

From Instructional Leadership to Leadership Capabilities: Empirical Findings and Methodological Challenges

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While there is considerable evidence about the impact of instructional leadership on student outcomes, there is far less known about the leadership capabilities that are required to confidently engage in the practices involved. This article uses the limited available evidence, combined with relevant theoretical analyses, to propose a tentative model of the leadership capabilities required to engage in effective instructional leadership. Research is suggestive of the importance of three interrelated capabilities: (a) using deep leadership content knowledge to (b) solve complex school-based problems, while (c) building relational trust with staff, parents, and students. It is argued that there is considerable interdependence between these three capabilities, and fine-grained specification of each is less important than developing leadership frameworks, standards, and curricula that develop their skilful integration.

Politicians and the public attribute great importance to school leaders, and hold them increasingly accountable for the effectiveness of schools and the learning and achievement of students (Pont, Nusche, & David, 2008). While the public's perception of the influence of school leaders is no doubt exaggerated (Meindl, 1998), recent research evidence suggests the direct and indirect influence of school leadership on student outcomes can be considerable (Leithwood, Harris, & Hopkins, 2008; Robinson, Lloyd, & Rowe, 2008). The use of the conditional “*can be considerable*” is deliberate, because the impact of leaders on student outcomes is dependent on what

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they do. Leadership effects vary greatly depending on the particular type of leadership practice under consideration.

In a recent meta-analysis of research on the direct and indirect effects of leadership on student outcomes, Robinson and colleagues concluded that the effect of instructional leadership on student outcomes was three to four times as great as that of transformational leadership (Robinson et al., 2008). Instructional leadership refers to those sets of leadership practices that involve the planning, evaluation, coordination, and improvement of teaching and learning. It is also referred to as learning-centered leadership (Goldring, Porter, Murphy, Elliott, & Cravens, 2009).

A second, finer grained meta-analysis identified the relative effects of five sets of leadership dimensions: leading through promoting and participating in teacher learning and development; establishing goals and expectations; planning, coordinating, and evaluating teaching and the curriculum; strategic resourcing and ensuring an orderly and supportive environment.

The authors concluded from these two meta-analyses that the more leaders focus their relationships, their work, and their learning on the core business of teaching and learning, the greater their influence on student outcomes (Robinson et al., 2008). In schools where teachers report leadership to be more focused on such activities, students outperform those in similar schools where teachers report less such leadership activity. These findings on the impact of what has been broadly described as instructional leadership are confirmed by several recent reviews of the literature on the links between school leadership and student outcomes (Goldring et al., 2009; Leithwood et al., 2008).

There is no doubt that this body of evidence about the links between instructional leadership and student outcomes has been noticed by policymakers. For example, it has informed the development of educational leadership standards in the United States (Council of Chief State School Officers, 2008), the work of the National College of School Leadership in England (Leithwood, Day, Harris, and Hopkins, 2006), and the development of a leadership framework for New Zealand principals (New Zealand Ministry of Education, 2008).

While the attention being given by policymakers to this research is to be welcomed, a word of warning is needed. Evidence about effective leadership practices is not the same as evidence about the capabilities that leaders need to confidently engage in those practices. The authors of a chapter on the state of research on leadership preparation make this point as follows: "We contend that knowledge of effective leadership practices is not the same thing as knowledge of the capacities required for enactment. Our understanding of effective school leadership practice has grown tremendously in recent years. . . . However, our understanding of the knowledge, skills, and dispositions required for school leaders to be effective is much less well developed" (Smylie & Bennett, 2005, p. 141). This warning is

appropriate because evidence about the relative impact of different types of leadership practice does not directly translate into either a curriculum for leadership preparation, or a set of leadership standards.

The purpose of this article is to use published empirical research and associated theory to propose a tentative model of the capabilities required to engage in effective instructional leadership. A second purpose is to discuss some of the methodological challenges involved in trying to identify and specify relevant capabilities. The basis of the model is published empirical research which provides direct or indirect evidence about the links between leadership capabilities, instructional leadership, and student outcomes. The proposed model can only be described as tentative because the available evidence base is too small to warrant a more definitive claim. Nevertheless, I argue that there is an empirical and theoretical warrant for proposing at least three broad capabilities for effective instructional leadership.

Capabilities describe what people need to be able to do and to be, to carry out a particular function—the function in this case being that of instructional leadership. I have chosen to employ the concept of a capability rather than the more typical phrase “knowledge, skills, and dispositions” in order to recognize that practical endeavor such as school leadership involves a seamless and dynamic integration of knowledge, skills, and personal qualities. For example, while the act of giving teachers useful feedback might be categorised as a skill, it involves knowledge (knowing what to say about the quality of their teaching), skill (knowing how to say it), and deeply personal qualities such as open-mindedness and good intent. If the three components are separated out, an immediate disjunction is created between the leadership specification and the integrated reality of leadership practice.

There are several compelling reasons for further research on the capabilities required to engage in effective instructional leadership. The most obvious is the need for research-informed preparation and development opportunities for school leaders. Building instructional leadership capabilities involves more, however, than educating individual leaders or leadership teams. It also involves creating the appropriate institutional and external conditions so that relevant capabilities can be exercised and developed.

At least as important as a focus on leaders themselves is the development of research-informed tools and associated routines that scaffold the work of instructional leadership. As I shall discuss subsequently, the leadership content knowledge required to improve learning and teaching is so great that it cannot be located in the head of any individual leader, nor even in the combined cognitive resources of a leadership team (Spillane, Halverson, & Diamond, 2004).

Research on the capabilities that are required for effective instructional leadership should inform the development of instructional systems and tools, as well as the development of instructional leaders (Fullan, Hill, & Crevola, 2006). Research-informed tool development and design are needed to ensure that, for example, when instructional leaders observe classrooms,

evaluate teachers, choose curricula, or assess student learning, their leadership is scaffolded by smart tools—i.e., tools that are well designed and incorporate valid theories of the task (Robinson & Timperley, 2007).

A third reason for investing in research on the capabilities that inform instructional leadership is to increase our understanding of the causes of variation in the quality and quantity of such leadership. Variation in relevant capabilities is only one of several possible explanations of variation in instructional leadership practice, but without adequate specification and measurement of the capabilities, their contribution relative to other factors, such as student background, teacher quality, and instructional resources, cannot be investigated. For example, while there is evidence that some variation in degree of instructional leadership is attributable to school context (Goldring, Huff, May, & Camburn, 2008), with less such leadership reported in high schools than in elementary schools (Heck, 1992), it is also important to investigate how the capabilities of leaders shape their responses to context. Are there particular skills that enable some high school leaders, for example, to engage in high levels of instructional leadership despite the difficulties of doing so?

