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Abstract

Purpose – The goal of this study was to examine the relationship between four patterns of distributed leadership and a modified version of a variable Hoy *et al.* have labeled "teachers' academic optimism." The distributed leadership patterns reflect the extent to which the performance of leadership functions is consciously aligned across the sources of leadership, and the degree to which the approach is either planned or spontaneous.

Design/methodology/approach – Data for the study were the responses of 1,640 elementary and secondary teachers in one Ontario school district to two forms of an online survey, xx items in form 1 and yy items in form 2. Two forms were used to reduce the response time required for completion and each form measured both overlapping and separate variables.

Findings – The paper finds that high levels of academic optimism were positively and significantly associated with planned approaches to leadership distribution, and conversely, low levels of academic optimism were negatively and significantly associated with unplanned and unaligned approaches to leadership distribution.

Originality/value – This study provides as-yet rare empirical evidence about the relationship between distributed leadership and other important school characteristics. It also adds support to arguments for the value of more coordinated forms of leadership distribution.

Keywords Distributive control, Leadership, Teachers, Trust, Individual behaviour

Paper type Research paper

Introduction

Current interest in distributed sources of leadership is pervasive among both researchers and practicing leaders (e.g., Harris, in press; Hammersley-Fletcher and Brundrett, 2005; Storey, 2004). Nevertheless, systematic evidence is modest, at best, about the factors that influence the nature and extent of distributed leadership in schools, as well as the consequences of distributed patterns of leadership for schools and students. The study reported in this paper examined the relationships between four patterns of distributed leadership and teachers' academic optimism.

Much current leadership research aims to demonstrate the impact of leaders on schools and students (Leithwood *et al.*, 2004; Silins and Mulford, 2002). But the direct effects of leadership on student achievement, the most defensible of the possible outcomes of interest, are weak (Hallinger and Heck, 1996). So the challenge is to identify the indirect path through which leadership influences students; this is a challenge to identify variables that leaders influence and which also influence students (Hallinger and Heck, 1996; Leithwood and Jantzi, 2000; Wahlstrom, and Louis, in press). Among the wide range of possible variables mediating leaders influence on students, considerable research has focused on teachers' beliefs and emotional states

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(Leithwood, 2006; Wahlstrom and Louis, in press). Work by Hoy and his colleagues (e.g., Hoy and Tarter, 1992; Hoy *et al.*, 2006; Tschannen-Moran *et al.*, 1998) has made an important contribution to the research on teachers' emotional states and their effects on and student achievement. The degree to which leadership is successful in improving the learning of students would appear to reflect, in part, the amount of influence leadership has on teachers' motivations and related beliefs and feeling.

Efforts to better understand how leadership influences schools and students is now being extended from leadership as it is exercised by individuals (such as principals) to distributed and collective leadership enactments. Most contemporary research on distributed leadership has focused on the work that leaders do, the practices which are distributed, and who takes on which practices. Recent efforts by Spillane *et al.* (2007) and Firestone and Martinez (2007) provide some insights into the sources of leadership in a distributed approach, and the practices of such leaders. This study, along with several other recent efforts (e.g., Mayrowetz *et al.*, 2007), moves the agenda forward a step by asking about the causes and consequences of distributed leadership.

Framework

The framework for this study consists of the four different patterns of leadership distribution identified in the first phase of our work and an especially promising set of teacher beliefs, treated as an aggregate variable, labeled "academic optimism".

Patterns of leadership distribution

A detailed description of the four patterns of leadership distribution has been provided elsewhere (Leithwood *et al.*, 2007) so they are only briefly summarized here. These patterns reflect the extent to which the performance of leadership functions is consciously aligned across the sources of leadership, and the degree to which the approach is either planned or spontaneous.

Planful alignment. In this pattern, the tasks or functions of those providing leadership have been given prior, planful thought by organizational members. The various sources of leadership consider which leadership practices or functions are best carried out by which source. This pattern is comparable to the holistic form which Gronn (2003) labels "institutionalized practice." Although negative outcomes are possible, evidence from the first phase of our study suggests that this planned and aligned pattern of leadership distribution is likely to be associated with positive effects for the organization. The "pre-thinking", reflective, or planful processes associated with this configuration seem likely to increase the chances of such effects in the long run.

