

The Impact of Leadership on Student Outcomes: An Analysis of the Differential Effects of Leadership Types

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***Purpose:** The purpose of this study was to examine the relative impact of different types of leadership on students' academic and nonacademic outcomes.*

***Research Design:** The methodology involved an analysis of findings from 27 published studies of the relationship between leadership and student outcomes. The first meta-analysis, including 22 of the 27 studies, involved a comparison of the effects of transformational and instructional leadership on student outcomes. The second meta-analysis involved a comparison of the effects of five inductively derived sets of leadership practices on student outcomes. Twelve of the studies contributed to this second analysis.*

***Findings:** The first meta-analysis indicated that the average effect of instructional leadership on student outcomes was three to four times that of transformational leadership. Inspection of the survey items used to measure school leadership revealed five sets of leadership practices or dimensions: establishing goals and expectations; resourcing strategically; planning, coordinating, and evaluating teaching and the curriculum; promoting and participating in teacher learning and development, and ensuring an orderly and supportive environment. The second meta-analysis revealed strong average effects for the leadership dimension involving promoting and participating in teacher learning and development and moderate effects for the dimensions concerned with goal setting and planning, coordinating, and evaluating teaching and the curriculum.*

Authors' Note: This article was completed with the financial support of the Iterative Best Evidence Synthesis program of the New Zealand Ministry of Education (<http://education-counts.edcentre.govt.nz/goto/BES?>). An earlier version of this article was presented in April 2007 at the annual meeting of the American Educational Research Association in Chicago (Division A Symposium: Developing a Knowledge Base for the Leadership of Teaching and Learning). The authors thank John Hattie for his statistical advice. Address correspondence to Viviane Robinson at vmj.robinson@auckland.ac.nz.

DOI: 10.1177/0013161X08321509

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***Conclusions and Implications for Research and Practice:** The comparisons between transformational and instructional leadership and between the five leadership dimensions suggested 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. The article concludes with a discussion of the need for leadership research and practice to be more closely linked to the evidence on effective teaching and effective teacher learning. Such alignment could increase the impact of school leadership on student outcomes even further.*

Keywords: *leadership; principal; leadership theory; achievement; outcomes; meta-analysis*

There is unprecedented international interest in the question of how educational leaders influence a range of student outcomes. In consequence, at least five reviews of empirical research on the direct and indirect effects of leadership on student outcomes have appeared recently (Bell, Bolam, & Cubillo, 2003; Leithwood, Day, Sammons, Harris, & Hopkins, 2006; Leithwood, Seashore Louis, Anderson, & Wahlstrom, 2004; Marzano, Waters, & McNulty, 2005; Witziers, Bosker, & Krüger, 2003).

A major reason for the interest in the links between leadership and student outcomes is the desire of policy makers in many jurisdictions to reduce the persistent disparities in educational achievement between various social and ethnic groups, and their belief that school leaders play a vital role in doing so (Organisation for Economic Co-operation & Development, 2001). The confidence of the public and politicians in the capacity of school leaders to make a considerable difference to student outcomes is supported by qualitative research on the impact of leadership on school effectiveness and improvement. Case studies of “turn around” schools and of interventions into teaching and learning invariably credit school and district leadership with considerable responsibility for school and teaching effectiveness (Edmonds, 1979; Maden, 2001; Scheurich, 1998). The literature on sustainability also sees the quality of school leadership as a key to continued organizational learning and improvement (Datnow, 2005; Hargreaves & Fink, 2006).

However, the picture one gains from the qualitative evidence for the impact of leadership is very different from that gained from quantitative analyses of the direct and indirect effects of leadership on students' academic and social outcomes. In a meta-analysis of 37 multinational studies of the direct effects of leadership on student outcomes, Witziers reports an average effect (reported as a *z* score) of 0.02, an estimate that is typically interpreted as indicating no or a very weak impact (Witziers et al., 2003).

Most subsequent quantitative research has conceptualized the relationship between leadership and student outcomes as indirect, with leaders

establishing the conditions (e.g., provision of teacher professional learning opportunities, forms of student grouping) through which teachers make a more direct impact on students. In the only published meta-analysis of such research, Marzano reports an average effect of approximately 0.4 between leadership and student academic outcomes (Marzano et al., 2005).¹

There are several possible reasons why the estimate from the Marzano meta-analysis is considerably greater than that of Witziers. First, the latter analysis included both direct and indirect effects of leadership and because leadership effects are typically modeled as indirect, the Marzano studies were more likely to capture how leaders make a difference. Second, the Marzano work included only U.S. studies and the Witziers studies were multinational. Because the impacts of leadership are typically found to be stronger in the United States than in international studies, these contrasting research sampling strategies could explain some of the difference. Finally, 60 of the 70 studies included in the Marzano meta-analysis were unpublished U.S. theses and dissertations that have not been subject to the same peer review processes as published work.

The typical conclusion drawn by quantitative leadership researchers is that school leaders have small and indirect effects on student outcomes that are essentially mediated by teachers (Hallinger & Heck, 1998).

Thus, there seems to be a contradiction between the evidence that leaders have a weak indirect effect on student outcomes and the expectations of the public and policy makers that leaders make a substantial difference. What explains this paradox? Do public expectations reflect attribution bias and a romantic view of leadership (Meindl, 1998)? Do quantitative researchers systematically underestimate the impact of leadership through research designs and assessment tools that miss the ways in which particular practices of particular leaders are powerful? Is it possible that both views are partially correct?

The purpose of this article is to address the paradoxical differences between the qualitative and quantitative evidence on leadership impacts by taking a fresh approach to the analysis of the quantitative evidence. Rather than conduct a further meta-analysis of the overall impact of leadership on student outcomes, we focus on identifying the relative impact of different types of leadership. By focusing on types of leadership, rather than on leadership as a unitary construct, we are recognizing that leaders' impact on student outcomes will depend on the particular leadership practices in which they engage. If empirical research indicates that some leadership practices have stronger impacts on student outcomes than others, then both researchers and practitioners can move beyond a general focus on the impact

of leadership, to examining and increasing the frequency and distribution of those practices that make larger positive differences to student outcomes.

Two quite different strategies were used to identify types of leadership and their impact. The first strategy involved a comparison between the impact of transformational and instructional leadership. These two leadership theories were chosen because they dominate empirical research on educational leadership and their research programs are mature enough to have yielded sufficient evidence for analysis. Although there have been several reviews published that include discussions of the evidence about the impact on students of these two types of leadership, those reviews have not quantified the impact, and thus it has been difficult to compare them systematically against this criterion (Hallinger, 2005; Hallinger & Heck, 1998; Leithwood & Jantzi, 2005; Leithwood, Tomlinson, & Genge, 1996).

The second strategy for identifying types of leadership involved a more inductive approach based on a detailed analysis of the meaning of items included in the measures of leadership used in studies of the leadership-outcome relationship. All survey items, regardless of the underpinning leadership theory, were listed and grouped to reflect common sets of leadership practices. Five groupings or leadership dimensions emerged and their relationship with student outcomes calculated.

We turn now to a brief discussion of the literature on instructional and transformational leadership.

Instructional Leadership

Instructional leadership theory has its empirical origins in studies undertaken during the late 1970's and early 80's of schools in poor urban communities where students succeeded despite the odds (Edmonds, 1979). As reported by Bossert, Dwyer, Rowan, and Lee (1982), these schools typically had strong instructional leadership, including a learning climate free of disruption, a system of clear teaching objectives, and high teacher expectations for students.