RESEARCH STRATEGY

The literature search was initially constrained by a criterion of locating studies of how the capabilities of leaders shape their instructional leadership practices, and of how those practices, in turn, impact student outcomes. It became clear, however, that since very few published studies had analysed the direct or indirect relationship between capabilities and student outcomes, a systematic review of this literature was not possible. The search then widened to include studies that did not measure student outcomes but provided evidence about the links between capability and aspects of instructional leadership. In addition, given the paucity of relevant empirical evidence, even under this more flexible criterion, preference was given to research that combined some relevant empirical evidence with strong theoretical arguments for the role of a particular capability in instructional leadership. For example, while Leithwood's research on principal problem-solving does not include direct evidence about its impact on student outcomes, this program is strongly linked to a rich theoretical and empirical tradition in cognitive psychology about differences in the problem-solving capability of expert, typical, and novice performers on a range of cognitive and social tasks. The empirical evidence from Leithwood's research, combined with this existing knowledge base, is thus suggestive of the links between skill in problem-solving and effective leadership.

Table 1 presents the three research studies that were selected as the most fruitful for identifying some of the capabilities required for effective instructional leadership. The column headings refer to the variables that mediate the relationship between leadership capabilities and student outcomes.

TABLE 1 Evidence Provided in Three Research Studies on the Links Between Leadership Capabilities and Student Outcomes.

Research study	Leadership capabilities	Leadership practices	School and classroom conditions	Student outcomes
Leadership Content Knowledge (LCK) (Nelson & Sassi, 2000; Stein & Nelson, 2003)	Observations of classroom teaching followed by interviews to assess leaders' pedagogical content knowledge about the teaching of mathematical reasoning and about how teachers learn to teach such reasoning	Observations of how principals observe in classrooms, give teacher feedback, lead discussion of curriculum choices, and lead teacher learning about student grouping practices	Interview data about how principals' new instructional leadership practices led to changes in administrative routines such as bringing classroom observation rubrics into closer alignment with curriculum goals	No evidence
Complex Problem-Solving (Leithwood & Steinbach, 1995)	Interviewed principals before and after staff meeting to discover the reasoning and attitudes that informed the intended and actual leadership practices	Observations of principals' leadership of a real staff problem-solving situation	Indirect links to school conditions through sample selection procedures	Indirect links to school outcome through sample selection procedures
Relational Trust (Bryk & Schneider, 2002)	Annual surveys of teacher-principal trust based on teachers' perceptions of principal's <ul style="list-style-type: none">• personal regard• interpersonal respect• competence• integrity	Qualitative assessment in intensive case studies of specific leadership practices that ground relational trust	Annual teacher surveys of: <ul style="list-style-type: none">• attitude to innovation and risk• outreach to parents• teacher professional community	Trends in annual student achievement gains in reading and math

The cells describe the type of evidence provided by each of the three studies about these variables. As Table 1 shows, only the Bryk and Schneider (2002) research on relational trust provided evidence about all the links in the capability-outcome pathway.

The first study of Nelson and Sassi (2000) suggests the importance of leadership context knowledge (LCK) by demonstrating the links between what leaders know about teaching and learning in mathematics, how they evaluate math teaching, and the routines and tools they establish for teacher evaluation. Both leadership content knowledge and leadership practice were assessed qualitatively through intensive interviews and classroom observations. While no evidence about student outcomes is provided in this study, the link between LCK and student outcomes can be reasonably inferred from other studies of the impact of the leadership practices they studied on student outcomes (Robinson, Lloyd, & Rowe, 2008).

The study by Leithwood and Steinbach (1995) assessed the attitudes, beliefs, and problem-solving practices of principals who were leading a staff meeting devoted to solving an important problem. While there was no direct evidence about the links between these leadership practices, school conditions, and student outcomes, the study design involved a comparison of two groups of principals who had been nominated as expert and typical. These nominations could reflect differences in the performance of the schools led by these two groups of principals. The measures employed by Leithwood and Steinbach comprised qualitative coding of transcripts of both staff meetings and principal interviews.

The third study on relational trust provides the most complete set of evidence about the links between leadership capability and student outcomes. The measures of leadership capability, school organization, and student outcomes were quantitative, with multivariate analyses employed to calculate their interrelationships. Leadership practices were assessed qualitatively through intensive field work in selected case study schools.

While the evidence provided by these three research studies is only suggestive of important leadership capabilities, they are each strongly linked to wider, sociological, psychological, and organizational theories that explain how these capabilities work and why they are important. The richness of this theoretical scaffolding compensates somewhat for the paucity of direct empirical evidence about the relationship between the proposed capabilities and student outcomes.

THE PROPOSED LEADERSHIP CAPABILITIES

In the following sections, I discuss the research studies outlined in Table 1 and their implications for a model of the capabilities required for effective instructional leadership.

Leadership Content Knowledge

Given the evidence about the impact of instructional leadership on student outcomes, researchers and policymakers are now interested in the relationship between leaders' knowledge of learning and teaching and their effectiveness as instructional leaders. Spillane and Seashore Louis claim that "Without an understanding of the knowledge necessary for teachers to teach well—content knowledge, general pedagogical knowledge, content specific pedagogical knowledge, curricular knowledge and knowledge of learners—school leaders will be unable to perform essential school improvement functions such as monitoring instruction and supporting teacher development" (2002, p. 97).

While the link between leaders' pedagogical knowledge and effective instructional leadership seems obvious, there are very few studies of the relationship between leaders' knowledge and practices, and even fewer that make the further link to student outcomes. The research that comes closest to making these links is that of Stein and Nelson on leadership content knowledge (LCK). They define leadership content knowledge as "that knowledge of subjects and how students learn them that is used by administrators when they function as instructional leaders" (Stein & Nelson, 2003, p. 445). While, as Table 1 shows, these authors did not collect data on student outcomes, they investigated the knowledge needed to engage in some of the leadership practices (e.g. observing teaching and giving feedback), which prior research has shown to have a moderate impact on student outcomes (Robinson, Lloyd, & Rowe, 2008).

The concept of leadership content knowledge captures the integration of pedagogical and curricular knowledge with administrative decision-making in areas such as teacher evaluation, student grouping, and the selection of teaching resources. The focus of Stein and Nelson (2003) is on how different instructional leadership practices might be explained by differences in the knowledge embedded in these practices.