Spontaneous alignment. In this pattern, leadership tasks and functions are distributed with little or no planning. Despite this lack of deliberate planning, leadership functions appear to be aligned across leadership sources by chance, habit or for some other reason. This pattern is similar to Gronn's (2003) "spontaneous collaboration." While positive outcomes would be expected from this approach in the short-term, the lack of reflective feedback would make productivity over the long-term difficult to sustain. Short-term success, however, potentially reduces the incentive members engaged in this form of leadership distribution have to move toward more planful and coordinated forms.

Spontaneous misalignment. This pattern is similar to spontaneous alignment in the lack of planning for leadership distribution but chance, habit, etc., in this case, result in misalignment and largely negative consequences for the organization. Lack of alignment makes it difficult to achieve even short-term successes. Under supportive conditions, it seems possible to shift those associated with this form of leadership distribution to more planful forms. Their lack of even short-term success may provide an incentive to change.

Anarchic misalignment. Associated with some secondary school departments in the first phase of our study, this pattern features substantial planning and alignment within a sub-unit (such as a department) but an oppositional or competitive disposition in relation to the organization as a whole. Movement toward forms of leadership distribution reflecting wider organizational goals is likely to hinge on the success others in the organization have in convincing those engaged in this pattern of the value of those wider goals.

Academic optimism

A recent study by Hoy *et al.* (2006) found large effects on student achievement of a variable they labeled "academic optimism." This was an aggregate variable which includes three teacher beliefs – trust, collective efficacy and academic emphasis. Hoy *et al.* (2006, p. 431) argued that optimism was "an appropriate overarching construct . . . because each context contains a sense of the possible".

We used an adapted version of Hoy *et al.*'s academic optimism as a measure of teacher beliefs for this study. The adaptation was to replace "academic emphasis" with "organizational citizenship behavior (OCB)". This replacement was not based on objections to the value of academic emphasis. Our reasoning was that successful change in schools depends on the willingness of teachers to engage in work with their colleagues outside of their own classrooms. Measures of OCB aim to capture that willingness.

OCB. OCB describes the feelings of belonging (termed "citizenship") in the organization, and the behaviors that promote this. Organ (1988) coined this phrase to indicate behaviors that were not required as part of the job, but were offered in order to help others in the organization. Bateman and Organ (1983, p. 588) describe OCBs as practices that "lubricate the social machinery of the organization". The willingness to undertake such altruistic deeds makes a significant contribution to the success of the organization.

Applied to schools, DiPaola and Hoy (2005, p. 36) found a significant relationship between the OCBs of staff in a high school and their students' achievement on standardized tests. They describe the practices they observed related to teacher's OCB:

> Teachers who voluntarily help their new colleagues and go out of their way to introduce themselves to others define organizational citizenship behaviors in schools. Teachers in such schools take it upon themselves to make innovative suggestions, to volunteer to sponsor extra-curricular activities, and to volunteer to serve on new committees. Moreover, teachers help students on their own time, stay after school to help if necessary, and resist the temptation to give students busy work. Organizational citizenship behavior in schools connotes a serious educational context in which teachers are rarely absent, make efficient use of their time while at school, work productively with their colleagues, and give high priority to professional activities over personal ones while in school. They use their talents and efforts to help both students and the school to achieve.

Our measure of OCB combines items from Podsakoff *et al.*'s (1990) 24-item scale with items from one sub-scale of Van Dyne and LePine's (1998) survey. Podsakoff *et al.* measure the five dimensions of OCB identified by Organ (1988): altruism, courtesy, civic virtue, conscientiousness and sportsmanship. Van Dyne and Le Pine (1998, p. 108) added a sixth dimension, "voice", that describes a person's capacity to make "innovative suggestions for change and to recommend modifications to standard procedures even when others disagree". As yet, there is little evidence about how leaders influence the development of OCBs on the part of teachers.

Trust. As with OCBs, there is now a small amount of evidence (in particular, Tschannen-Moran, 2004; Bryk and Schneider, 2002) demonstrating that the trust felt between and among teachers and administrators is both influenced by leader practices and influences student learning. This study measured both mutual trust among teachers and teachers' trust in leaders.