Early formulations of instructional leadership assumed it to be the responsibility of the principal. Hence, measures of such leadership, such as the Principals' Instructional Management Rating Scale (PIMRS) (Hallinger & Murphy, 1985), focused only on the principal and neglected the contribution of other staff to instructional goal setting, oversight of the teaching programs, and the development of a positive academic and learning culture. The exclusive focus on the principal reinforced a heroic view of the role that few were able to attain (Hallinger, 2005). Recent research has a more inclusive focus with many instructional leadership measures now embracing principals and

their designees (Heck, 1992; Heck, Larsen, & Marcoulides, 1990; Heck, Marcoulides, & Lang, 1991), those in positions of responsibility (Heck, 2000; Heck & Marcoulides, 1996), and shared instructional leadership (Marks & Printy, 2003).

The most recent review of the impact of instructional leadership on student outcomes concluded as follows: "The size of the effects that principals indirectly contribute toward student learning, though statistically significant is also quite small" (Hallinger, 2005, p. 229). This conclusion was reached as part of a literature review and discussion of research on instructional leadership rather than as a result of the calculation of the effect size statistic for each relevant study.

Transformational Leadership

Transformational leadership has its origins in James McGregor Burns's 1978 publication in which he analyzed the ability of some leaders, across many types of organizations, to engage with staff in ways that inspired them to new levels of energy, commitment, and moral purpose (Burns, 1978). It was argued that this energy and commitment to a common vision transformed the organization by developing its capacity to work collaboratively to overcome challenges and reach ambitious goals.

Burns's theory was extended further by Bass and colleagues who developed survey instruments to assess transformational leadership (Bass & Avolio, 1994). Variations of these instruments have been used in many published empirical studies of transformational leadership in education, though few have investigated the impact of such leadership on students' academic or social outcomes. Of 33 studies reviewed by Leithwood and Jantzi (2005), about half were judged to show that transformational leadership had a small indirect influence on academic or social student outcomes. But this review did not involve calculation of effect size statistics.

METHOD

The overarching methodology within which this study can be located is that of meta-analysis. Meta-analysis is an empirical, knowledge-building strategy that enables the results of quantitative studies of the relationship between two constructs to be aggregated so that an estimate of the average magnitude of the impact of one on the other can be derived (Glass, McGaw, & Smith, 1981; Hedges & Olkin, 1985; Lipsey & Wilson, 2001). In meta-analyses, comparison of findings derived from different analytic

and statistical techniques is made possible by their conversion to a common metric in the form of an effect size statistic, usually expressed as standard deviation or a z score. Although there are many different forms of effect size statistics, it can be defined as a standardized measure of the magnitude of an effect (Field, 2005).

The advantage of a meta-analysis over a qualitative literature review is that it requires systematic treatment of relevant studies and produces a measure of overall impact of the construct of interest. It does not preclude, however, the need for careful qualitative analysis of the relevant literature as the theory and design of the constituent studies, and knowledge of relevant contextual factors must be brought to bear on the interpretation of the individual and overall effect size statistics. These interpretive considerations were of particular importance in the present meta-analysis as the constituent studies used varying designs, theoretical approaches, and measurement tools.

One of the most frequent criticisms of meta-analysis is inappropriate aggregation across studies employing very different theoretical or methodological approaches (Lipsey & Wilson, 2001). Increasingly, meta-analysts are responding to this criticism by conducting comparisons between subsets of studies rather than aggregating across studies, which take very different approaches to the relationship in question. We have taken this comparative approach by analyzing the impact of different types of leadership instead of producing an estimate of the impact of an undifferentiated overall leadership construct.

Search Strategies

The synthesis began with a search of the international literature for publications in English that empirically examined the links between school leadership and academic or nonacademic student outcomes. Thus, any study that examined relationships between empirical measures of leadership (however theorized) and measures of student outcomes was included. An inclusive approach was taken to the concept of leadership, with superintendent, principal, teacher, and total school-based leadership admissible. The first search strategy involved examining electronic databases using a combination of keywords around leadership (leaders, principal, teacher leadership) and student outcomes (achievement, achievement gains, social outcomes). The second strategy involved hand or electronic searches of the tables of contents and abstracts of educational leadership journals. The third search strategy involved careful screening of the reference lists of

relevant articles, technical reports, and chapters in international journals and handbooks to identify any further relevant studies.

Two types of potentially relevant studies were excluded. Unpublished theses and conference papers were omitted because they had not been subject to peer review processes. Furthermore, some apparently relevant studies were excluded because the same data sets were used in multiple publications.

The search yielded 27 studies, published between 1978 and 2006, that provided evidence about the links between leadership and student outcomes (Table 1). The majority of studies in Table 1 (18 of 27) were conducted in U.S. schools. Two studies were conducted in Canada and one in each of Australia, England, Hong Kong, Israel, the Netherlands, New Zealand, and Singapore.

Sixteen studies examined leadership in elementary school contexts, four in high schools, and seven studies included a mix of elementary, middle, and high schools. Fifteen of the 27 studies confined their analysis of school leadership to the principal only, whereas twelve took a broader, more distributed view of leadership.

Although these studies have examined the impact of leadership on a wide range of student outcomes, academic outcomes (mathematics, reading and language) predominated. Twenty-two studies examined only academic outcomes, four studies included only social and attitudinal outcomes, and one study included both types of outcome. Without close inspection of assessment items in the various standardized tests used, it is difficult to evaluate the intellectual depth of the skills and knowledge being assessed. Critical thinking, intellectual challenge, and problem solving were features of at least some of the assessments. The four studies examining leadership impact on students' social and personal well-being included measures of students' attitudes to school, academic self-concept, and engagement with and participation in schooling.

The thoroughness of this search can be assessed by comparing it with the number of studies included in two recent literature reviews on the impact of leadership on student outcomes. A synthesis by the London Institute of Education found only eight studies (Bell et al., 2003), whereas the meta-analysis of Marzano et al. (2005) located 70 studies, 60 of which were unpublished theses or conference papers. In short, both these efforts yielded fewer than a dozen publications. A meta-analysis reported in 2003 on the direct effects of leadership on students included 15 published studies (Witziers et al., 2003).

TABLE 1
Individual Studies of the Effects of Leadership on Student Outcomes

Reference	Schools	Leadership Theory	Leadership Measure	Who Is Leader?	Measure of Student Outcomes	Magnitude of Effects
Alig-Mielcarek & Hoy, 2005; USA	Representative sample of 146 elementary schools	Instructional leadership	Survey of teacher perceptions of instructional leadership	Principal only	School average scores over 2 years in 4th grade reading and math (Ohio proficiency exams)	ES for math = 0.32 ES for reading = 0.16
Andrews & Soder, 1987; USA	33 elementary schools	Instructional leadership	18-item instructional leadership survey	Principal only	Gains over 2 years in individual normal curve equivalent scores on CAT in reading and math	Gains in schools with strong instructional leadership 2-3 times larger than under weak instructional leadership
*Bamburg & Andrews 1991; USA	10 otherwise comparable high-achieving and 10 low-achieving elementary schools	Instructional leadership	19 strategic interactions of principal assessed by teachers ^a	Principal only	Gain scores on CAT in math only	Mean ES for math = 1.01 (n = 19)
*Brewer, 1993; USA	Representative national sample of 1,100 high schools	Instructional leadership	Administrator and teacher survey, plus principal ranking of academic excellence	Principal only	Gain scores over a 2-year period on test of verbal and quantitative ability	Mean ES for ability = 0.42 (n = 7)

(continued)

TABLE 1 (Continued)