The context for this study of leadership content knowledge was a research and development program that was offered to the principals of elementary and high schools involved in a national reform of mathematics teaching (Nelson & Sassi, 2000; Nelson & Sassi, 2005; Stein & Nelson, 2003). The overarching goal of the math reform program was to improve the teaching and learning of mathematical reasoning. The goal of the research on the associated professional development for participating school principals was to address the question "What should school administrators know and be able to do to develop math instruction where children become skilled in mathematical reasoning in addition to mathematical computation and procedures?" (Nelson & Sassi, 2005, p. 32).

Through a series of school-based observations of five principals, the researchers documented how leaders' knowledge of mathematics and of

TABLE 2 The Relationship Between Principals' Understanding of Math Learning and Teaching and Their Conduct of Classroom Observations.

Nature of principal's understanding	Implications for principal's conduct of classroom observations
Principal A: Behaviorist Pedagogy	Focuses on the observable features of the lesson, e.g., whether the teacher begins with a short review or gives clear and detailed instructions.
Principal B: Constructivist Pedagogy • Knowledge of surface features only	Records and gives teacher feedback on the observable aspects of constructivist pedagogy, e.g., Does teacher ask sufficient open-ended questions? Does he check for a variety of answers? Not able to engage with teacher in intellectual content of lesson, e.g., the validity and sophistication of students' mathematical thinking and how teacher is promoting that thinking.
Principal C: Constructivist Pedagogy • Knowledge of deeper features	Evaluates how well teacher is extending child's mathematical reasoning. This required attention to and recording of the whole exchange between teacher and student to judge how well the teacher's questions connected with the child's reasoning. This judgment requires the principal to think through the relevant mathematical ideas.

how it is learned shaped their leadership practice. All five principals were committed to a constructivist¹ approach to the learning and teaching of mathematics and were in various stages of learning what it meant for their leadership practice. Table 2 summarizes how each² principal's understandings of math concepts and teaching shaped one critical aspect of their practice—how they conducted classroom observations. While the research is focused on principals, its findings are equally applicable to any teacher with responsibility for giving feedback to colleagues after observing their teaching.

The first row in Table 2 is based on Principal A who, although committed to a constructivist view of how students learn to reason mathematically, was unable to judge how the teacher supported such learning, because his pedagogical knowledge was limited to a behaviorist approach. This meant he focused only on the observable features of the lesson rather than on the mathematical understandings of either the student or teacher.

Principal B had progressed to a surface level understanding of constructivist pedagogy—that is, he could recognize some observable aspects of constructivist teaching, such as the use of open-ended questions and teacher encouragement of multiple solution strategies. He did not, however, have enough knowledge of either the relevant mathematics concepts,

¹The authors define constructivism as “the idea that children actively construct mathematical knowledge . . . through interaction with the social and physical environment and through the extension and reorganization of their own mental constructs” (Nelson & Sassi, 2005, p. 32).

²Only three principals are included in Table 2, as different leadership practices were studied for the remaining two principals.

or of how to teach them, to give teachers feedback about how they were promoting the mathematical reasoning of their students.

The third row of Table 2 describes a leader whose deeper knowledge of constructivist pedagogy and mathematics enabled her to evaluate how the teacher's questions were linked to and extended the students' mathematical understandings. Her feedback went beyond generic teaching moves to include discussion of the mathematical understandings of both the teacher and students. In addition, this principal's knowledge of constructivist pedagogy led her to change how she observed in classrooms. She recognized that, by using a checklist of teacher behaviors, she was encouraging unresponsive teaching because she was not attending to how the teacher was engaging with students' thinking. She switched to a more narrative form of recording so she could evaluate how well the teacher's strategies were linked to the understandings and misunderstandings of her students.

Nelson and Sassi discuss several other ways in which shifts in leadership content knowledge changed administrative practices. As one principal learned more about mathematics and math pedagogy, he changed the process of textbook selection from one dominated by pragmatic considerations (cost, content coverage, usability by teachers, attractiveness to students), to one in which the primary consideration was "what kinds of mathematical thinkers are produced by this text?" That question meant that the selection committee had to learn about the mathematical ideas in each text. The mathematical and pedagogical content knowledge of the principal enabled him to integrate both the mathematical and administrative dimensions of the problem by writing a series of questions that guided the committee to consider the type of mathematics being taught by the alternative texts and by noticing when the committee was attending to practical rather than mathematical considerations.

Finally, Nelson and Sassi discuss how some of the principals began to see connections between the development of mathematical reasoning and the wider intellectual culture of their schools. They realized that if mathematical reasoning is developed through engagement with alternative ways of solving a math problem, their students and teachers needed to listen deeply to one another. Such listening has implications for the pace of classroom dialogue and for the time given to the learning of important concepts. Norms of intellectual risk-taking are also required in classrooms where students engage with each others' ideas.

In summary, the intensive qualitative research of Nelson and Sassi has shown how instructional leadership practices are constrained by a leader's knowledge of relevant disciplinary and pedagogical content. Their research showed that as leaders gained a deeper understanding of what is involved in effective teaching of particular curriculum areas, they were able to detect and correct mismatches between those understandings and the administrative routines that were intended to support them.

The Nelson and Sassi research program has important methodological implications for research on the relationships between leadership content knowledge, instructional leadership practices and student outcomes. It suggests that an important goal for future research is to identify the knowledge needed to engage in *effective* instructional leadership, rather than instructional leadership per se, and that what is effective could vary according to the particular student learning outcomes involved (Spillane, 2005; Stein & Amico, 2000). All three principals in Table 2 were engaging in instructional leadership in the sense that they were involved in the evaluation of teachers and teaching, yet the impact of their evaluative practices on the quality of teaching and learning was likely to be very different.

To date, the distinction between instructional leadership and effective instructional leadership has not been the subject of much conceptual and methodological discussion. The survey items which have been used in quantitative studies of the relationship between school leadership and student outcomes typically do not discriminate between those varieties of the practice that are more or less likely to be effective in achieving specific student outcomes. To illustrate this point I have listed, in Table 3, many of the survey items used to assess leaders' involvement in the evaluation of teaching. While some of the items do have a normative focus on the *quality* of leaders' evaluation of teaching, the selected qualities are not those that are most likely to make a difference to student outcomes.

