



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

School Leadership and Student Outcomes: Identifying What Works and Why

Best Evidence Synthesis Iteration [BES]

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Chapter 4



ITERATIVE BEST EVIDENCE SYNTHESIS PROGRAMME
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This report is one of a series of best evidence synthesis iterations (BESs) commissioned by the Ministry of Education. The Iterative Best Evidence Synthesis Programme is seeking to support collaborative knowledge building and use across policy, research, and practice in education. This series of syntheses draws together bodies of research evidence to explain what works and why to improve valued education outcomes and to make a bigger difference for the education of all our children and young people. Each synthesis celebrates the work of educators and the inquiry processes that enable educators and researchers to bring about sustainable improvements in education. Each is part of an iterative process that anticipates future research and development informing educational practice.

Earlier BESs have focused on effective teaching and professional learning in schools and on the impact of family and community influences on educational outcomes. This *School Leadership and Student Outcomes BES* will prove a crucial support for school leaders as they address our shared challenge of preparing all our children for the future.

The International Academy of Education has commissioned summaries of the recent BESs developed by the Ministry of Education. While the full reports provide the explanations and vignettes that are needed to support educational change, these short summaries will also be a convenient help for leaders. They will be available on the International Academy of Education website www.iaoed.org and on the UNESCO website <http://unesdoc.unesco.org>. The first of these summaries to be published is:

Timperley, H. (2008). *Teacher professional learning and development: Educational practices series 18*. International Academy of Education, International Bureau of Education & UNESCO. <http://unesdoc.unesco.org/images/0017/001791/179161e.pdf>

Further information is available at www.educationcounts.govt.nz/goto/BES, and feedback is welcome at best.evidence@minedu.govt.nz

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While recognising that the development of a best evidence synthesis is a collaborative undertaking based on scoping and national guidelines developed by the New Zealand Ministry of Education and incorporating contributions from many others with relevant expertise, Viviane Robinson, Margie Hohepa, and Claire Lloyd assert their moral right to be recognised as the authors of this work

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Nāu te rourou, nāku te rourou, ka ora te iwi.
Through each of our contributions the people will thrive.

4. *The impact of school leadership on students*

There is unprecedented international interest in how educational leaders influence student outcomes. A major reason for this is the desire of policy makers to reduce persistent disparities in the educational outcomes of different social and ethnic groups coupled with a belief that school leaders have a vital role to play in achieving this end¹²⁷.

The public—and politicians—believe that school leaders make a substantial difference to student outcomes. This belief is validated by qualitative research. Case studies of ‘turn-around’ schools and of teaching and learning interventions invariably give much of the credit to school and district leadership¹²⁸. A very different picture emerges, however, from quantitative analyses of the effects of leadership on students’ academic and social outcomes. The typical conclusion drawn by quantitative researchers is that school leaders have small and indirect effects on student outcomes—effects that are essentially mediated by teachers¹²⁹. So, do the public and politicians have a romantic, heroic view of the capacity of leaders to make a difference or do researchers persistently underestimate their influence?¹³⁰

We propose that both views are partly correct. It may be that the overall impact of leadership on student outcomes is indirect and small. But we would also suggest that debates about overall impact are not that useful because impact is a function of what leaders do. If we accept this, then the challenge for researchers is to discover what practices actually matter; for leaders, it is to engage in more of those practices more of the time; and for policy makers, it is to help create the conditions that allow leaders to do this.

Chapter 3 explained that we took two different approaches to analysing the impact of leadership. In this chapter, leadership theory provides the basis for a systematic comparison of the impacts of two particular types of leadership: transformational and pedagogical¹³¹ leadership. These types were chosen because they dominate the empirical research on educational leadership and because their research programmes are mature enough to have yielded sufficient evidence for analysis. Transformational leadership theories, in particular, are also very popular with many of those who provide leadership training for educators. In our second approach to the analysis of leadership impact (see Chapter 5), we set aside broad theoretical categories and identify the relative impact of particular leadership practices, regardless of how those practices are theorised.

Before presenting our findings on the relative impact of transformational and pedagogical leadership, we provide a brief report on five already published reviews of the literature on the impact of leadership on student outcomes. This serves to introduce readers to the international evidence and to some of the methodological issues that are central to its understanding. The following section presents the findings of our theoretical comparison. We conclude the chapter

¹²⁷ Organisation for Economic Co-operation and Development (2001). *Knowledge and skills for life: First results from the OECD Programme for International Student Assessment (PISA) 2000*. Paris: Author.

¹²⁸ Edmonds, R. (1979). Effective schools for the urban poor. *Educational Leadership*, 37, pp. 15–24.
Maden, M. (Ed.) (2001). *Success against the odds, five years on: Revisiting effective schools in disadvantaged areas*. London: Routledge Falmer.

Scheurich, J. J. (1998). Highly successful and loving, public elementary schools populated mainly by low-SES children of color: Core beliefs and cultural characteristics. *Urban Education*, 33(4), pp. 451–491.