Reference	Schools	Leadership Theory	Leadership Measure	Who Is Leader?	Measure of Student Outcomes	Magnitude of Effects
Cheng, 1994; Hong Kong	Sample of 164 elementary schools	Four leadership frames of Bolman & Deal (1991)	30-item teacher survey comprising four generic leadership frames and one additional educational leadership dimension	Principal only	Student survey about self-concept and attitudes to school, teachers, and learning	Mean <i>ES</i> for affective outcomes = 0.27 (<i>n</i> = 35)
*Eberts & Stone, 1986; USA	Nationally representative sample of approximately 300 elementary schools	Instructional leadership	Teacher and principal survey	Principal only	Pre-post test scores on standardized math test	Mean <i>ES</i> for math = 0.14 (<i>n</i> = 8)
*Friedkin, & Slater, 1994; USA	20 California elementary schools	Social network theory	Teacher survey of persons in school (a) with whom issues are discussed, (b) from whom advice is sought, and (c) who are close personal friends	Principal and teachers can be included in network	4-year average of school performance on math, reading, and language on CAP adjusted for socio-economic status	Mean <i>ES</i> for combined achievement = 0.44 (<i>n</i> = 6)

(continued)

TABLE 1 (Continued)

Reference	Schools	Leadership Theory	Leadership Measure	Who Is Leader?	Measure of Student Outcomes	Magnitude of Effects
Goldring & Pastermak, 1994; Israel	34 elementary schools	Principal's control and coordination of the teaching program	Principal's allocation of time to set tasks, degree of influence over teaching, and importance of certain goals; teacher reports of degree of goal consensus	Principal only	5th grade math and reading scores and 6th grade reading	Standardized discriminant coefficients showed that principals' task emphasis on involving parents (0.42) and implementing innovations (-0.51) discriminated between more and less effective schools; principals' goal emphasis on personal growth and potential (+ve), moral and social values (-ve) discriminated more and less effective schools; and staff agreement about educational goals was strongest discriminator (+ve)

(continued)

TABLE 1 (Continued)

Reference	Schools	Leadership Theory	Leadership Measure	Who Is Leader?	Student Outcomes	Magnitude of Effects
Griffith, 2004; USA	117 urban elementary schools	Transformational leadership	3 domains of transformational leadership: charisma, individualized consideration, and intellectual stimulation	Principal only	(a) Individual level analysis: student report of grade levels achieved converted to GPA; (b) school level analysis: residual standardized test scores	ES for school grades = 0.68
Hallinger, Bickman, & Davis, 1996; USA	87 Tennessee elementary schools participating in a state program	Instructional leadership	18 items on instructional leadership as part of Connecticut School Effectiveness Questionnaire	Principal only	Gain scores on 3rd and 6th grade reading tests (BSFT)	ES for reading = 0.22
*Heck, 1992; USA	23 high-achieving elementary, 17 high-achieving high schools	Instructional leadership	Teacher survey of three domains of instructional leadership	Principal or designee	CAP scores	Primary schools: Mean ES for achievement = 1.1 (n = 8) High schools: Mean ES for achievement = 0.42 (n = 8)

(continued)

TABLE 1 (Continued)

Reference	Schools	Leadership Theory	Leadership Measure	Who Is Leader?	Measure of Student Outcomes	Magnitude of Effects
Heck, 2000; USA (Hawaii)	122 elementary schools comprising all eligible schools in Hawaii	Instructional leadership	Teacher survey includes instructional leadership	Principal plus	Total scaled scores for reading, language, and math on SAT	ES for combined achievement = 0.41
*Heck, Larsen, & Marcoulides, 1990; USA	30 otherwise comparable high- and low-achieving elementary and high schools	Instructional leadership	Teachers reported on frequency of implementation of 22 instructional leadership behaviors	Principal or designee	CAP scores on combined math and reading (and language in high schools)	ES for combined gains = 0.37 Mean ES for combined achievement = 0.86 (n = 22)
*Heck & Marcoulides, 1996; Singapore	A convenience sample of 26 high schools	Transformational leadership ^b	Leadership as part of managerial processes including resource availability, responsiveness to teachers' (unspecified) problems, and visionary and collaborative leadership	School administrators	National test on a variety of curriculum areas	Mean ES for combined achievement = -0.22 (n = 3)

(continued)

TABLE 1 (Continued)

Reference	Schools	Leadership Theory	Leadership Measure	Who Is Leader?	Measure of Student Outcomes	Magnitude of Effects
*Heck, Marcoulides, & Lang, 1991; USA & Marshall Islands	USA: 32 elementary and high schools; Marshall Islands: 3 elementary and 1 high school	Instructional leadership	Teachers reported on frequency of implementation of 22 instructional leadership behaviors	Principal or designee	California: CAP scores; Marshall Islands: national test scores in reading and math	California: Mean ES for combined achievement = 0.51 (n = 22) Marshall Islands: Mean ES for combined achievement = 0.33 (n = 22)
*Hoy, Tarter, & Bliss, 1990; USA	58 high schools	Leadership theorized as part of (a) organizational climate or (b) a Parsonian concept of organizational health	(a) Principal supportiveness and directiveness (within OCDQ-RS); (b) principal influence, academic emphasis, considering, initiating structure, and resource support	Principal only	Reading and math achievement, New Jersey HSPT	Mean ES for combined achievement = 0.42 (n = 7)

(continued)

TABLE 1 (Continued)

Reference	Schools	Leadership Theory	Leadership Measure	Who Is Leader?	Measure of Student Outcomes	Magnitude of Effects
Leithwood & Jantzi, 1999; Canada	94 elementary schools	Transformational and transactional leadership	53-item teacher survey	Principal only for transformational leadership	Student identification with and participation in school measured by Student Engagement and Family Educational Culture Survey	ES for identification = 0.30 ES for participation = 0.20
Leithwood & Jantzi, 2000; Canada	110 elementary and high schools	Transformational and transactional leadership	Teacher survey	Principal and teacher leadership separately assessed	Student engagement with school measured by Student Engagement and Family Educational Culture Survey	Principal transformational leadership: ES for participation = 0.08; ES for identification = 0.16 Teacher leadership: ES for participation = 0.20; ES for identification = -0.08

(continued)

TABLE 1 (Continued)

Reference	Schools	Leadership Theory	Leadership Measure	Who Is Leader?	Student Outcomes	Magnitude of Effects
Leithwood & Jantzi, 2006; UK	256 elementary schools for literacy and 258 for numeracy	Transformational leadership	Teacher survey tailored to implementation of literacy and numeracy strategies	Distributed to "those in positions of responsibility in your school"	Gain scores on Key Stage 2 tests	Impact of transformational leadership on student gains in literacy and numeracy is "not significantly different from zero."
*Leitner, 1994; USA	27 urban elementary schools	Instructional leadership	Measured by Hallinger's PIMRS	Principal only	Gain scores over one year for reading, math, and language	Mean <i>ES</i> for combined achievement = 0.02 (<i>n</i> = 60)
Marks & Priny, 2003; USA	24 elementary, middle, and high schools	Integrated leadership, comprising high transformational and high shared instructional leadership	Indices of each leadership type derived from items in teacher survey and coding of interviews and observations; instructional leadership measure includes degree of focus	Transformational leadership mostly Principal only; instructional leadership measure combined teacher and Principal influence	Student achievement on math and social studies assignments marked against three standards of intellectual quality	<i>ES</i> for combined achievement = 0.56

(continued)

TABLE 1 (Continued)

Reference	Schools	Leadership Theory	Leadership Measure	Who Is Leader?	Student Outcomes	Magnitude of Effects
*May & Wagemaker, 1993; NZ	175 primary schools	Instructional leadership	on and influence over teaching, curriculum, and assessment Principal's involvement in evaluation and development of teachers with respect to reading	Principal only	IEA (1990) measure of reading achievement and extent of voluntary reading activities	ES for reading = 0.12
Ogawa & Hart, 1985; USA	124 elementary and 151 high schools	Leadership as incumbent	Change in principalship	Principal only	Math and reading scores on CAP achievement test over a 6-year period	Elementary schools: From 6% to 8% of variance in achievement attributed to principal after controlling for year and school effects High schools: similar effect for reading but smaller (3%) for math