Bamburg and Andrews (1991), for example, asked teachers about the *clarity* of the criteria leaders use to evaluate their classroom performance, and the *frequency* and *usefulness* of leaders' feedback. Similarly, Heck and colleagues assessed the *regularity* of classroom visits and the degree to which monitoring of student progress is *systematic* (Heck, Larsen, & Marcoulides, 1990; Heck, Marcoulides, & Lang, 1991). My earlier discussion of the work of Nelson and Sassi suggests that these survey items admit practices that are probably counterproductive to the achievement of particular student learning outcomes. More behavioral feedback of the type given by Principals A and B in Table 2 is unlikely to increase teachers' ability to foster students' mathematical understanding. Similarly, more "systematic discussion of student progress" will not increase students' mathematical understanding if the assessments used are mismatched to this learning goal. Measures of instructional leadership practices need to specify those qualities that are likely to be associated with increases in the relevant student learning outcomes. Important clues to the nature of those qualities lie in empirical research on effective teaching, i.e., research that identifies the relationship between specific teaching practices and student outcomes.

Once we can discriminate more and less effective forms of instructional leadership, we can then identify the type of knowledge and skill needed to

TABLE 3 Survey Items Used to Assess Leaders' Involvement in the Evaluation of Teachers and Teaching.

Authors	Survey items
Bamburg & Andrews (1991)	<p>My principal leads formal discussions concerning instruction and student achievement</p> <p>My principal uses clearly communicated criteria for judging my performance</p> <p>My principal makes frequent classroom observations</p> <p>My principal's evaluation of my performance helps me improve my performance</p> <p>My principal communicates clearly to me regarding instructional matters</p> <p>My principal is accessible to discuss matters dealing with instruction</p> <p>My principal provides frequent feedback regarding my classroom performance</p> <p>My principal assists faculty in interpreting test results</p>
May & Wagemaker (1993)	<p>Principal's involvement in teacher development and evaluation in reading</p>
Heck (1992)	<p><i>Please indicate the degree to which each of the activities is implemented by the principal or designee at your school:</i></p> <p>Makes regular classroom visits</p> <p>Promotes discussion of instructional issues</p> <p>Emphasizes test results for program improvement</p> <p>Ensures systematic monitoring of student progress</p> <p>Participates in discussion about how instruction affects student achievement</p>
Heck, Larsen, & Marcoulides (1990)	<p><i>Please indicate the degree to which each of the activities is implemented by the principal or designee at your school:</i></p> <p>Encourages discussion of instructional issues</p> <p>Observes teachers' instructional methods</p> <p>Ensures systematic monitoring of student progress by staff</p> <p>Emphasizes test results for program improvement</p> <p>Makes regular class visits</p> <p>Evaluates curricular programs</p>
Heck, Marcoulides, & Lang (1991)	<p><i>Please indicate the degree to which each of the activities is implemented by the principal or designee at your school:</i></p> <p>Encourages discussion of instructional issues</p> <p>Participates in discussion about how instruction impacts student achievement</p> <p>Systematically observes teachers' instructional methods in the classroom</p> <p>Ensures systematic monitoring of student progress</p> <p>Emphasizes test results for program improvement</p> <p>Regular class visits</p> <p>Evaluates curricular programs</p> <p>Supervizes and evaluates</p> <p>Monitors student progress</p> <p>Promotes instructional improvement</p>
Leitner (1994)	<p>Supervizes and evaluates</p> <p>Monitors student progress</p> <p>Promotes instructional improvement</p>
Wellisch, MacQueen, Carriere, & Duck (1978)	<p>Are teachers informed about their performance with regularly scheduled reviews and discussion? Yes/No</p> <p>Estimate the extent of administrator involvement in evaluating school programs (five-point scale)</p>

engage in the more effective forms. The research question shifts from “What knowledge is needed to engage in a given administrative routine?” to “What type of knowledge is needed to design and enact an effective administrative routine?” When these distinctions are made, we will learn more about the capabilities, including prior knowledge, that make effective instructional leadership possible.

Solving Complex Problems

The second capability I discuss is that of complex problem-solving. Its importance is suggested by the empirical research program of Leithwood and its links to the rich tradition of research on problem solving in the wider field of cognitive psychology. This latter research has shown that there are important differences in the problem-solving strategies of those who perform at expert, typical, and novice levels in such endeavors as physics and chess. Samples of novices tend to represent and classify problems by their surface features, while experts represent them in terms of underlying principles (Chi, Feltovich, & Glaser, 1981; Voss, 1989; Voss & Post, 1988). The differences between the groups are particularly marked for what is known as ill-structured problems:

A problem is described as ill-structured when it lacks obvious criteria for solution adequacy, when the means for reaching a solution are unclear, and when there is uncertainty about the nature and availability of the required information. Well-structured problems, by contrast, have clear solution criteria, definable procedures for reaching the solution, and specifiable information requirements. (Robinson, 1993, p. 26)

It is widely accepted that the worlds of social science and education are characterized by ill-structured problems. As Voss puts it, “. . . it is clear that within the social sciences, the number of problems that have solutions that are agreed upon by the experts in the field is not plentiful” (1989, p. 274).

Much of the advantage of experts over those who perform at typical and novice levels is due to their richer store of relevant knowledge and their ability to conceptualise it in ways that enable them to perceive possible problem solutions (Voss & Post, 1988). The link between deep knowledge of a field and problem solving capacity, suggests strong links between leadership content knowledge and problem solving. Certainly, there is little evidence that leaders can become expert problem solvers on the basis of skill in a generic set of problem solving processes. As Voss explains, generic skills have weak power in the sense that they do not yield detailed solutions. “Good problem solving does not emerge from knowledge of method or strategy per se; good performance in solving problems requires a substantial

knowledge base integrated with knowing how to use such knowledge in a wide range of problem contexts” (1989, p. 285).

EMPIRICAL RESEARCH ON THE PROBLEM-SOLVING OF EDUCATIONAL LEADERS

The most sustained program of research on the problem-solving of school leaders has been conducted by Ken Leithwood and his colleagues. Their studies typically involved a comparison of the problem-solving skills of expert and typical school principals. Ideally, the selection of the two groups would be based, at least in part, on measures of the value that their schools had added to important student outcomes. This would provide some evidence about the link between this leadership capability and student outcomes. As is often the case, such data were not available, so the two groups were selected through a combination of measures of principal reputation and scores on a test of leadership. As indicated in Table 1, therefore, this research provides only indirect evidence about the link between leadership capabilities and student outcomes.