¹²⁹ Hallinger, P., & Heck, R. H. (1998). Exploring the principal’s contribution to school effectiveness: 1980–1995. *School Effectiveness and School Improvement*, 9(2), pp. 157–191.

¹³⁰ Meindl, J. R. (1998). The romance of leadership as follower centric theory. In F. Dansereau & F. Yammarino (Eds.), *Leadership: The multiple-level approaches* (pp. 285–298). Stamford, CT: JAI Press.

¹³¹ When discussing how leaders develop, support, monitor, and improve teaching programmes, we refer to ‘pedagogical’ rather than ‘instructional’ leadership because, in New Zealand, ‘instructional’ connotes directive teaching. When referring to individual studies, however, we retain the term ‘instructional’ if used by the authors, to stay true to their conceptualisation of leadership.

by proposing an explanation for the very different impacts of pedagogical and transformational leadership.

4.1 Five international reviews: A starting point for examining the impact of leadership on students

Table 2 summarises the relevant points from five different literature reviews. Two of these were meta-analyses¹³². In this kind of analysis, a quantitative measure of impact (an effect size) is calculated for each study. These individual effect sizes are then averaged to get an overall estimate of impact. Two of the studies are more traditional literature reviews¹³³. The fifth compilation is a synthesis based on a very limited pool of studies.

¹³² Marzano, R. J., Waters, T., & McNulty, B. (2005). *School leadership that works: From research to results*. Aurora, CO: ASCD and McREL.

Witziers, B., Bosker, R. J., & Krüger, M. L. (2003). Educational leadership and student achievement: The elusive search for an association. *Educational Administration Quarterly*, 39(3), pp. 398–425.

¹³³ Hallinger & Heck (1998), op. cit.

Leithwood, K., Seashore Louis, K., Anderson, S., & Wahlstrom, K. (2004, September). *How leadership influences student learning*. Retrieved June, 2005, from www.wallacefoundation.org/NR/rdonlyres/E3BCCFA5-A88B-45D3-8E27-B973732283C9/0/ReviewofResearchLearningFromLeadership.pdf

Table 2. Reviews of empirical research on leadership and student outcomes

Reference	Research question	Evidence base	Criteria for inclusion	Main findings	Comments
Marzano, Waters, & McNulty (2005) ¹³⁴	<p>1. What is the impact of leadership on student academic achievement?</p> <p>2. What leadership dimensions are influential?</p> <p>3. What factors underlie the 21 dimensions?</p>	<p>70 studies were included in the quantitative analysis.</p> <p>60 are unpublished dissertations or conference papers that have undergone little peer review.</p>	<p>US studies only</p> <p>Published in last 30 years</p> <p>Quantitative achievement data</p> <p>Use of standardised tests of achievement</p> <p>Teacher perceptions of leadership as the independent variable</p>	<p>Average correlation between leadership effects and achievement was .25.</p> <p>Higher-quality studies showed higher correlations.</p> <p>Although the effect is lower in secondary, it is not significantly different from primary.</p> <p>21 leadership responsibilities with biggest effects on achievement were identified. The top 11 are: situational awareness; acting as change agent; knowledge of curriculum, instruction and assessment; shared culture; protection of instructional time; flexibility and comfort with dissent; teacher input into decision making; monitoring impact on student learning; orderly procedures; provision of resources; and outreach to stakeholders.</p>	<p>The leadership impact finding is substantially greater than that found by Witziers. The reasons for this are:</p> <ul style="list-style-type: none"> calculated total (direct and indirect) effects of leadership; data were adjusted for unreliability of measures of leadership. <p>Only US studies were used. (International studies used by Witziers showed far less leadership impact than US studies.)</p> <p>Studies with extreme correlations (outliers) were excluded.</p>
Leithwood, Seashore Louis, Anderson, & Wahlstrom (2004) ¹³⁵	<p>What effects does successful leadership have on student learning?</p> <p>Is there a common set of leadership practices used by successful leaders in most circumstances?</p> <p>How does successful leadership exercise its influence on the learning of students?</p>	<p>Includes little information about methodology.</p> <p>Brings a multivariate, conceptual framework to the literature review; this includes antecedents of leadership, mediating variables, and student learning outcomes.</p>	<p>Studies provide evidence relating to one or more of the variables included in the conceptual framework.</p>	<p>1. Policy conditions:</p> <ul style="list-style-type: none"> School-based management was not associated with improved outcomes in the absence of state and district pressure and support. <p>2. Leadership practices:</p> <ul style="list-style-type: none"> setting direction via goals; developing and motivating people through relationships and intellectual stimulation; redesigning organisational procedures and structures; building collaborative processes. 	<p>A literature review based on a theoretical model of how leadership affects outcomes</p>

¹³⁴ Marzano, Waters, & McNulty (2005), op. cit.

¹³⁵ Leithwood, Seashore Louis, Anderson, & Wahlstrom (2004, September), op. cit.