(continued)

TABLE 1 (Continued)

Reference	Schools	Leadership Theory	Leadership Measure	Who Is Leader?	Measure of Student Outcomes	Magnitude of Effects
Pounder, Ogawa, & Adams, 1995; USA	35 elementary and 25 high schools	Leadership as an organizational quality	Amount of influence exercised by people in four different leadership roles	Principal only, school secretary, single staff member, and collective group of staff ^c	(a) SAT adjusted school average over prior three years; (b) student absenteeism	Principal leadership: ES for achievement = -0.20
Silins & Mulford, 2002; Australia	96 high schools	Transformational leadership	Survey of teacher perceptions of their principal's transformational leadership	Principal and teacher leadership measured separately	(a) Student participation in school, (b) student engagement with school, and (c) academic self-concept	ES for participation = 0.10 ES for engagement = 0.30 ES for self-concept = 0.16
Van de Grift & Houtveen, 1999; Netherlands	383 elementary schools completed survey; 174 elementary schools assessed students	Instructional leadership	Measured by teacher survey of instructional leadership on 15-item Rasch scale	Principal only	Student achievement on 180-item test of language, arithmetic, and information processing	Instructional leadership has small but significant effect on student achievement outcomes

(continued)

TABLE 1 (Continued)

Reference	Schools	Leadership Theory	Leadership Measure	Who Is Leader?	Measure of Student Outcomes	Magnitude of Effects
*Wellisch, MacQueen, Carriere, & Duck, 1978; USA	9 successful and 13 unsuccessful elementary schools based on number of grades/subjects showing improvements in one year	Instructional leadership	Teachers reports of Principal's concern about instruction, coordination of instructional program, and feedback on teacher performance	Principal plus	Grades 3, 4, & 5 in reading and math over 2 years on CAT	ES for combined achievement = 0.55 (n = 6)

NOTE: An asterisk against authors' names indicates those studies that contributed to the analysis of the impact of leadership dimensions. BSFT = Basic Skills First Test; CAP = California Assessment Project; CAT = California Achievement Test; ES = effect size; GPA = grade point average; HSPT = High School Proficiency Test; IEA = International Association for the Evaluation of Educational Achievement; OCQ-RS = Organizational Climate Description Questionnaire-Rutgers Secondary; PIMRS = Principal Instructional Management Rating Scale; SAT = Stanford Achievement Test. The bold entries in the column labeled "Magnitude of Effects" indicate those studies for which it was possible to report the relationship between leadership and student outcomes as an effect size statistic. (+ve) means that there was a positive relationship between principal emphasis on the goal (personal growth and potential) and student outcomes and (-ve) means that there was a negative relationship between principal emphasis on the goal (moral and social values) and student outcomes.

- a. An additional 18 items measured other aspects of leadership. Only 6 of these were described in sufficient detail to be included in the dimensional analysis.
- b. Of the three leadership variables included in this study, only one was described in sufficient detail to contribute to the dimensional analysis.
- c. Even though the impact of four different leadership roles are assessed, not all results are reported in a manner that enables calculation of an effect size statistic.

Analytic Strategies

Relevant information from the 27 studies identified was entered into a spreadsheet under the following headings: sample characteristics (jurisdiction, type, and number of schools, inclusion/exclusion criteria, sampling of persons within schools, and sample attrition); leadership theory and instrumentation, including whose leadership was assessed; student outcomes and assessment tools; contextual variables (student background, school community context); indirect leadership effects (e.g., on school climate or teachers' work); study design and analysis techniques (e.g., path analysis, multilevel modeling, discriminant analysis, regression techniques); and main findings, including the magnitude of direct and indirect effects of leadership on student outcomes. In nearly every study, the design included some control for student background effects, either through the use of gain scores or covariates.

It was possible to record or calculate an effect size statistic for 22 of 27 studies, as recorded in Table 1. Nonreporting of critical data or the impossibility of statistical conversion to an effect size statistic (e.g., when results are reported as percentage of variance explained) accounted for the noninclusion of the remaining five studies in the meta-analysis. These studies are explicitly considered in the subsequent discussion of the quantitative analyses.

Statistical measures of the relationship between types of leadership and student outcomes were converted to z scores. This particular effect size statistic was chosen as it is readily derived from the variety of statistics employed in the original studies, including regression, path and correlation coefficients, and a variety of t tests.

Some of the studies included in Table 1 embed leadership in a wider model of how various organizational, cultural, and/or community variables influence student and school performance (Heck, 2000; Heck & Marcoulides, 1996; Hoy, Tarter, & Bliss, 1990; May & Wagemaker, 1993). In these studies, the relevant data on direct and indirect leadership effects (usually regression coefficients) were extracted from the path models and converted to z scores.

The last column of Table 1 reports the magnitude of the effect of leadership on student outcomes in each of the 22 studies included in the first meta-analysis. More than one effect size statistic is listed for a single study if the authors reported leadership-outcome relationships for different types of leaders (Leithwood & Jantzi, 2000), multiple school types, (Heck, 1992), different educational jurisdictions (Heck et al., 1991), or multiple outcomes (Alig-Mielcarick & Hoy, 2005; Heck, 2000; Leithwood & Jantzi, 1999, 2000; Silins & Mulford, 2002). For some studies a single effect size is reported and for others a mean effect along with the number of contributing effect

size statistics is reported. The inclusion of a mean effect size for a single study indicates that we were able to calculate separate effect sizes for the components of a composite leadership variable. These component effect sizes were used in the second meta-analysis, in which we calculated the relative impact of different dimensions of leadership.

The first research question about the relative impact of instructional and transformational leadership was answered by categorizing each study according to the theoretical framework that informed the conceptualization and measurement of leadership. Fourteen studies employed an instructional leadership framework, twelve of which could be included in the meta-analysis. Six studies used a transformational leadership framework, five of which could be included in the meta-analysis. The remaining seven studies employed a variety of theories, which are noted in the third column of Table 1. Five of those studies reported statistics that could be included in the meta-analysis. The average effect size for studies in each of the three categories was then calculated.

The second research question about the impact of different leadership dimensions was addressed by using specific leadership practices rather than broad leadership theories as the unit of analysis. By disaggregating composite leadership variables and calculating measures of impact for each leadership component, we were able to estimate the impact of different types of leadership practice on student outcomes. Twelve of the 22 studies included in the first meta-analysis contributed to this second analysis. Those studies are indicated with an asterisk before the author listing in Table 1. The remaining 10 studies either used unitary leadership constructs, or it was not possible to calculate effect sizes for the components of the leadership variables.

A separate effect size for every leadership variable or construct for which there were available data was calculated. For example, the instructional leadership studies of Heck and colleagues (Heck, 1992; Heck et al., 1990; Heck et al., 1991) all employ a similar instructional leadership survey in which teachers report the frequency with which their principal or other school leaders engage in particular behaviors. It was possible to calculate a separate effect size statistic for each item in these surveys. In other studies, where data were reported against component leadership constructs rather than actual survey items, it was also possible to calculate an effect size statistic for each component construct.

The 199 component leadership survey items and constructs were recorded verbatim in a spreadsheet, read repeatedly, and grouped together to reflect broadly similar meanings. This inductive strategy contrasts with the more deductive approach used in the study reported by Witziers et al. (2003), in which the instructional leadership categories of the PIMRS were

used as a basis for categorization. Five categories or dimensions of leadership practice were derived from the 199 listed survey items or constructs. Each listed item was then coded against one of the dimensions and the mean effect size and standard error for each leadership dimension calculated, as presented in Table 2.