Of the many empirical studies reported by Leithwood, I have chosen to focus on one that involved principals addressing a real problem in the context of a staff meeting (Leithwood & Steinbach, 1995, chapter 2). This interpersonal context contrasts with the impersonal context of most problem-solving research and is particularly appropriate for the study of the problem solving of school leaders.

Four expert and five typical principals were interviewed prior to the selected staff meeting, the meeting itself was tape recorded, and then the principals were interviewed again to discover the thinking that guided their actual leadership of the meeting. There were important differences between the problem solving of the two principal groups (Table 4).

Those principals designated as experts were more open to alternative formulations of the problem, as evidenced in their ability to test their own assumptions about the problem and seek out the interpretations of others. Rather than treating problems in isolation, they linked the problem to wider school goals and to important values.

The second section of Table 4 shows that the expert principals were more active in their facilitation of staff discussion and more concerned than the typical principals to reach a shared solution. Although these findings are derived from a very limited study, their similarity to those that have emerged from a rich research tradition on expert problem-solving gives them more credibility.

In a related study, Leithwood examined the cognitive flexibility of a group of expert and typical primary principals (Leithwood & Steinbach, 1995, ch. 9). He found that the expert group avoided such errors as giving too much weight to particularly vivid or dramatic examples, overgeneralizing from a small or biased sample of events or people and

TABLE 4 Principals' Problem Solving: A Comparison of Expert and Typical Principals (Leithwood & Steinbach, 1995).

Expert principals are more likely to . . .	Typical principals are more likely to . . .
A. Problem Interpretation and Formulation	
1. Explicitly check own assumptions about problem	Assume others share the same assumptions
2. Actively seek the interpretations of others	Not seek others' interpretations
3. Relate the problem to the wider mission of the school	Treat the problem in isolation from other problems and goals
4. Give a clear statement of their own interpretation of the problem with reasons	Have difficulty explaining their view to staff
5. Strive to develop goals that are widely shared	Be concerned with meeting own goals
6. Make value statements especially those concerned with participation	Make fewer value statements
7. Anticipate obstacles and how they could be overcome	Anticipate fewer obstacles and see them as major impediments
B. Problem-Solving Process	
1. Carefully plan a collaborative problem-solving process	Do less planning of the process
2. Openly disclose own views without foreclosing or restraining other views	Not disclose own view or disclose in a controlling manner
3. Overtly manage meeting process, e.g., summarizing and synthesising staff views	Do less active meeting management
4. Experience and express little or no negative emotion and frustration	Experience unexpressed negative emotion and frustration

missing opportunities to interpret problems in term of important goals and values.

Some recent research has attempted to more directly link differences in principal problem-solving with differences in instructional leadership practices and student outcomes (Brenninkmeyer & Spillane, 2008). The study was based in Chicago elementary schools and drew on extensive datasets developed during the evaluation of the Chicago public school reform process. A sample of expert and typical school principals was selected on the basis of teacher surveys of three measures of leadership and seven of school organization repeated over a five-year period. Experts were defined as those whose scores on these measures improved more than others over the five-year period. Conversely, typical principals were those whose scores were stable or in decline over the same period.

Principal problem-solving was assessed by interviewing each principal about how he or she would tackle each of six instructional problems presented in a short written scenario. Principal responses were coded according to their use of two different sets of predefined categories of problem-solving process, hypothesised on the basis of prior research, to be characteristic of either expert or typical performers.

Overall, there were fewer significant differences between the use of the categories by the two groups than expected. Expert principals were significantly more likely to delegate, gather data, and plan their approach to the problem. Typical principals were significantly more likely to consider how various courses of action would affect themselves, to perceive constraints as barriers that they could not overcome, and to recount unsuccessful and negative anecdotes (Brenninkmeyer & Spillane, 2008).

There was a modest correlation between the number of expert problem-solving processes used by the combined sample of principals and their degree of improvement in the aggregate leadership and organizational measures. Similarly, decreasing trends in these leadership and organizational measures were associated with greater use of the problem-solving processes defined as those used by typical performers. While these findings are suggestive of a link between capability in problem solving and the quality of school leadership, the authors also discuss how a number of methodological difficulties, including overlapping comparison groups and low reliability in their measures of problem solving, might have attenuated the relationship between these variables (Brenninkmeyer & Spillane, 2008).

In summary, while the links between capability in problem solving, leadership practices, and student outcomes have been suggested rather than convincingly demonstrated, an additional case can be made from the theoretical and empirical research on problem solving from the wider field of cognitive science. Experts in their field use problem-solving processes that are distinguishable from those of less expert performers and that expertise is inextricably linked with that discussed in the first capability—leadership content knowledge.

Building Relational Trust

On conceptual grounds alone, a strong case can be made for a leadership capability in the area of relationships. The importance of relationships is evident from the fact that leadership is, by definition, a social process. Leadership is attributed to those members of a group or organization who are seen to influence others in ways that advance the group or organization's progress toward its goals (Katz & Kahn, 1966; Robinson, 2001). The particular type of influence that is associated with leadership is based on follower acceptance of positional authority, follower identification with personal qualities of the leader, or follower acceptance of the reasonableness of the influence attempt (Fay, 1987). These essentially consensual sources of influence distinguish leadership from other sources of influence, such as force, coercion, or manipulation.

A second conceptual justification for a leadership capability concerned with relationships is found in the wording of many of the survey items used to assess the extent to which school leaders engage in particular sorts of

leadership practice. Many of the practices described in Table 3 include such phrases as: “clearly communicated,” “helps me improve my performance,” “accessible to discuss,” “assists faculty,” and “promotes discussion.” In other words, qualities of relationship are integrated into descriptions of task performance. Leadership surveys based on transformational leadership theory are even richer in their integration of relationship qualities into survey items (Mulford, Silins, & Leithwood, 2004).

Despite the strong conceptual grounds for a relationship capability, there is little empirical evidence that shows the direct or indirect relationships of such skills to school or classroom conditions or student outcomes. One important exception, however, is the research on relational trust that had its origins in the evaluation of the reform of four hundred Chicago public schools in the 1990s (Bryk & Schneider, 2002). This research provides quantitative and qualitative evidence about the links between teachers’ trust of their principal, the leadership practices that build trust, their impact on teacher attitudes and school organization and, finally, the impact of levels of relational trust on student achievement outcomes (Table 1).