Reference	Research question	Evidence base	Criteria for inclusion	Main findings	Comments
Bell, Bolam, & Cubillo (2003) ¹³⁶	What is the effect of head teachers on student outcomes?	A scoping phase produced 4987 citations. Eight studies met the criteria for inclusion. These provided a combined sample of 1288 primary, 334 secondary, and two special schools.	Focus on leadership Evidence of student outcomes Published since 1988	Suggests small indirect effects of leadership	A very limited pool of evidence
Hallinger & Heck (1998) ¹³⁷	What does research on principalship conducted between 1980 and 1995 tell us about principal effects?	40 published articles or peer-reviewed conference papers These 40 articles provided a combined sample of 872 primary, 52 middle, 149 secondary, and 682 cross-sector schools. 12 studies did not report sample size.	Published between 1980 and 1995 Measured principal leadership as independent variable Measured school performance (e.g., school effectiveness, attendance, student self-concept) as dependent variable	Principals have a small indirect effect on achievement. The dimensions of leadership that had most effect were: <ul style="list-style-type: none"> • establishes clear shared goals and an academic focus; • builds social networks and structures that enable goal achievement; • is directly involved in instructional supervision and support; • builds teacher capacity and provides high-quality opportunities for teacher learning; • cares for staff as individuals; • is skilled in problem solving and conflict resolution. 	Literature review – no calculation of effect size

¹³⁶ Bell, L., Bolam, R., & Cubillo, L. (2003). *A systematic review of the impact of school headteachers and principals on student outcomes*. London: EPPICentre, Social Science Research Unit, Institute of Education.

¹³⁷ Hallinger & Heck (1998), op. cit.

Reference	Research question	Evidence base	Criteria for inclusion	Main findings	Comments
Witziers, Bosker, & Kruger (2003) ¹³⁸	<ol style="list-style-type: none"> To what extent does school leadership directly effect student academic achievement? What dimensions of leadership had the most effect? 	37 multinational research reports	<p>Published 1986–96</p> <p>Clear and valid measures of educational leadership</p> <p>Outcomes measured by standardised assessment tools</p> <p>Study design is of direct effects of leadership</p>	<ol style="list-style-type: none"> No significant direct effects of leadership in general. Some small effects in primary schools, but none in secondary schools. Dimensions of leadership that had most effect – but all were very small: <ul style="list-style-type: none"> defining and communicating mission; monitoring student progress; visibility; supervising and evaluating of the curriculum. 	A high-quality analysis with transparent evidence base

¹³⁸ Witziers, Bosker, & Krüger (2003), op. cit.

The findings in Table 2 show that the authors of these five reports draw very different conclusions about the overall impact of leadership on student outcomes. Witziers et al.¹³⁹, for example, conclude that the impact is minimal; Hallinger and Heck¹⁴⁰ and Leithwood et al.¹⁴¹ conclude that it is modest but important; and Marzano et al.¹⁴² conclude that it is quite substantial. The discrepancy between these conclusions is well illustrated by the meta-analyses of Marzano et al. and Witziers et al. The former finds a substantially greater impact of leadership on student outcomes than does the latter. The final column of Table 2 provides clues as to why their findings are so different. Perhaps most importantly, Witziers et al. measure only the *direct* effects of leadership on outcomes while Marzano et al. add together the direct and indirect effects. This means that calculations by Marzano et al. include the impact of leadership on school conditions *and* the impact of those conditions—such as teacher culture—on student outcomes.

The Marzano et al. approach makes sense because it is the role of leadership to establish school and classroom conditions that facilitate student learning. These conditions are, at least in part, a function of leadership efforts; to drop them out of the leadership equation is to ignore what has already been accomplished. Leaders influence others by establishing school systems, routines, and resources that make a difference to how teachers teach and how students learn. Once these are established, leaders shift their focus to new targets, but the results of their earlier efforts as well as their present focus should be recognised.

The work of Hallinger and Heck¹⁴³ confirms the importance of using an indirect effects model of leadership. Table 3 summarises the results of the 22 studies that used a direct effects model and the 18 studies that used an indirect effects model¹⁴⁴. It shows that while 27% of the studies that measured direct effects reported a significant relationship between leadership and school effectiveness, 72% of the studies that measured indirect effects found such a relationship.

Table 3. Studies in Hallinger and Heck showing evidence of leadership impacts on school effectiveness

	Evidence of Impact			Total
	Yes	Mixed	None	
Direct Effects	6	7	9	22
Indirect Effects	13	3	2	18

Hallinger and Heck¹⁴⁵ conclude:

The general pattern of results drawn from this review supports the belief that principals exercise a measurable, though indirect effect on school effectiveness and student achievement.

They go on to say:

[The] studies do not resolve the most important theoretical and practical issues entailed in understanding the principal’s role in contributing to school effectiveness. These concern the means by which principals achieve an impact on school outcomes as well as the interplay with contextual forces that influence the exercise of school leadership. (p. 186)

¹³⁹ Witziers, Bosker, & Krüger (2003), op. cit.