FINDINGS

The results of our comparison of transformational leadership and instructional leadership are presented first, followed by the analysis of the impact of particular leadership dimensions.

The Impact of Transformational, Instructional, and Other Types of Leadership

Figure 1 presents the mean effect size estimates and standard errors for the impact of transformational leadership ($ES = 0.11$), instructional leadership ($ES = 0.42$), and other types of leadership ($ES = 0.30$) on student outcomes. The first point to note is the considerable difference in mean effect size between the three leadership types. This confirms the utility of analyzing the impact of types of leadership rather than of leadership in general. The second point is that the mean effect size estimates for the impact of instructional leadership on student outcomes is three to four times greater than that of transformational leadership.

Of the 11 transformational leadership effect size statistics reported in Table 1, 10 fell in the range that we interpret as weak to small impact.² The remaining study by Griffith (2004), which examined principal leadership in 117 U.S. elementary schools, showed that principals had a moderate to large indirect effect on school-level residual test scores via their influence on staff satisfaction. This is an interesting finding, given other transformational leadership research indicating that although it has an effect on staff attitudes, those effects do not usually follow through to student outcomes.

It is also worth noting that leadership effects are not always positive. The mean estimate for transformational leadership was slightly reduced by the results of two studies that found a weak to small negative effect of teacher leadership on student identification (Leithwood & Jantzi, 2000) and a small negative effect of school administrator leadership on student achievement (Heck & Marcoulides, 1996).

There was less consistency in the reported impacts of instructional leadership, with about half of the 16 effects in Table 1 indicating weak or small

TABLE 2
The Impact of Five Leadership Dimensions on Student Outcomes (n = 199)

<i>Leadership Dimension</i>	<i>Meaning of Dimension</i>	<i>Effect Sizes (n) From Studies (n)</i>	<i>Mean Effect Size</i>	<i>SE</i>
Establishing goals and expectations	Includes the setting, communicating, and monitoring of learning goals, standards, and expectations, and the involvement of staff and others in the process so that there is clarity and consensus about goals.	49 effect sizes from 7 studies	0.42	0.07
Strategic resourcing	Involves aligning resource selection and allocation to priority teaching goals. Includes provision of appropriate expertise through staff recruitment.	11 effect sizes from 7 studies	0.31	0.10
Planning, coordinating, and evaluating teaching and the curriculum	Direct involvement in the support and evaluation of teaching through regular classroom visits and provision of formative and summative feedback to teachers. Direct oversight of curriculum through schoolwide coordination across classes and year levels and alignment to school goals.	80 effect sizes from 9 studies	0.42	0.06
Promoting and participating in teacher learning and development	Leadership that not only promotes but directly participates with teachers in formal or informal professional learning.	17 effect sizes from 6 studies	0.84	0.14
Ensuring an orderly and supportive environment	Protecting time for teaching and learning by reducing external pressures and interruptions and establishing an orderly and supportive environment both inside and outside classrooms.	42 effect sizes from 8 studies	0.27	0.09

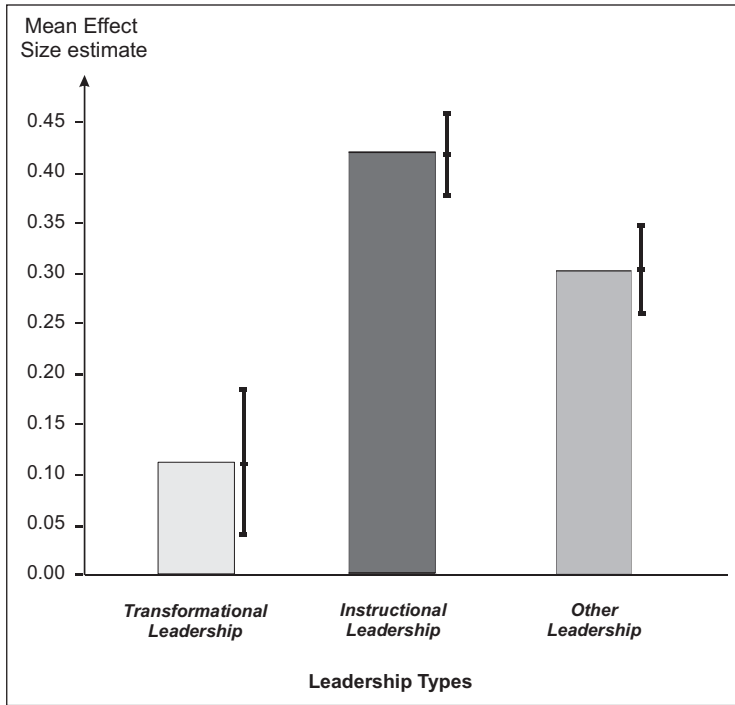


Figure 1. Mean Effect Sizes for Impact of Transformational Leadership (13 effects from 5 studies), Instructional Leadership (188 effects from 12 studies), and Other Leadership Approaches (50 effects from 5 studies) on Student Outcomes

NOTE: Bars indicate mean-point estimates bounded by ± 1 standard error.

impacts and 8 moderate to large impacts. On the whole, the large effect sizes were found in studies that involved between-group designs or analyses. The comparison groups comprised schools in which students performed consistently better or worse than schools that served students from similar social backgrounds (Bamburg & Andrews, 1991; Heck, 1992; Heck et al., 1990; Heck et al., 1991; Wellisch, MacQueen, Carriere, & Duck, 1978). In general, the comparisons showed that there are substantial differences between the leadership of otherwise similar high- and low-performing schools, and that those differences matter for student academic outcomes. The leadership in the higher performing schools was reported by teachers to be, among other things, more focused on teaching and learning, to be a stronger instructional

resource for teachers, and to be more active participants in and leaders of teacher learning and development.

Despite the apparently strong difference in the impact of transformational and instructional leadership, cautious interpretation is warranted. As already indicated, there is a considerable range of effects for instructional leadership. Furthermore, the outcome measures used in the transformational leadership studies were predominantly of social outcomes, whereas instructional leadership researchers tended to focus on academic ones. Two transformational leadership studies, however, did employ academic outcomes, and showed widely differing impacts of transformational leadership (Griffith, 2004; Heck & Marcoulides, 1996). In addition, Leithwood and Jantzi's (2006) study of the effect of transformational leadership on student gains in literacy and numeracy in English elementary schools is relevant, even though it could not be included in the meta-analysis. The authors concluded that transformational leadership explained very little of the variance in students' gains in literacy and numeracy.

Effect sizes for the five studies included in the "other" category of leadership theory, ranged from -0.20 (Pounder, Ogawa, & Adams, 1995) to 0.56 (Marks & Printy, 2003). The latter study is particularly relevant as school leadership was assessed on measures of both instructional and transformational leadership. The authors concluded that an "integrated" form of leadership, incorporating a strong capacity for developing shared instructional leadership combined with qualities associated with transformational leadership, was the best predictor of the intellectual quality of student work in both math and social studies.

In summary, although caution is needed in interpreting the evidence presented in Figure 1, it suggests that the impact of instructional leadership on student outcomes is notably greater than that of transformational leadership. It is noted that in general, abstract leadership theories provide poor guides to the specific leadership practices that have greater impacts on student outcomes.

In the next section, we outline the findings of our second analysis that was designed to understand the impact of specific sets of leadership practices, which we called leadership dimensions.

The Impact of Particular Leadership Dimensions

Table 2 presents the 5 inductively derived leadership dimensions, their definitions, and the average effect size and standard errors associated with each dimension. It is important to stress that these 5 dimensions reflect the conceptual and measurement frameworks employed in the 12 studies that

have an asterisk against the author entries in Table 1, and that different dimensions could emerge from future research.