Evidence by Wahlstrom and Louis (in press) demonstrated that supportive principal behavior and faculty trust are significantly correlated, and that schools with higher levels of engaged teachers have higher levels of trust in colleagues. Directive (as opposed to supportive) principal behavior is negatively correlated with teachers' trust in their principal, but has no impact on trust in their teacher colleagues. This implies that principals can build trust between themselves and their teachers, but they have little influence on the trust that teachers feel among themselves.

Bryk and Schneider (2002) found that respect, personal regard, competence in core role responsibilities, and personal integrity, were associated with relational trust among teachers and leaders. Louis (2007) identified specific principal behaviors that had an impact on teacher-teacher trust, including effective communication, clear vision, consistency between words and actions, and competent management of school affairs. Trust was also built by reshaping the composition of the staff through hiring, and counseling out teachers who did not live up to the school's mission and values. In buildings characterized by high trust, there was more collective decision making, with a greater likelihood that reform initiatives were widespread and that there were demonstrated improvements in student learning (Louis, 2007).

While discussions of trust have traditionally focused on the individual, more recent work has become concerned with interpersonal relations and organizational behavior. As organizations attempt to promote more collaboration and cooperation, trust among employees and trust in leaders have become increasingly important variables in explaining key organizational outcomes (Tschannen-Moran, 2004). In organizations with high levels of trust, individuals are comfortable in seeking help from others and learning from their coworkers.

Teacher efficacy. Our study measured both individual and collective teacher efficacy. Bandura (1977) defined teacher efficacy as a component of self-efficacy; it is the confidence teachers have about their ability to accomplish a teaching task. According to Bandura (1995), four factors influence self efficacy, including mastery experiences (based on personal experience with the task); psychological and emotional states (an individual's level of arousal); vicarious experiences (seeing others succeed or fail in a particular task); and social persuasion (formal or informal, from leaders or colleagues).

Teacher efficacy has a demonstrable impact on student achievement. The earliest studies of teacher efficacy by the Rand organization (Armor *et al.*, 1976) found that

teacher efficacy explained a high proportion of the variation in reading achievement in minority students. Correlations between teacher efficacy and teacher practices are also very high. For example, Ross's (1998, p. 58) review of the consequences of teacher efficacy concluded that:

> Higher teacher efficacy is consistently associated with the use of teaching techniques that are more challenging and difficult, with teachers' willingness to implement innovative programs, and with classroom management practices that promote student responsibility. High expectations of success enable teachers to set higher goals for themselves and others, take risks in experimenting, and learn new methods that contribute to higher student achievement.

While the concept of efficacy was initially focused on the individual, more recent work has defined this as a collective attribute, linking it to much of the literature on organizational constructs. Since evidence exists that teachers' collective efficacy can be a stronger predictor of student achievement than students' socioeconomic status (Goddard *et al.*, 2000; Bandura, 1993), there is a clear need to describe what school leaders do to support efficacy among their faculty. Principal leadership behavior and the development of teacher efficacy were studied in a small sample ($n = 10$) of middle schools (Hipp, 1996). Such leadership affected efficacy largely by addressing in-school problems within the principals' control, such as discipline or shared decision-making.

Only one published study, to our knowledge, clearly links teacher efficacy with trust. Da Costa and Riordan (1996) explored the relationship between teachers' sense of efficacy and the role of trust in teachers' willingness to engage in work-focused relationships with colleagues. Teachers in high-trust work relationships who were also confident of their teaching abilities were willing to have conversations about instructional pedagogy in a variety of settings, including general team meetings. Conversely, when teachers perceived themselves to be lacking in efficacy they would not go beyond the bounded conversation for a pre- or post-observation conference with a colleague. Although these results are limited by the study's small scale, they point to the need for further examination of trust and sense of efficacy.

We hypothesized that:

- High degrees of academic optimism are associated with planned approaches to leadership distribution.
- Low levels of academic optimism are associated with unplanned approaches to leadership distribution.

Methods

Context

Evidence for this paper was gathered as part of a three-year mixed-methods study of distributed leadership. The study was conducted in one large school district in Ontario, Canada, in which deliberate, sustained attempts had been made by district staff to expand the distribution of leadership in schools over more than a dozen years. Serving more than 100,000 students in about 150 elementary and 30 high schools, the district employed approximately 8,800 teachers and 400 school administrators. The socio-economic status (SES) of families in this district varied widely and schools were located in urban, sub-urban and rural settings. Overall, however, the families in

the district had higher than average SES, and the majority of schools were in urban and suburban locations.