¹⁴⁰ Hallinger & Heck (1998), op. cit.

¹⁴¹ Leithwood, Seashore Louis, Anderson, & Wahlstrom (2004, September), op. cit.

¹⁴² Marzano, Waters, & McNulty (2005), op. cit.

¹⁴³ Hallinger & Heck (1998), op. cit.

¹⁴⁴ Unlike the work of Witziers et al. and Marzano et al., the Hallinger and Heck review notes only whether there was a statistically significant relationship between leadership and aspects of school effectiveness. It does not tell us the size of the effect.

¹⁴⁵ Hallinger & Heck (1998), op. cit.

Studies that measure specified dimensions of leadership rather than some all-embracing concept tell us more about which aspects of leadership make a difference. While the comments in the ‘Main findings’ column of Table 2 are necessarily abstract and variable, there is enough overlap to give us a sense of some of the ways in which leaders make a difference. These include engaging with instruction, setting direction and goals, increasing teacher capacity, creating systems that support teaching, and building relationships in which people feel valued and supported.

4.2 Individual studies of the impact of leadership on students

We turn now to our synthesis of individual studies that examine the links between leadership and any type of student outcome. We located 27 studies, published between 1978 and 2006, that examined the relationship between leadership and student outcomes. This is fewer than in the Marzano et al.¹⁴⁶ meta-analysis because we excluded unpublished theses and conference papers. Figure 12 provides a statistical breakdown of the studies. See Appendix 4.1 for a complete list of studies and brief information about each.

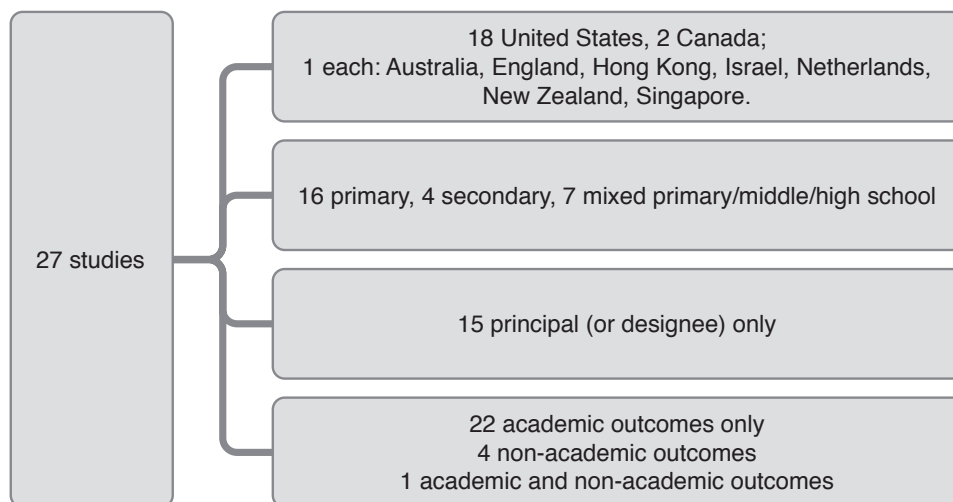


Figure 12. Characteristics of 27 studies linking leadership to student outcomes

Only one New Zealand study met the criteria for inclusion. While there is a rich New Zealand literature on leadership, it involves narratives of leaders’ lives, descriptions of their attitudes, reports of their practices, and critiques of the policy context in which they work—not analyses of leadership impact on student outcomes. Insights into this impact are available, however, from New Zealand studies of interventions into teaching and learning. These are analysed in Chapter 6.

While the 27 studies examined the impact of leadership on a range of student outcomes, mathematics, reading, and language skills predominated. In the absence of a close inspection of the actual assessment items in the various standardised tests used, it is difficult to be certain of the intellectual depth of the skills and knowledge assessed. Critical thinking, intellectual challenge, and problem solving were features of at least some of the assessments. The five studies that examined the impact of leadership on non-academic outcomes measured attitudes to school, to teachers, and to learning, academic self-concept, and participation with and engagement in schooling.

¹⁴⁶ Marzano, Waters, & McNulty (2005), op. cit.

In nearly every case, the measures used involved teacher responses to survey items. Some surveys focused on leadership practices, asking teachers to respond to statements such as ‘the principal reviews and interprets test scores with staff’. Other surveys focused on leaders’ personal and interpersonal qualities, with items such as ‘is aware of my unique needs and expertise’. When analysing these studies, we paid particular attention to the wording of the survey items because it was these that contained the detail we were looking for, rather than the theoretical ideas on which the items were based.

We begin our comparison of transformational and pedagogical leadership by briefly introducing the theories that underpin each of these types of leadership.