The list of dimensions is unusual in that it does not include the typical distinction between leading through tasks and organization and leading through relationships and people. Leithwood et al. (2004) for example, organize their literature review on "How Leadership Influences Student Learning" under three headings: setting direction, developing people, and redesigning the organization. The task-relationship distinction has been eschewed here because relationship skills are embedded in every dimension. In goal setting, for example, effective leadership involves not only determining the goal content (task focus) but doing so in a manner that enables staff to understand and become committed to the goal (relationships). What works, it seems, is careful integration of staff considerations with task requirements. Effective leaders do not get the relationships right and then tackle the educational challenges—they incorporate both sets of constraints into their problem solving. The remainder of this section briefly reviews the evidence relevant to each of the five dimensions.

Dimension 1: Establishing goals and expectations. Seven of the 12 studies used in the dimensional analysis provided evidence of the importance of goals and expectations. Twenty-one indicators of this dimension yielded an average effect size of 0.42 standard deviations, which can be interpreted as a moderately large, and certainly as an educationally significant effect.

Goal setting, like all the leadership dimensions discussed here, has indirect effects on students by focusing and coordinating the work of teachers and, in some cases, parents. With student background factors controlled, leadership made a difference to students through the degree of emphasis on clear academic and learning goals (Bamburg & Andrews, 1991; Brewer, 1993; Heck et al., 1991). This effect was found even in schools where leaders did not make academic goals the top priority. For example, in their study of Israeli community schools, Goldring and Pasternak (1994) found that academic excellence was not one of the top five goals in either low- or high-performing schools, but the principals in the latter group still gave it significantly more importance than the former.

In schools with higher achievement or higher achievement gains, academic goal focus is both a property of leadership (e.g., "the principal makes student achievement the school's top goal") and a quality of school organization (e.g., "schoolwide objectives are the focal point of reading instruction in this school").³ If goals are to function as influential coordinating mechanisms, they need to be embedded in school and classroom routines and procedures (Robinson, 2001). Successful leadership influences teaching

and learning both through face-to-face relationships and by structuring the way that teachers do their work (Ogawa & Bossert, 1995).

The importance of relationships in this leadership dimension is apparent from the fact that leaders in higher performing schools tend to give more emphasis to communicating goals and expectations (Heck et al., 1990; Heck et al., 1991), informing the community of academic accomplishments and recognizing academic achievement (Heck et al., 1991). There was also some evidence that the degree of staff consensus about school goals was a significant discriminator between otherwise similar high- and low-performing schools (Goldring & Pasternak, 1994).

Goal content is as important as the generic process of goal setting. The instructional leadership studies were more likely than transformational leadership to include leadership indicators that asked teachers to report the leaders' emphases on particular goals, rather than the extent to which the school leadership provided a generic direction. The greater alignment between leadership indicators and outcome variables in the instructional leadership research may partially account for its stronger leadership effects in comparison to those of transformational leadership.

A similar point has been made by Leithwood and Jantzi (2006) in their discussion of the results of the role of transformational leadership in the English national literacy and numeracy reforms. They found that the degree of transformational leadership explained the extent to which teachers changed, but the extent of teacher change bore no relationship to students' achievement gains in either literacy or numeracy. The present authors agree with the call of Leithwood and Jantzi (2006) for leadership researchers to focus more strongly on *what* changes leaders encourage and promote, rather than merely on the extent to which they promote unspecified changes or innovation. Leithwood and Jantzi (2006) write:

There is a significant gulf between classroom practices that are "changed" and practices that actually lead to greater pupil learning; the potency of leadership for increasing student learning hinges on the specific classroom practices that leaders stimulate, encourage and promote. (p. 223)

In the context of goal setting, this means that what leaders and leadership researchers need to focus on is not just leaders' motivational and direction-setting activities but on the educational content of those activities and their alignment with intended student outcomes.

The importance of goal setting is also suggested from findings of a meta-analysis of research on the direct effects of leadership on students' academic achievements reported by Witziers et al. (2003). Although the overall impact

of leadership on students was negligible, they found that the direction-setting role of the leader had more direct impact on student outcomes than any of the other six dimensions of leadership on which data were available.⁴

A long tradition of research in social psychology helps explain why goal setting is so powerful (Latham & Locke, 2006). Goals provide a sense of purpose and priority in an environment where a multitude of tasks can seem equally important and overwhelming. Clear goals focus attention and effort and enable individuals, groups, and organizations to use feedback to regulate their performance.

Dimension 2: Resourcing strategically. The word “strategic” in the description of this dimension signals that the leadership activity is about securing resources that are aligned with instructional purposes, rather than leadership skill in securing resources per se. Thus, this measure should not be interpreted as an indicator of skill in fundraising, grant writing, or partnering with business, as those skills may or may not be applied in ways that serve key instructional purposes.

Seven studies provided evidence for how principals can influence student achievement through their decisions about staffing and teaching resources. Eleven indicators of this dimension yielded an average effect size of 0.31 standard deviations, suggesting that this type of leadership has a small indirect impact on student outcomes.

In one study involving two separate jurisdictions, there was a small relationship between leaders’ ability to secure instructional resources and student achievement in California schools, and a large relationship in a second sample of Marshall Island schools (Heck et al., 1991). The stronger finding for the Marshall Islands probably reflects a context with relatively scarcer teaching resources. In a second study of 20 U.S. elementary schools, there was an interesting interaction between principals’ control of teacher selection and the ambitiousness of their academic goals (Brewer, 1993). For principals with high academic goals, student achievement was higher in those schools where they themselves had appointed a greater percentage of their current staff. For principals with low academic goals, the reverse was apparent.

These findings are sketchy and more needs to be known about the knowledge and skills needed by school leadership to link resource recruitment and allocation to specific pedagogical goals.

Dimension 3: Planning, coordinating, and evaluating teaching and the curriculum. Eighty indicators of this dimension across nine studies showed that this type of leadership has a moderate impact on student outcomes

($ES = 0.42$). Leaders in higher performing schools are distinguished from their counterparts in otherwise similar lower performing schools by their personal involvement in planning, coordinating, and evaluating teaching and teachers. Four interrelated subdimensions are involved in this leadership dimension. First, teachers in higher performing schools report that their leaders are actively involved in collegial discussion of instructional matters, including how instruction impacts student achievement (Heck et al., 1991).

Second, the leadership of higher performing schools is distinguished by its active oversight and coordination of the instructional program. School leaders and staff work together to review and improve teaching—an idea captured by that of shared instructional leadership (Heck et al., 1990; Heck et al., 1991; Marks & Printy, 2003). In high-performing schools, the leadership was more directly involved in coordinating the curriculum across year levels than in lower performing schools. This included such activities as developing progressions of teaching objectives for reading across year levels (Heck et al., 1991).

Third, the degree of leader involvement in classroom observation and subsequent feedback was also associated with higher performing schools. Teachers in such schools reported that their leaders set and adhered to clear performance standards for teaching (Andrews & Soder, 1987; Bamburg & Andrews, 1991) and made regular classroom observations that helped them improve their teaching (Bamburg & Andrews, 1991; Heck, 1992; Heck et al., 1990).

Fourth, there was greater emphasis in higher performing schools on ensuring that staff systematically monitored student progress (Heck et al., 1990) and that test results were used for the purpose of program improvement (Heck et al., 1991). For one study in Hawaiian primary schools, use of achievement data involved both principal-led schoolwide examination of data and teacher-led classroom-based monitoring of students (Heck, 2000). Teachers' use of data to evaluate student progress, adjust their teaching, plan their weekly program, and give students feedback was a strong indicator of school quality, and level of school quality had a significant influence on student achievement in reading and math.