Among other outcomes, the first phase of our study conducted in eight case study schools identified four patterns of leadership distribution (Leithwood *et al.*, 2007). One goal of second phase of this study – the focus of this paper – was to provide quantitative evidence about the relationship between these four different patterns of leadership distribution selected school variables linked to student achievement in prior research. Our end goal was to help move research on distributed leadership beyond its current, largely descriptive state to one that offers more insights about the improvement of leadership practice.

Sample

The survey population for this study was all licensed, part-time and full-time teachers in the district (about 8,800) and the study included this entire population. A total of 1,640 teachers responded to one of two forms of an on-line survey. The low (18.6 percent) response rate was due to some combination of the on-line nature of the surveys and the unusually and inadvertently demanding nature of other extra-classroom tasks teachers were grappling during the period in which the surveys were being conducted (completing report cards using a centralized computer program that malfunctioned frequently). Three different strategies were used to increase response rates over a two-month period in order to acquire the achieved sample.

By most social science standards, this achieved sample is relatively large. For example, only 224 respondents are needed to represent a population of 8,800 for a confidence interval of 0.99 and a margin of error of 0.93. With 1,640 respondents, the margin of error drops to 0.032. But such calculations assume that the achieved sample is normally distributed, an assumption we cannot make in this case.

Data analysis

Individual respondents were the unit of analysis. We have become increasingly convinced that the individual rather than the school level is appropriate unit of analysis in the majority of the research carried out about school-level leadership. Our findings, across many previous studies, that there is more variation in the responses of teachers within than across schools to the leadership they experience, are the justification for this claim. This claim also reflects the major premise of Leader Member Exchange Theory (Graen and Uhl-Bien, 1998) that leaders are likely to behave in different ways with (in the case of schools) their teacher colleagues depending on such perceived factors as their teachers' levels of expertise, motivations to change, willingness to engage in school-wide decisions and interpersonal styles.

Measures

Academic optimism. Table I lists the items used to measure all subscales of academic optimism. Variables encompassed by this aggregate construct were assessed using measures drawn from previous research. Responses to all items used a six-point scale that ranged from "disagree strongly" to "agree strongly." The four-item scale for "mutual trust among teachers" was adapted from Bryk and Schneider (2002) and included items such as "teachers in this school really care about each other". The internal reliability of this sub-scale was 0.82. Our measure of teacher trust in school

		n	M	SD	Rel.
Mutual trust among teachers	Teachers at this school really care about each other Teachers in this school trust each other It's OK in this school to discuss feelings, worries and frustrations with other teachers Teachers in this school respect colleagues who take the lead in school improvement efforts	1,130	4.68	1.09	0.88
Teacher trust in school leaders	I feel quite confident the leaders at my school always try to treat me fairly Leaders at my school would not try to take advantage of teachers by deceiving them I feel a strong loyalty to our school leaders I would support the leaders at my school in almost any emergency I have a divided sense of loyalty toward my school leaders[a] It's OK in this school to discuss feelings, worries and frustrations with school leaders Leaders in our school look out for the personal welfare of teachers in this school	1,609	4.51	1.05	
Teacher self efficacy	If students aren't disciplined at home, they aren't likely to accept any discipline at school When I really try, I can get through to the most difficult or unmotivated student A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her learning If parents would do more for their children, I could do more for my students If a student did not understand information from a previous lesson, I would know how to increase his/her understanding in the next lesson	1,068	4.31	0.87	0.42
Teacher collective efficacy	If a student doesn't learn something the first time, teachers in this school will try another way Teachers in this school really believe every student can learn If a student doesn't want to learn, most teachers here give up[a] Teachers in my school need more training to know how to deal with the students who aren't learning[a] Teachers in my school don't have the skills needed to produce meaningful student learning[a] Most students come to schoolready to learn Home life provides so many advantages students are bound to learn Students here just aren't motivated to learn[a]	1,397	4.20	0.85	
OCB – altruism	I have taken steps to try to help colleagues who have been absent I make a point to help colleagues who have heavy workloads I have helped orient a new teacher even though it is not required I am always ready to lend a helping hand to those around me	1,181	4.78	0.984	0.83