4.2.1 Transformational leadership

Many New Zealand principals will be familiar with transformational leadership theory, having come across it in postgraduate courses in educational administration and management. Transformational leadership theory has its origins in James McGregor Burns’ 1978 publication, *Leadership*¹⁴⁷. The focus of his work was leader–follower relations in different types of organisation. Burns was interested in how some leaders were able to motivate followers to move beyond self-interest and to pursue the larger goals of the group or organisation. Transformational leaders are able to inspire their people with a vision that energises them and encourages them to work collaboratively towards a common good.

Burns’s theory was developed further in the 1980s by Bass and his colleagues¹⁴⁸. In their view, transformational leadership theory built on (rather than competed with) transactional leadership theory. In transactional leadership, the leader specifies what is expected and provides consequences for meeting or not meeting those expectations.

Transformational leaders are thought to employ four influence processes:

- individualised consideration: giving personal attention to individual staff so that they feel uniquely valued;
- intellectual stimulation: encouraging creativity and new ways of thinking about old issues;
- inspirational motivation: communicating optimism and high expectations;
- idealised influence: providing a vision and a sense of purpose that elicit trust and respect from followers.

Transformational leadership theory has been adapted for educational settings by Leithwood and his colleagues in Canada and Australia¹⁴⁹. Table 4 provides a guide to how the original elements of transformational leadership have been revised and elaborated to capture leadership activity that is specifically educational.

¹⁴⁷ Burns, J. M. (1978). *Leadership*. New York: Harper & Row.

¹⁴⁸ Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York, NY: Free Press.

¹⁴⁹ For a brief introduction to the history of research on transformational leadership in education, see Leithwood, K., Tomlinson, D., & Genge, M. (1996). Transformational school leadership. In K. Leithwood, J. Chapman, D. Corson, P. Hallinger, & A. Hart (Eds.), *International handbook of educational leadership and administration* (pp. 785–840). Dordrecht: Kluwer Academic.

Table 4. The elaboration of transformational leadership theory in educational research and associated survey items

Original transformational leadership elements	Elements in educational research on transformational leadership ¹⁵⁰	Examples of survey items ¹⁵¹
Idealised influence Inspirational motivation Individualised consideration Intellectual stimulation	Setting direction	<i>The principal ...</i>
	Vision	<i>Gives us a sense of overall purpose</i>
	Group goals	<i>Works towards whole-staff consensus in establishing priorities for school goals</i>
	High-performance expectations	<i>Has high expectations for us as professionals</i>
	Helping people	<i>The principal ...</i>
	Individualised consideration and support	<i>Is aware of my unique needs and expertise</i>
	Intellectual stimulation	<i>Is a source of new ideas for my professional learning</i>
	Modelling key values and practices	<i>Shows respect for staff by treating us as professionals</i>
	Redesigning the organisation	<i>The principal ...</i>
	Helping to build collaborative cultures	<i>Delegates leadership for activities critical to achieving goals</i>
	Creating structures to foster collaboration	<i>Ensures we have adequate involvement in decision making</i>
	Building productive relations with parents and community	<i>Is sensitive to the community's aspirations and requests</i>
	Transactional and managerial	<i>The principal ...</i>
Contingent reward		
Management by exception		
Management of staffing	<i>Ensures that staffing is fair and equitable</i>	
Instructional support	<i>Regularly observes classroom activities</i>	
Monitoring school activity	<i>Is easily accessible to students and staff</i>	
Buffering staff from external demands	<i>Has secured a high degree of autonomy for the school</i>	

The original transformational leadership elements are still evident in the adaptation, with its emphasis on vision and helping people. The relationship element is also behind the creation of structures for participation and collaboration. The final group of elements in the centre column consists of activities that are more specifically related to education. These have been

¹⁵⁰ These elements were taken from Leithwood, K., & Jantzi, D. (2005). A review of transformational school leadership research 1996–2005. *Leadership and Policy in Schools, 4*(3), pp. 177–199.

¹⁵¹ These items are found in the surveys used in both the Canadian and the Australian research programmes. See:
Leithwood, K., & Jantzi, D. (1999). Transformational school leadership effects: A replication. *School Effectiveness and School Improvement, 10*(4), pp. 451–479.
Mulford, W., Silins, H., & Leithwood, K. (2004). *Educational leadership for organisational learning and improved student outcomes*. Dordrecht: Kluwer Academic.

added by more recent studies in response to criticism that transformational leadership lacked educational focus¹⁵².

Leithwood and Jantzi recently reviewed 32 empirical studies of the consequences of transformational leadership for academic and non-academic student outcomes¹⁵³. The nine studies that examined achievement outcomes reported very mixed results, with about half showing a small relationship between leadership and outcomes. Results from studies of the impact of transformational leadership on social outcomes are more consistent, but in terms of how students feel about school, relationships with peers and teachers, and the usefulness of schoolwork, the effect is still small. It should be noted that these conclusions were drawn from a review of the evidence, not a meta-analysis.