During intensive field work in a sample of these schools, the researchers noticed wide variation in how members of each school community described the quality of interpersonal relationships they experienced. This led them, in the final four years of the project, to develop measures of what they called “relational trust” and to systematically track how changes in the level of trust between members of a school community affected changes in student achievement in math and reading. It should be noted that the measure of relational trust used in their analysis was an aggregate of measures of teacher-principal, teacher-teacher, and teacher-parent trust. The study provides, therefore, indirect rather than direct evidence about the impact of leaders’ capability in building relational trust.

The level of relational trust reflects the extent to which the members of a role set perceive each other as fulfilling the expectations and obligations appropriate to their role. Given the mutual dependence of members of a role set, and their consequent vulnerability to failures in others’ performance, trust is critical to the achievement of goals that require sustained collective effort. The work of school improvement is a clear example of such work. Teachers reduce their commitment to the hard work of instructional improvement if, for example, colleagues fail to fulfill agreements to prepare for shared planning meetings; parents are less likely to attend parent evenings if they believe they will be embarrassed; and teachers withdraw trust from school leaders whom they perceive as more committed to their own careers than to the school.

The research design used by Bryk and Schneider (2002) tested the proposition that relational trust was a key resource for school improvement by examining, over a four-year period, the impact of changes in levels of

trust on changes in school organization and student learning. This analysis was completed by comparing levels of trust in the one hundred schools showing the most and the one hundred schools showing the least improvement in student reading and math scores.³

There was a strong statistical link between changes in relational trust and gains in students' reading and maths scores. While improving and nonimproving schools started at similar levels of trust, they were very different three years later, with upward trust trends in the improving schools and stable or downwards trends in the nonimproving schools. These results were not explained by differences in aspects of school context, student composition, or teacher background.

Figure 1 summarizes the antecedents of relational trust, its consequences for student outcomes, and the organizational factors that mediate the impact of trust on those outcomes. In those Chicago schools where trust levels increased over a three-year period, teachers reported a greater willingness to try new things, a greater sense of responsibility for their students, more outreach to parents, and stronger professional community involving more shared work, more conversations about teaching and learning, and a stronger collective focus on student learning. Increased trust brought more and better-quality cooperation, more social support, and a stronger sense of mutual obligation, binding together the efforts of teachers, principals, and parents.

Further evidence about the relationship between trust and student outcomes is available from several other studies. Goddard, Tschannen-Moran, & Hoy (2001) found a positive relationship between trust and student achievement in a sample of U.S. urban elementary schools. There is also some evidence of the impact of trust on student social outcomes. In a related study of Chicago schools, students in improving and high-trust schools "report that they feel safe, sense that teachers care about them and experience greater academic challenge" (Sebring & Bryk, 2000, pp. 442–443).

As indicated at the outset, Bryk and Schneider's research provides indirect evidence about the impact of leadership skills on student outcomes. Since the authors conceptualized relational trust as an organizational rather than as a leadership quality, the measure of trust they employed in their

³The assessment of trends in student learning gains required data on each student's achievement at entry to a grade level and at exit from that grade, and calculation of the difference between them. Students who shifted schools during a grade level were dropped from the grade-level sample so that gains could be attributed to a particular school. The average gains in test scores for each school at each grade level over a six-year period were plotted and improvement trends calculated. These trends were then adjusted to account for any changes in school contextual factors that might have confounded the judgment of the effectiveness of each school. Finally, further adjustments were made for the input trends so that schools that started in the same place and experienced the same input trends over time were compared with one another (pp. 103–4). This final composite school productivity figure was used to identify the one hundred top improving schools and the one hundred bottom nonimproving schools.

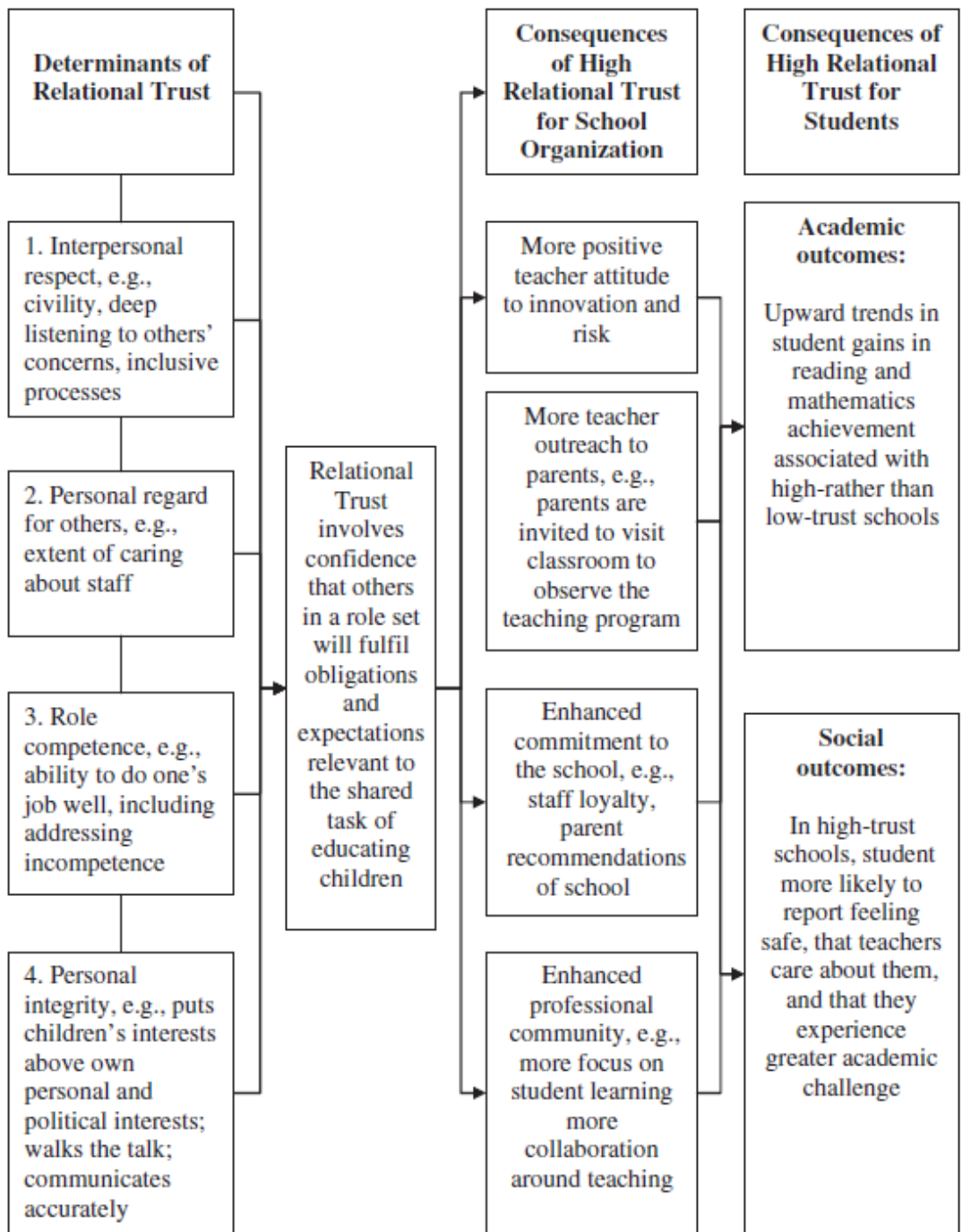


FIGURE 1 The antecedents and consequences of relational trust.