Table I.
Teacher ratings of the component variables included as part of academic optimism

(*continued*)

		n	M	SD	Rel.
OCB – civic virtue	I attend meetings that are not mandatory but are considered important I keep abreast of changes in the school I read and keep up with school announcements, memos and so on	1,052	5.00	0.929	0.73
OCB – voice	I have made recommendations concerning issues that affect school staff I speak up and encourage others staff to get involved in school issues I have communicated my opinions about work issues to others in this school even if my opinion is different and others in the group disagree with me I keep well informed about issues where my opinion might be useful to this school I am involved in issues that affect the quality of work life here in this school I have spoken up at this school with ideas for new projects or changes in procedures	1,274	4.05	1.25	0.93
OCB – courtesy	I have done or said something to prevent problems with other teachers and staff	799	4.24	1.32	
Total OCB		1,603	4.48	0.942	

Notes: These data were collected using two forms of the teacher survey in order to keep the total amount of time required by a single respondent manageable (the two surveys included a total of xx and yy items). When items included in a scale were divided among the two instruments, results do not allow the calculation of a scale reliability; [a] reverse scale

Table I.

leaders, a seven-item scale, was adapted from Podsakoff *et al.* (1990) and Bryk and Schneider (2002): it includes items such as "I feel quite confident that my principal will always try to treat me fairly." Previous research reported alpha coefficients in 0.92 range for this sub-scale.

The five-item "teacher self-efficacy" sub-scale was adapted from Tschannen-Moran *et al.* (1998) and includes items such as, "when I really try, I can get through to the most difficult or unmotivated students." The reliability of the original scale is 0.77. The eight-item scale for collective teacher efficacy was derived from Ross *et al.* (2004) and included items such as "teachers in this school really believe every student can learn." The reliability of the original scale was 0.83.

Our measure of organizational citizenship behaviour included 14 items from surveys by both Podsakoff *et al.*'s (1990) and Van Dyne and LePine (1998). Estimates of the internal consistency of the five OCB dimensions averaged across 12 samples reported by Podsakoff *et al.* were as follows: altruism (0.88), courtesy (0.87), conscientiousness (0.85), sportsmanship (0.88), and civic virtue (0.84). Van Dyne and LePine report that, across six samples of data, the voice scale was found to have high internal consistency reliability and high test-retest reliability. These scale reliabilities from earlier research provide some confidence in the starting points for our own surveys but we used only the existing "voice" scale intact.

Patterns of leadership distribution. The items measuring patterns of leadership distribution ask respondents to identify the extent to which leadership distribution is

planned or spontaneous, aligned or anarchic. One item measured one pattern, as follows:

- We collectively plan who will provide leadership for each of our initiatives and how they will provide it (planful alignment).
- The distribution of leadership tasks in this school is "spontaneous." It is not planned and it usually works out well (spontaneous alignment).
- The distribution of leadership tasks in this school is "spontaneous." It is not planned and it often leads to conflict and confusion (spontaneous misalignment).
- Leadership within individual divisions or departments coordinate their work carefully, but it is not done across the school as a whole (anarchic misalignment).

Results

Overview of results

Table II reports means and standard deviations of teachers' responses to all variables measured in this study.

The mean ratings for patterns of leadership distribution ranged from a high of 3.72 (slightly agree) for planful alignment to a low of 2.29 (disagree) for spontaneous misalignment, with anarchic misalignment and spontaneous alignment in between. Standard deviations of responses are fairly high, suggesting that teachers varied widely in their perceptions of the patterns of leadership distribution in their schools. Ratings of OCB, trust and efficacy were moderate (4.20 for collective efficacy) to high (4.68 for teachers' trust in teachers).

Relationships between leadership and academic optimism

Table III reports the correlations between patterns of leadership distribution and the sub-scale components of academic optimism as well as the aggregate measure.

Planful alignment is moderately related to the aggregate academic optimism (0.34). Among the component sub-scales, this pattern of distributed leadership is most strongly related to trust in leaders (0.40), while only weakly (but significantly) related to the rest.

Spontaneous misalignment has associations with academic optimism least similar to the relationships with planful alignment. Its relationship with aggregate academic optimism is negative (−0.30) and this negative relationship seems likely accounted for by the corrosive effects of this form of leadership on trust, especially trust in leaders (−0.36).The remaining two patterns of distributed leadership have weak but significant negative relationships with academic optimism.