It is important to consider whether these findings are equally applicable to elementary and high schools. The greater size, more differentiated structures, and specialist teaching culture of high schools would suggest that the degree of principal influence, in particular, may be attenuated (Siskin & Little, 1995). The present analysis provides some evidence relevant to this issue. Using a sample of 23 elementary and 17 high schools, Heck (1992) found that the mean frequency of instructional leadership activity in both higher and lower performing schools was lower in the high school group.

The mean effect size for the influence of the principal or designee was 1.1 standard deviations in elementary schools compared to 0.42 in high schools. This suggests that leaders' oversight of teaching and the curriculum has more impact in elementary than in high schools. Clearly, this is an area in which further research, using identical indicators across elementary and high schools, is needed.

In sum, among higher performing schools, leaders work directly with teachers to plan, coordinate, and evaluate teachers and teaching. They are more likely than their counterparts in lower performing schools to provide evaluations that teachers describe as useful, and to ensure that student progress is monitored and the results used to improve teaching programs.

Dimension 4: Promoting and participating in teacher learning and development. This leadership dimension is described as both promoting and participating because more is involved than just supporting or sponsoring other staff in their learning. The leader participates in the learning as leader, learner, or both. The contexts for such learning are both formal (staff meetings and professional development) and informal (discussions about specific teaching problems).

Seventeen effect sizes from six studies were calculated for this dimension yielding an average effect size of 0.84 standard deviations. This is a large effect and provides some empirical support for calls to school leaders to be actively involved with their teachers as the "leading learners" of their school. With student background factors controlled, the more that teachers report their school leaders (usually the principal) to be active participants in teacher learning and development, the higher the student outcomes (Andrews & Soder, 1987; Bamburg & Andrews, 1991). Leaders in high-performing schools are also more likely to be described by their teachers as participating in informal staff discussion of teaching and teaching problems (Heck et al., 1990; Heck et al., 1991).

The principal is also more likely to be seen by staff as a source of instructional advice, which suggests that they are both more accessible and more knowledgeable about instructional matters than their counterparts in otherwise similar lower achieving schools. In one study that used a social network rather than instructional leadership theory, teachers were asked to indicate who they approach for advice about their teaching (Friedkin & Slater, 1994). Principals were significantly more likely to be nominated as sources of advice in higher achieving schools. In contrast, the extent to which teachers identified principals as close personal friends or as participants in discussions was not significantly related to school performance. The authors suggest that leaders who are perceived as sources of instructional advice and

expertise gain greater respect from their staff and hence have greater influence over how they teach. In addition, the principals' central position in school communication networks means that their advice is more likely to have a coordinating influence across the school (Friedkin & Slater, 1994).

Dimension 5: Ensuring an orderly and supportive environment. Instructional leadership also includes creating an environment for both staff and students that makes it possible for important academic and social goals to be achieved. In an orderly environment, teachers can focus on teaching and students can focus on learning. This dimension was derived from 42 effect sizes derived from 8 studies. The mean effect size of those 20 indicators was a small 0.27 standard deviations.

These findings suggest that the leadership of effective schools is distinguished by emphasis on and success in establishing a safe and supportive environment through clear and consistently enforced social expectations and discipline codes (Heck et al., 1991). In one study that surveyed teachers, parents, and students (Heck, 2000), there were consistent reports across all three groups of the extent to which they felt safe, comfortable, and cared for. The more positive these reactions, the higher the school quality and the higher its achievement levels when student background factors were controlled.

The leadership in higher performing schools is also judged by teachers to be significantly more successful than the leadership of lower performing schools in protecting teachers from undue pressure from education officials and from parents (Heck, 1992; Heck et al., 1991). This finding was particularly strong in high school samples.

An orderly and supportive environment is also one in which staff conflict is quickly and effectively addressed. In one study, principal ability to identify and resolve conflict, rather than allow it to fester, was strongly associated with student achievement in mathematics (Eberts & Stone, 1986). A second variable, measuring differences between teacher and principal perceptions of the latter's ability to identify and resolve conflict, discriminated even more strongly between higher and lower performing schools.

DISCUSSION

The purpose of this study was to examine the impact of particular types of leadership on student outcomes. Two analyses of different types of leadership provided essentially the same answer—the closer educational leaders get to the core business of teaching and learning, the more likely they are to have a positive impact on students' outcomes.

Before elaborating on these conclusions, we need to acknowledge some limitations of this study. First, only 27 published studies were available for analysis and 5 of these could not be included in the first meta-analysis, which compared the effects of instructional, transformational, and other types of leadership. The second meta-analysis, which calculated average effects for 5 different leadership dimensions, was based on only 12 studies, as the remaining studies used unitary leadership constructs or did not report the data required to calculate the effects of the components of their composite leadership variables. The second limitation is our treatment of educational outcomes. Ideally, we would have conducted separate analyses of the impact of leadership on academic and nonacademic outcomes, but the number of available studies was too small to make this practical.

Our findings of both moderate and strong effects for particular leadership dimensions contrast with the meta-analysis reported by Witziers et al. (2003). Witziers and colleagues's findings of from no effects to weak effects can be explained by the fact that, at that time, there were few if any studies of indirect effects of leadership on student outcomes. The size of the leadership effects we report are much more comparable with those reported by Marzano et al. (2005), but it should be remembered that this latter meta-analysis was largely based on unpublished evidence.

The comparison between instructional and transformational leadership showed that the impact of the former is three to four times that of the latter. The reason is that transformational leadership is more focused on the relationship between leaders and followers than on the educational work of school leadership, and the quality of these relationships is not predictive of the quality of student outcomes. Educational leadership involves not only building collegial teams, a loyal and cohesive staff, and sharing an inspirational vision. It also involves focusing such relationships on some very specific pedagogical work, and the leadership practices involved are better captured by measures of instructional leadership than of transformational leadership.

Research on the construct validity of transformational leadership helps explain why transformational leadership may tell us more about leader-staff relations than about leaders' impact on student outcomes. Brown and Keeping (2005) showed that subordinate ratings of transformational leadership are strongly influenced by the degree to which they "like" their leader. Indeed, when the degree of liking was controlled, the impact of transformational leadership on organizational outcomes was significantly reduced. If transformational leadership measures are capturing subordinates' liking of their leader rather than actual leadership practices, then proponents of transformational leadership have to argue that it is this affective response rather

than particular leadership practices that links leadership to student outcomes. Given the technical complexity of adding value to student outcomes, this explanation of leadership influence seems far less plausible than one, like instructional leadership, which specifies the leadership practices that create the conditions for enhanced teaching and learning.

It is important to note, however, that educational researchers on transformational leadership are increasingly modifying the original generic assessment tools to include more explicitly educational items (e.g., Leithwood & Jantzi, 2006). At the level of leadership assessment, therefore, if not at the level of leadership theorizing, there is an increasing convergence between transformational and instructional leadership research in education. There is at least one empirical study that has assessed leadership against both frameworks. In their study of 24 U.S. elementary, middle, and high schools, Marks and Printy (2003) assessed both principal transformational leadership and the degree of shared instructional leadership and combined the two into a measure of "integrated leadership" (Table 1). Student achievement was higher in those schools with higher integrated leadership. Their analyses of leadership impact on pedagogical quality and student outcomes employed the combined integrated leadership measure and so no conclusions can be drawn about the relative contribution of each. Nevertheless, they do suggest that transformational leadership is a necessary but not sufficient condition for shared instructional leadership.

Clearly, the types of motivational, collaborative, and interpersonal skills that are emphasized in transformational leadership research are essential to leaders' ability to improve teaching and learning. The critical question is whether one needs transformational leadership theory to study and develop this aspect of leadership. In our view one does not. As discussed earlier, instructional leadership measures are increasingly integrating an interpersonal and task focus into their indicators. The five leadership dimensions derived from the published research all include leadership practices that require the integration of task and relationship considerations.