Note: Adapted Figure 7.1 "Relational Trust as a Social Resource for School Improvement," in Bryk and Schneider (2002). © 2002 Russell Sage Foundation. Adapted with permission.

outcome analysis was a composite indicator of teacher-principal, teacher-teacher, and teacher-parent trust. This composite measure, rather than the measure of teacher-principal trust, was used in the analysis of the relationship between trust and student achievement.

Even though the Chicago study was not designed to test the unique impact of leaders' skill in building trust, it provides considerable insight into the role of leaders in doing so. The scale for measuring teacher-principal trust comprises nine items⁴ that are grounded in a theory specifying the qualities people attend to when discerning others' trustworthiness (Figure 1). These qualities, which were developed through intensive fieldwork in case-study schools, tell us a lot about the skills and dispositions involved in building relational trust.

The first antecedent of trust is interpersonal respect—maintaining a modicum of civil regard for each other is a minimal condition for a functioning school community. Respect involves recognition of the important role that each party plays in the education of children and of the way in which each party is dependent on the other in this task. Respect for others is communicated by genuine listening to others' concerns and by providing opportunities for them to influence school decisions. Teachers' respect of their leaders grows when they feel their workplace concerns will be taken into account. "In each case the process of genuine listening fosters a sense of personal esteem for participants and cements their affiliation with each other and the larger institution" (Bryk & Schneider, 2002, p. 23).

The second determinant of judgments of trustworthiness is personal regard. This involves caring about others in both their personal lives and their professional roles. For example, a principal who meets with a teacher for career planning and professional development purposes is likely to build the trust of that staff member. The knowledge that others care reduces one's sense of vulnerability, increases social affiliation, and invites reciprocal regard.

Competence is the third criterion on which discernments of trust are based. When people are reliant on others to succeed in the work of educating children they care about their competence. Bryk and Schneider make the point, however, that in education it is often easier to discern incompetence than competence. It is hard to judge which leaders and teachers are adding value to students, and which reading program is better than another. In contrast, judgments of incompetence are more readily made and communicated, because signs of incompetence are more public and less ambiguous. For example, "negative judgments about principal incompetence are quick to form when buildings are not orderly and safe, and when individuals interact in a disrespectful manner" (Bryk & Schneider, 2002, p. 24).

Allowed to persist, gross incompetence is highly corrosive to trust and undermines collective efforts at school improvement. Leaders need to follow

⁴The nine items were: "It's OK in this school to discuss feelings, worries and frustrations with the principal; The principal looks out for the personal welfare of the faculty members; I trust the principal at his or her word; The principal at this school is an effective manager who makes the school run smoothly; The principal places the needs of the children ahead of her [sic] personal and political interests; The principal has confidence in the expertise of the teachers; The principal takes a personal interest in the professional development of the teachers; I really respect my principal as an educator; To what extent do you feel respected by your principal?" (Bryk, & Schneider, 2002, Appendix B.1, p. 156).

through their expectations for others by confronting uncivil behavior, breaches of discipline, and poor performance. This can be very challenging, especially in a context where such actions have seldom been called to account, and where there is a litigious culture in the school community.

Additional relevant evidence about the importance of competence in dealing with breaches of trust comes from a study of the impact of principals on student achievement in a nationally representative sample of approximately three hundred U.S. elementary schools. Eberts and Stone (1986) found that teachers' perceptions of their principal's ability to identify and deal effectively with conflict were strongly related to student achievement. Leaders who are conflict avoiders or conflict escalators are unlikely to deal with competence issues in a timely and effective manner. Since school improvement requires sustained collective effort, teachers are likely to become demoralized and reduce their commitment if they judge that their leaders cannot deal with those who wittingly or unwittingly undermine their own efforts.

The fourth criterion of personal integrity is based on judgments about whether moral and ethical principles guide the leader's work and whether those principles are used to adjudicate the many conflicts of interest that arise in schools.

Integrity is demonstrated through actions that communicate the primacy of the interests of children, especially in those situations where the interests of staff and students appear to conflict. "The key task for school leadership involves getting the balance right. This entails a constant moderation between demonstrating a personal regard for faculty while steadfastly advancing the primary mission of the school. . . . Ultimately adult behavior must be understood as directed toward the betterment of children" (Bryk & Schneider, 2002, p. 136).

There are particular challenges involved in building trust in dysfunctional school communities. On the basis of their cases, Bryk and Schneider warn that, "One does not build relational trust in a troubled school community simply by assuming its existence" (p. 137). A new principal may need to make significant use of his or her positional authority to challenge dysfunctional social relationships, to address incompetence and to require collective responsibility and accountability. Principals may need to use their position to reshape the composition of the staff before trust will grow, by counseling out those not committed to the hard work of improvement and by recruiting those committed to serving the families in their particular school community.

THE INTEGRATION AND IMPLICATIONS OF THE PROPOSED CAPABILITIES

This article has identified three leadership capabilities that published evidence suggests are directly or indirectly linked to student outcomes. To

put it in its simplest terms, effective instructional leadership probably requires leaders to be knowledgeable about how to align administrative procedures and processes to important learning outcomes, to be highly skilled in using their knowledge to solve the myriad of problems that arise in the course of improving learning and teaching in their own contexts, and to use their knowledge, their problem solving ability, and their interpersonal skills in ways that build relational trust in their school community.

The above summary of the three leadership capabilities has been deliberately expressed in ways that capture their interrelationships. While each capability was discussed separately, and the evidence on which it rested did not test their additive or interactive effects, the theory that informed each made clear the overlaps and interdependencies between them. For example, the capacity to solve problems is deeply enmeshed in the depth and organization of leaders' relevant knowledge. Expert problem solvers use their knowledge of underlying principles and theory to connect the surface features of a problem to underlying patterns and principles. It is these patterns and principles, rather than the details of the problem's description, that provide the clues to its solution.