We explored this relationship between academic optimism and patterns of leadership distribution a little further. Respondents were divided into five groups or

Table II. Ratings of leadership distribution

	Mean rating	SD
Planful alignment	3.72	1.62
Anarchic misalignment	3.36	1.49
Spontaneous alignment	3.05	1.48
Spontaneous misalignment	2.29	1.41

quintiles, based on their ratings of academic optimism. Ratings of leadership distribution were then mapped onto each of these quintiles. Figure 1 displays the results of this analysis.

Planful alignment is unique among the patterns in showing consistently increasing associations with academic optimism. Planful alignment is rated lowest in the quintile of respondents with the lowest rating of academic optimism, and rated highest in the quintile of teachers with the highest ratings of academic optimism. All the other patterns of leadership distribution move more or less in the reverse direction, with higher ratings of the three other patterns of distributed leadership associated with lower ratings of academic optimism. In sum, the more academically optimistic are teachers, the more likely they are to report that leadership is distributed in their schools in a planfully-aligned pattern.

Conclusion

This study explored the relationship between four different patterns of distributed leadership and a set of teacher beliefs, which prior evidence has suggested are demonstrably consequential for student learning (trust, efficacy and organizational citizenship behavior). These three sets of beliefs were treated as an aggregate variable labeled teachers' "academic optimism", a concept adapted from Hoy *et al.* (2006). The four patterns of distributed leadership varied along two dimensions – the planfulness of leadership distribution and the alignment of leadership with the purposes of the school organization.

This conception of leadership distribution patterns reflects theory and evidence suggesting that more coordinated forms of leadership distribution make more productive contributions to organizational outcomes. We hypothesized that teachers' academic optimism would be most strongly and positively associated with the pattern of leadership distribution giving greatest weight to the coordination of leadership efforts ("planful alignment"). Evidence from the survey responses of 1,640 elementary and secondary teachers in one large district provided the evidence used to test this hypothesis.

The most significant limitation of the study is the survey response rate of about 19 percent. While there were clearly identified reasons for this low response rate that had nothing to do with the survey itself, we cannot know how well our evidence represents

	Planful alignment	Anarchic misalignment	Spontaneous misalignment	Spontaneous alignment
Collective teacher efficacy	0.114**	−0.127**	−0.170**	−0.028
Teacher self efficacy	0.085**	−0.079*	−0.156**	−0.049
Trust in teachers	0.258**	−0.140**	−0.286**	0.038
Trust in leaders	0.403**	−0.185**	−0.356**	0.002
Organizational citizenship behavior	0.123**	−0.040	−0.027	−0.084**
Academic optimism	0.339**	−0.171**	−0.301**	−0.063*

Notes: * Correlation is significant at the 0.05 level (two-tailed); ** Correlation is significant at the 0.01 level (two-tailed)

Table III.
Correlations between patterns of distributed leadership and academic optimism