4.2.2 A meta-analysis of studies of transformational leadership and student outcomes

We turn now to our own meta-analysis of the effects of transformational leadership on student outcomes. Appendix 4.1 includes six published studies where leadership has been assessed on the basis of transformational leadership theory. These studies included primary, secondary, and mixed school samples; one was not included in the meta-analysis because it lacked the necessary statistical data¹⁵⁴. Since several studies included multiple measures of the relationship between transformational leadership and student outcomes, we were able to calculate 13 effect sizes from the remaining five studies. Most of the student outcomes were social, for example, engagement and participation.

The effect sizes varied widely, indicating both positive and negative effects on student outcomes. Six of the effects fell within the 0–.19 range, which we interpret as no-or-weak impact; another six fell within the .2–.39 range, which we take to indicate a small impact. Two negative effects of this magnitude indicate that it is possible for transformational leadership to have negative indirect impacts on student outcomes. One outlier study had a large effect size of .68¹⁵⁵. This study, which examined principal leadership in 117 US primary schools, showed that principals had a large indirect effect on residual school test scores (scores in which student background factors have been controlled for) through their ability to influence staff satisfaction. It is hard to explain why this study came up with such different findings. The explanation may lie in the low response rate: perhaps the 38% of eligible staff who completed the survey were those with higher morale and greater satisfaction in their leadership.

The mean of the 13 effect sizes was .11, indicating a very weak relationship between transformational leadership and student outcomes.

Most of the transformational leadership studies embed their analysis of leadership effects in a complex model that includes the influence of other variables. This makes it possible for the effects of leadership to be separated out from the effects of other variables, such as student perceptions of their teaching. In a large-scale study of the links between leadership, organisational learning, and student outcomes in Australian high schools, this latter variable turned out to be the best school predictor of student engagement¹⁵⁶. Students who reported that they were in well-organised classes, constantly challenged, given a variety of activities, and subject to high expectations were more engaged than peers who reported less favourably on these variables. This confirms the importance of teachers and teaching and raises the question of how transformational leadership influences teachers' work. The only internal, organisational

¹⁵² Leithwood & Jantzi (2005), op. cit.

¹⁵³ *ibid.*

¹⁵⁴ Leithwood, K., & Jantzi, D. (2006). Transformational school leadership for large-scale reform: Effects on students, teachers, and their classroom practices. *School Effectiveness and School Improvement*, 17(2), pp. 201–227.

¹⁵⁵ Griffith, J. (2004). Relation of principal transformational leadership to school staff job satisfaction, staff turnover, and school performance. *Journal of Educational Administration*, 42(3), pp. 333–356.

¹⁵⁶ Silins, H., & Mulford, B. (2002). Leadership and school results. In K. Leithwood & P. Hallinger (Eds.), *The second international handbook of educational leadership and administration* (pp. 561–612). Norwell, MA: Kluwer Academic.

factor that had an impact on teachers' work was organisational learning¹⁵⁷. Schools where the teachers reported higher levels of organisational learning were more successful in creating classroom conditions that students experienced positively. Organisational learning was itself responsive to a cluster of leadership variables including transformational leadership and teacher leadership¹⁵⁸.

In the second part of the same study, Silins and Mulford¹⁵⁹ tested the relationship between the non-academic outcomes they had assessed (participation, retention in school, academic self-concept, and engagement) and achievement, as measured by the proportion of final-year students who gained a school leaving certificate. The relationship was weak.

In summary, these five studies yield an even smaller estimate of the impact of transformational leadership than emerged from earlier, qualitative reviews. The power of transformational leadership lies more in the creation of a collaborative staff culture than in higher social and academic outcomes for students. It may be that the concepts and measures of transformational leadership theory do not capture what is involved in improving these outcomes. We discuss this possibility further after reviewing the evidence on pedagogical leadership.

4.2.3 Pedagogical leadership

In the search for links between school leadership and student outcomes, the notion of pedagogical leadership has undergone more scrutiny than most. While there are variations in the concept, the common core is close involvement by leadership in establishing an academic mission, monitoring and providing feedback on teaching and learning, and promoting professional development¹⁶⁰.

Pedagogical leadership theory has its origins in the early 1980s in studies of successful schools in poor urban communities. Bossert et al.¹⁶¹ reported that these schools usually had strong pedagogical leadership, reflected in learning environments with minimal disruption, systems of clear teaching objectives, and high teacher expectations of students.

When the concept was first introduced, the assumption was made that it was the responsibility of the principal to provide pedagogical leadership. For this reason, measures of pedagogical leadership neglected the contribution of other staff to the development and evaluation of teaching programmes. This exclusive focus on the principal reinforced a heroic view of the role, which few were able to live up to. As Hallinger¹⁶² comments:

Instructional leaders led from a combination of expertise and charisma. These were hands-on principals, hip-deep in curriculum and instruction ... and unafraid of working directly with teachers on the improvement of teaching and learning. Descriptions of these principals tended towards a heroic view of their capabilities that often spawned feelings ranging from inadequacy to guilt among the vast majority of principals who wondered why they had such difficulty fitting into this role expectation (p. 224).