There are further interdependencies between problem solving and building relational trust because school leaders typically solve problems through social, rather than individual, processes. Many of the skills associated with expert problem solving, such as actively seeking others' interpretations and openly disclosing own views (Table 4), are precisely the skills that Bryk and Schneider associate with interpersonal respect (Figure 1). Educational leaders build relational trust, in part, through respectful and inclusive problem-solving processes. These interrelationships between the three proposed capabilities are diagrammed in Figure 2.

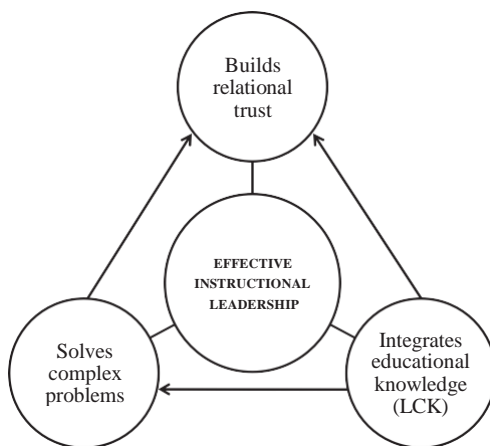


FIGURE 2 The interrelationships among three capabilities required for effective instructional leadership.

The capabilities identified by this article have important implications for leadership preparation and development. With respect to LCK, it is important to distinguish this capability, which describes knowledge use, from knowledge acquisition. We know from the extensive research on the relationship between *teachers'* knowledge, the quality of their teaching, and their impact on students, that on the whole the accuracy and depth of teachers' knowledge is not predictive of the quality of their teaching or of their students' achievement (Kennedy, 2008). For example, the correlation between teachers' assessed mathematical knowledge and their students' achievement is very weak, as is the relationship between student achievement and the number of mathematics courses taken by their teachers. While some qualitative studies have shown a convincing relationship between teachers' assessed knowledge and their practice, many other such studies either show no relationship or are compromised by methodological weaknesses (Kennedy, 2008).

Perhaps the lesson to be learned from both this teacher-knowledge research and from research on problem solving is that the knowledge that distinguishes experts is not the declarative sort that is developed through most leadership preparation programs, for that knowledge may not inform leaders' actual practice. In order to develop practical expertise, leaders need multiple opportunities to enrich, organize, and apply their knowledge (Copland, 2003), and these opportunities are not often provided in university-based preparation programs.

A further implication of this analysis is the importance of leaders' ability to build relational trust. The evidence suggests the importance of learning to integrate relationship values, such as respect and openness, into the complex tasks involved in school leadership. Leithwood's expert principals demonstrated respect, inclusiveness, and openness while tackling complex and contested problems. Bryk and Schneider's leaders were skilled in building relational trust while confronting incompetent teachers and rude parents, and advocating for the interests of their students. The challenge for leadership preparation programs is not to build decontextualized relationship skills, but to build the capacity to maintain or strengthen relationships with students, teachers, and parents while tackling the tough issues of school improvement.

Given the limitations of the evidence base for the three capabilities discussed in this article, questions should be asked about how these three match those derived through other methods, and about whether there are additional capabilities. The purpose of this article was to identify capabilities for which there was at least indirect evidence of their relationship with student outcomes. Given this stringent criterion, it is to be expected that additional capabilities are included in professional standards and licensing regulations, for those are designed to provide a comprehensive account of the requirements for a leadership role. In the revised 2008 ISLLC standards, for example,

three of the 31 leadership functions are concerned with the use of data to monitor and revise school goals, plans, and teaching programs (Council of Chief State School Officers, 2008). These functions require skills in the selection, analysis, and use of data for both improvement and accountability purposes. Similarly, they suggest the importance of such dispositions as open-mindedness and intellectual curiosity. While a capability such as assessment or data literacy has been widely advocated as critical to learning-centered leadership (Earl & Katz, 2002), it has not been included in this article because there is little research available that measures this capability and its relationship to student outcomes.

While further research will no doubt identify additional capabilities, the emphasis in comparing differing accounts should be on the meaning rather than on the number of capabilities, because the latter depends largely on the specificity of their description. For example, the broad capability of “building relational trust” could be replaced by more specific capabilities matching the four antecedents of relational trust. Indeed, one could argue that two of the four antecedents—respect and interpersonal regard—cover much of what might otherwise be included in separate specifications of interpersonal capability.

The issue of how broadly or narrowly to specify leadership capabilities is a difficult one. If they are to be useful they need to communicate what the capability looks like in practice and this usually is achieved by increasingly detailed specification in a hierarchy of headings, subheadings, and associated indicators (Adams & Copland, 2007). The downside of increasing specification is that it creates a mismatch between leadership frameworks and standards and the professional practice they are intended to inform. Learning to lead is not about mastering a long list of capabilities. It is about learning how to draw on and integrate appropriate cognitive and emotional resources in context-sensitive and goal-relevant ways.

The problem becomes even more critical for the development of measures of leadership. How can we develop measures of leadership that are sufficiently well specified to ensure reliable assessment, yet capture the fact that skilful performance in any particular context involves integration of different types of knowledge and skills? The problem is not overcome by warning users of long lists of leadership indicators to avoid using each indicator in isolation from the others (Louden & Wildy, 1999b).

A possible alternative to long lists has been developed by Louden and Wildy (1999a, 1999b). Their probabilistic standards framework involves treating leadership standards as continua and developing a series of case-based examples that demonstrate a progression of capability on a dimension. The integrated and holistic nature of leadership performance is reflected in the cases, and Rasch scaling is used to establish the location of the cases in its relevant progression. The method is referred to as “probabilistic” because the indicators, which in this research are cases, are not items to be scored as

present or absent, but are aides to the estimation of performance on continua. The assessment of performance, in other words, is completed not by scoring leaders on a list of specific skills or capabilities, but by estimating the extent to which their performance matches that described by a case which is ordered on a scale of difficulty.

Perhaps the most important message from this article, for those involved in the policy and practice of leadership preparation, accreditation, and certification, is that the overarching capability involves the integration of knowledge and relationships in a context of school-based problem solving. How one describes the separate capabilities, and to what level of specificity, is far less important than developing assessments that capture the holistic and integrated nature of effective leadership and developing leadership curricula that teach the integrated rather than the discrete components.

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