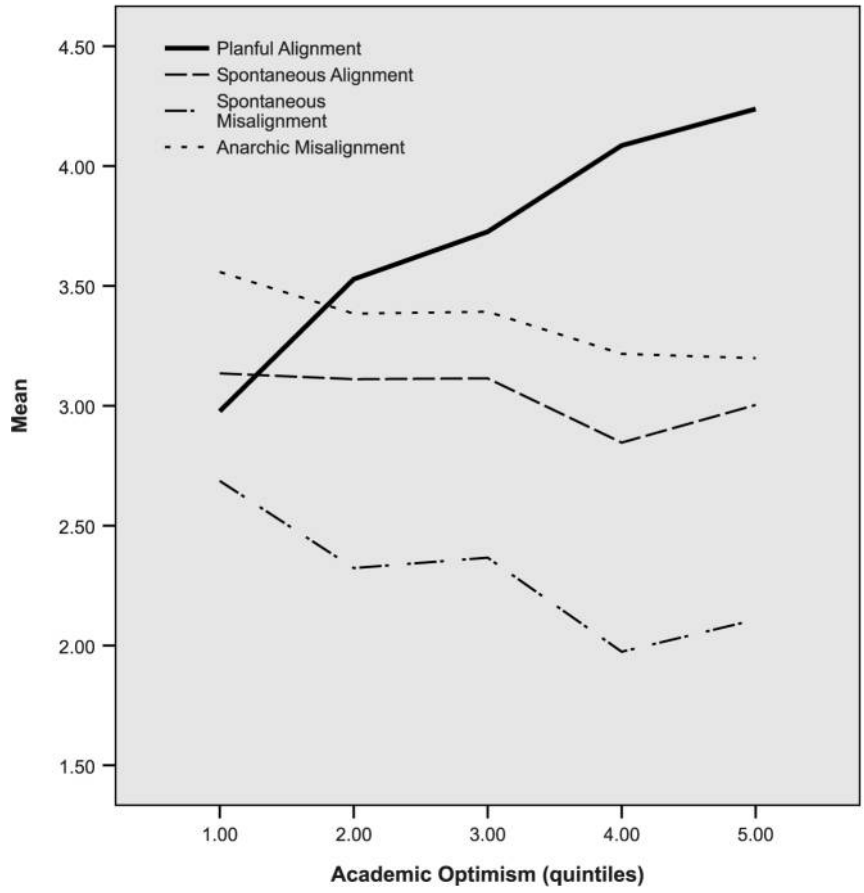

Figure 1.
The relationship between patterns of leadership distribution and academic optimism

the population of teachers in the study district – not to mention the much broader populations of teachers whose beliefs we aspire to understand. Nonetheless, the sample is relatively large and the primary limitation concerns the degree to which it is normally distributed in comparison with the population of teachers in the district.

A second limitation worth mention at this point arises from our distribution of items measuring some of our variables across two forms of the survey. While this was done to reduce the demands on respondents, it prevented us from calculating the reliability of some of the scales and eliminated the possibility of testing the factor structure of our measures.

With these limitations in mind, results provide quite unambiguous support for our initial hypotheses. Higher levels of teachers' academic optimism were positively and significantly associated with planfully aligned forms of leadership distribution. Among the components of academic optimism, this positive and significant relationship appeared strongest with respect to trust in leaders. The three remaining patterns of leadership distribution were negatively related to academic optimism.

The practical implications of these results depend in part on some speculations about the nature of the distributed leadership – academic optimism relationship. We have not claimed that academic optimism is either an antecedent or an outcome of planfully-aligned forms of distributed leadership, although we were initially drawn to academic optimism as a potential consequence of distributed leadership. If that is actually the case, our results offer reasonably compelling support for efforts to ensure that leadership is distributed in schools in planful ways. Spontaneous patterns seem to have negative effects and our data also suggest that this may have something to do with trust in leaders. Planful forms of distribution make leaders decisions more transparent and less open to suspicion or concern, whereas spontaneous forms of distribution leave the motivations and decisions of leaders implicit. Academic optimism, however, may be an influence on the development of different leadership distribution patterns, an antecedent variable. When teachers hold high levels of such optimism, they may be much more disposed to engage intentionally with their colleagues in efforts to improve their schools. Such intentionality would foster planfulness.

As these speculations about the directionality of the distributed leadership – academic optimism relationship suggest, further research aimed at clarifying the relationship would be very useful. That some set of teacher beliefs would have an influence on the nature of the distributed leadership which emerges in schools seems almost certain. But which beliefs? Is academic optimism and all of its components one of them? Some teacher beliefs are no doubt influenced by or a consequence of experiencing different forms of distributed leadership. Is academic optimism one of them? What other consequences flow from both coordinated or planful and uncoordinated or spontaneous patterns? Is improved student learning a likely consequence of planfully-aligned patterns of distributed leadership.

Assuming further support for the value to organizations of planful alignment in subsequent work, it will also be important to know in much more detail what this pattern of leadership distribution looks like in practice. As yet our description of this pattern is best characterized as "thin". Recent work by Spillane *et al.* (2007) examines the quite different ways in which principals and their colleagues co-perform leading activities, and how the sources of such leadership varies from activity to activity. This will be a productive area to explore in future work, as well. Normative approaches to leadership distribution will need to find a "third way" in which formal leaders and teachers work together to share leadership in a planned and aligned way, supporting each other in a trustful, collaborative and confident manner. Such an approach may lead to improving schools, and ultimately, to student success.

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