¹⁵⁷ Organisational learning comprised four sub-dimensions: collaborative climate, taking initiatives and risks, shared and monitored mission, and professional development. See Table 2 in Silins & Mulford (2002), *ibid.*, p. 576.

¹⁵⁸ The sum of the direct and indirect effects of organisational learning on teachers' work was .24. The total impact of transformational leadership on organisational learning was .8. See Table 4 in Silins & Mulford (2002), *ibid.*, pp. 589–590.

¹⁵⁹ Silins & Mulford (2002), *op. cit.*

¹⁶⁰ For background on instructional leadership and its variants, see:

Hallinger, P. (2005). Instructional leadership and the school principal: A passing fancy that refuses to fade away. *Leadership and Policy in Schools*, 4(3), pp. 221–239 and

Alig-Mielcarek, J. M., & Hoy, W. K. (2005). Instructional leadership: Its nature, meaning, and influence. In C. G. Miskel & W. K. Hoy (Eds.), *Educational Leadership and Reform* (pp. 29–52). Greenwich, CT: Information Publishing Age.

¹⁶¹ Bossert, S. T., Dwyer, D. C., Rowan, B., & Lee, G. V. (1982). The instructional management role of the principal. *Educational Administration Quarterly*, 18(3), pp. 34–64.

¹⁶² Hallinger (2005), *op. cit.*

Hallinger¹⁶³ goes on to say, “There is little evidence to support the view that on a broad scale at either the primary or secondary school level principals have become more engaged in hands-on directed supervision of teaching and learning in classrooms” (p. 230). Our review of the evidence relating to how New Zealand principals spend their time suggests that this conclusion probably also applies to them (see Chapter 2).

Some of the more recent research on pedagogical leadership looks beyond the role of principals. Four of the 13 studies included in Appendix 4.1 have a more inclusive focus.

Like transformational leadership, pedagogical leadership is measured through teacher surveys. Box 1 presents some of the items that are typically asked of teachers in an instructional leadership survey.

Box 1. Sample items from survey of instructional leadership

Principal leadership

- The principal makes several formal classroom observations each year.
- The principal reviews and interprets test scores with faculty.
- Instructional issues are seldom the focus of faculty meetings. (reverse scored)
- At the principal’s initiative, teachers work together to effectively coordinate the instructional programme within and between grades.
- The principal is very active in securing resources, arranging opportunities, and promoting staff development activities for the faculty.
- The principal is highly visible throughout the school.

Clear mission

- School-wide objectives are the focal point of reading instruction in this school.
- Reading objectives are coordinated and monitored through all grades.
- In reading, an identified set of objectives or skills exists at each grade level.

Teaching expectations

- In my school, high academic standards are communicated to all students and parents.
- Teachers in my school expect high proportions of their students to do well on standardised tests.
- Teachers treat students in ways that emphasise their strengths and potential rather than focus on their failures.

Opportunity to learn

- There are few interruptions of students’ work during class time.
- Other school activities do not often interfere with basic skills (reading and maths) instruction in this school.
- Class atmosphere in this school is generally very conducive to learning for all students.

All items were answered using a five-point Likert scale with ratings that ranged from strongly disagree (1) to strongly agree (5).¹⁶⁴

Note that all the items in Box 1 relate to direct involvement by the principal in teaching and learning: doing classroom observations, reviewing student results, ensuring appropriate instructional resources, discussing progress with staff. Indeed, all the outcomes included in the pedagogical leadership studies were academic.

¹⁶³ *ibid.*

¹⁶⁴ Hallinger, P., Bickman, L., & Davis, K. (1996). School context, principal leadership, and student reading achievement. *The Elementary School Journal*, 96(5), pp. 527–549.

4.2.4 A meta-analysis of studies of pedagogical leadership and student outcomes

Twelve of the 13 instructional leadership studies were able to be included in our meta-analysis. These collectively contributed 188 effect size statistics—between one and 60 from each study. Where more than one effect size was calculated for a particular leadership–outcome relationship, only the mean is reported in Appendix 4.1. As for the studies of transformational leadership, effect sizes varied widely: of the 16 effects reported in the appendix, eight were weak or small and eight were moderate-to-large. The overall estimate for the impact of instructional leadership on student outcomes is $.42$, which we interpret as moderate.

The evidence typically shows that pedagogical leaders have an indirect effect on student outcomes as they establish clear academic missions, put in place curricula that are coordinated across classes and year levels, safeguard instructional time, ensure orderly classrooms, and raise teacher expectations. In Chapter 5, we discuss these particular leadership practices in greater depth.

To summarise, these 12 studies suggest that by getting directly involved in setting and monitoring teaching goals, providing appropriate resources, and overseeing the teaching programme and by observing and providing feedback to teachers, pedagogical leaders can make a moderate difference to student achievement.

