
Collegial foci (school level)	1280	2.34	0.49	1.00	3.96		3754	2.38	-0.04
Social role (individual level)	1262	2.51	1.22	1.00	6.00		3677	2.65	-0.14
Social role (school level)	1280	2.58	0.49	1.00	4.00		3754	2.63	-0.05
Covariates									
English teacher	1280	52%		0.00	1.00		3754	51%	1%
Mathematics teacher	1280	48%		0.00	1.00		3754	49%	-1%
3–5 years of implementation	1280	13%		0.00	1.00		3754	16%	-3%
5 or more years of implementation	1280	23%		0.00	1.00		3754	30%	-6%
Percentage free/reduced lunch	986	0.78	0.22	0.01	1.00		2737	0.81	-0.03
School size	1280	8.69	6.42	0.61	42.79		3729	8.02	0.67
Not making AYP status (2002–2003)	1278	51%		0.00	1.00		3717	54%	-4%
School has middle grades	1280	46%		0.00	1.00		3754	51%	-5%
Challenging environment (*Z*-score)	1035	2.30		1.00	3.86		2878	2.33	-3%
Previously CSR	1280	11%		0.00	1.00		3754	9%	2%
Implementation measure of governance									
Individual score (*Z*-score, school-mean centered)	1280	0.63	0.16	0.05	0.98				n/a
School mean (*Z*-score)	1280	0.65	0.09	0.28	0.88				n/a

Notes: Difference score was calculated by subtracting the means of analytical sample from those of the full sample.

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