Our findings about the relative impact of the five leadership dimensions provide more detailed guidance, than does the prior analysis, about the types of leadership that make a difference to student outcomes. Such leadership involves the determined pursuit of clear goals, which are understood by and attractive to those who pursue them. Goal setting is a powerful leadership tool in the quest for improving valued student outcomes because it signals to staff that even though everything is important, some activities and outcomes are more important than others. Without clear goals, staff effort and initiatives can be dissipated in multiple agendas and conflicting priorities, which, over time, can produce burnout, cynicism, and disengagement.

Because considerably more happens in schools than the pursuit of explicit goals, even the most goal-focused leaders will need to skillfully manage the constant distractions that threaten to undermine their best intentions. Such distractions, in the form of new policy initiatives, school crises, calls for goal revision or abandonment, and the need to maintain school routines that are not directly goal related, all threaten to undermine goal pursuit. A shared goal focus enables leaders and staff to recognize that they are being distracted and to consciously decide what to do about it. Without that focus, there is no distraction to recognize and the routines and crises come to dominate leaders' work.

Clarity around educational goals makes strategic resourcing possible. Although this leadership dimension had a small impact on student outcomes, resourcing goal pursuit is one of the conditions required for goal achievement. Leaders in schools where students performed above expected levels were reported by their staff to make appropriate teaching resources available and to themselves be sources of advice about teaching problems. There is an obvious connection between resource selection and allocation and leaders' knowledge of curriculum, curriculum progressions, and pedagogy.

Dimension 3, "planning, coordinating, and evaluating teaching and the curriculum," lies at the heart of instructional leadership. In large high schools, much of this leadership would be carried out by subject specialists such as heads of department and curriculum leaders. Leaders in schools where students performed above expected levels were more likely to be involved with their staff in curriculum planning, visiting classrooms, and reviewing evidence about student learning. Staff welcomed leaders' involvement in teacher evaluation and classroom observation because it resulted in useful feedback.

The leadership dimension that is most strongly associated with positive student outcomes is that of promoting and participating in teacher learning and development. Because the agenda for teacher professional learning is endless, goal setting should play an important part in determining the teacher learning agenda. Leaders' involvement in teacher learning provides them with a deep understanding of the conditions required to enable staff to make and sustain the changes required for improved outcomes. It is the responsibility of leaders at all levels of the system to create those conditions.

Leadership that ensures an orderly and supportive environment makes it possible for staff to teach and students to learn. Protection of teaching time from administrative and student disruption is one critical aspect of this dimension. Another is creating classroom and playground environments in which both staff and students feel respected and personally cared for.

Our conclusion about the importance of the power of direct leader involvement in teaching and teacher learning should not be interpreted as meaning that the leadership of every school should be more involved in these types of leadership than in such matters as ensuring an orderly and supportive environment. Schools at different stages of development will need different leadership emphases. For some schools, a focus on orderliness, safety, and civility may be an essential prior stage before leaders can give more attention to the curriculum and teacher professional learning. The cross-sectional nature of the direct evidence from which these dimensions have been derived means that shifts in their relative importance at different stages of school or departmental development were not captured by our analysis. However, the findings do mean that a school's leadership is likely to have more positive impacts on student achievement and well-being when it is able to focus on the quality of learning, teaching, and teacher learning.

Approximately half the studies described in Table 1 measured the leadership of more than just the principal. These measures captured the frequency of various leadership practices regardless of which particular leadership roles were involved. Our findings should not be interpreted, therefore, as implying that any single school leader should demonstrate high levels of capability on *all five* dimensions. Such an interpretation would reinforce the highly problematic heroic approach to school leadership—an approach that has, among other things, discouraged many teachers from taking up more senior leadership roles (Copland, 2003). The more defensible implication of our findings is that what matters is the frequency of various instructional leadership practices rather than the extent to which they are performed by a particular leadership role.

Finally, we make some observations about the contribution of leadership theory and research to our knowledge of how to make larger positive differences to students' outcomes. First, the fact that there are fewer than 30 published studies in English that have examined the links between leadership and student outcomes indicates how radically disconnected leadership research is from the core business of teaching and learning (Robinson, 2006). The loose coupling of school leadership and classroom teaching, commented on by Cuban, Elmore and others, is paralleled in the academy by the separation of most leadership research and researchers from research on teaching and learning, and by the popularity of leadership theories that have little educational content (Cuban, 1988; Elmore, 2004). Fortunately, the gulf between the two fields is beginning to be bridged by a resurgence of interest in instructional leadership and calls for more focus on the knowledge and skills that leaders need to support teacher learning about how to raise achievement while reducing disparity (Prestine & Nelson, 2005; Stein & Nelson, 2003; Stein & Spillane, 2005).

Second, it seems clear that if we are to learn more about how leadership supports teachers in improving student outcomes, we need to measure how leaders attempt to influence *the teaching practices that matter*. The source of our leadership indicators should be our knowledge of how teachers make a difference to students rather than various theories of leader–follower relations. The latter reference point has generated much more payoff in terms of our knowledge of the impact of leaders on staff than on students.

Third, although the five dimensions of leadership reported here are highly promising, they are still expressed at a level of abstraction that does not fully explain the processes responsible for their particular effects. Unless these processes are identified and understood, policy makers and practitioners will have difficulty creating the conditions required to achieve the desired effects. Take the dimension with the strongest effects—leadership of teacher professional learning and development (Dimension 4). Increased leadership of this sort could be counterproductive if it is done without reference to the evidence about the particular qualities and processes of teacher professional development that produce effects on the students of the participating teachers (Timperley & Alton-Lee, 2008). Similarly, increased evaluation of teaching (Dimension 3) could be counterproductive if it is done without understanding how certain types of observation checklists of allegedly “effective” teaching strategies may be counterproductive to the assessment of teachers’ responsiveness to students’ understandings (Nelson & Sassi, 2005).

In short, thoughtful application of the dimensions requires an understanding of the particular qualities that are responsible for their impact. The resources needed to discriminate these particular qualities are typically found in empirical or theoretical research on the particular task in question, rather than in the more general leadership literature. For example, theoretical explanations of the power of goal setting are found in a rich research literature on goal setting (Latham & Locke, 2006). Explanations of the conditions under which teacher professional communities do and do not make an impact on the students of participating teachers are found in evaluations of teacher professional development and not in the leadership literature. In short, because the practice of leadership is task embedded, leadership theory and research will not deliver increased payoff for student outcomes unless they become more tightly integrated with research on the particular leadership tasks identified by our meta-analyses. On the positive side, a program of leadership research and assessment that more precisely reflects these findings is likely to demonstrate even larger impacts on student outcomes than those found in our own meta-analyses.

NOTES

1. There are several different types of effect size statistic, and the one used by Marzano, Waters, & McNulty (2005) is a correlation coefficient. Their correlation of 0.25 between leadership and student achievement converts to a z score of 0.38.

2. There is no single approach to the interpretation of effect sizes. The convention used for the interpretation of effect sizes in this article is as follows: from 0.0 to 0.2 (no effect to weak effect); from 0.2 to 0.4 (small effect); from 0.4 to 0.6 (moderate effect); more than 0.6 (large effect).

3. These items assessing the role of goals, standards, and expectations are taken from the Effective Schools Survey in Heck (2000).

4. The other dimensions of leadership that were examined with associated effect sizes for impact on achievement were: supervising and evaluating the curriculum ($z = 0.02$); monitoring student progress ($z = 0.07$); coordinating and managing curriculum ($z = 0.02$); providing advice and support ($z = 0.02$); visibility ($z = 0.08$); promoting school improvement and professional development ($z = -0.05$); and achievement orientation ($z = 0.02$).

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