4.2.5 Explaining the relative impacts of pedagogical and transformational leadership

Figure 13 compares our estimates of the effects of transformational, pedagogical, and other theories of leadership on student outcomes. The impact of pedagogical leadership is three to four times that of transformational leadership. The third bar represents the mean effect size of the five studies that were based on other leadership theories. For details of these five studies, see Appendix 4.1.

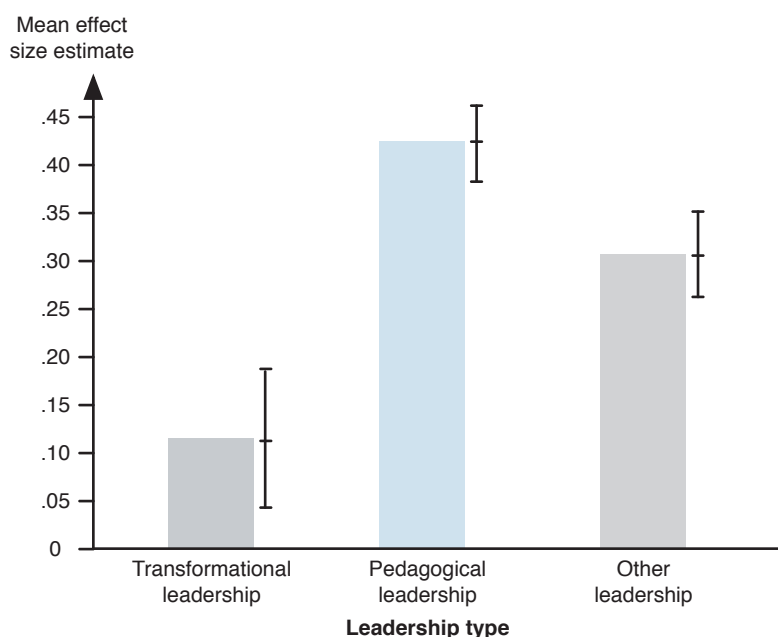


Figure 13. Comparative effects of pedagogical and transformational leadership on student outcomes

Our review of the evidence raises the question of why the effect of pedagogical leadership on student outcomes is generally about three times that of transformational leadership. There are several related possibilities:

1. Transformational leadership is a theory of leadership, not a theory of educational leadership. Its original purpose was to explain how leaders make an impact on adults ('followers'), not to explain how leaders make a difference to students. So, transformational leadership pays homage to theories of adult motivation, loyalty, commitment, teamwork, and power relations—not to theories of teaching and learning. By contrast, the origins of pedagogical leadership are found in rich observations of how leadership is exercised in schools where the students perform at levels that are well above or well below what would otherwise be expected. From the very beginning, therefore, pedagogical leadership was designed to identify those leadership practices that make a difference to students' learning.
2. The instruments used to assess leadership reflect their theoretical origins. Since transformational leadership is oriented more towards the social psychology of leader–follower relations and less towards teaching and learning, it is likely that the assessments associated with this approach will be less able to discriminate the leadership practices that make a difference to students. This can be illustrated by reference to the kinds of survey items typically used to assess goal orientation—a dimension that features in measures of both transformational and pedagogical leadership. The items in the left-hand column of Table 5 come from an instructional leadership survey. Note how they have a more precise focus on student achievement than the items in the right-hand column, which come from a transformational leadership survey and emphasise an unspecified sense of shared purpose. This sense of shared purpose is important in transformational leadership theory because of its correlation with staff satisfaction, loyalty, and commitment. But for schools, the problem is that sense of purpose may or may not translate into goals that reflect the needs of particular student groups. It is this kind of goal orientation that is most likely to deliver improved outcomes for students.

Table 5. A comparison of measures of leaders' focus on goal/mission

Items in instructional leadership survey ¹⁶⁵	Items in transformational leadership survey ¹⁶⁶
Strong instructional leadership of the principal	Building school vision and goals
1. The principal makes student achievement the school's top goal.	1. Gives us a sense of overall purpose
2. The principal states the school's mission in clear, concrete terms.	2. Helps clarify the practical implications of the school's mission
3. The principal ensures that there is an effective, ongoing system for evaluating the school's progress towards its goals.	3. Communicates school mission to staff and students
	4. Helps us understand the relationship between our school's mission and board or Ministry initiatives
	5. Works toward whole-staff consensus in establishing priorities for school goals
	6. Encourages the development of school norms supporting openness to change

3. As surveys of transformational leadership tend to be more general and more focused on relationships than surveys of pedagogical leadership, they are more prone to subjectivity and bias. Bias is introduced when teachers' responses to questions about their leaders' practices are coloured by their feelings towards those leaders. Recent research has found

¹⁶⁵ Heck, R. H. (2000). Examining the impact of school quality on school outcomes and improvement: A value-added approach. *Educational Administration Quarterly*, 36(4), pp. 513–552.

¹⁶⁶ Leithwood, K., & Jantzi, D. (1999). Transformational school leadership effects: A replication. *School Effectiveness and School Improvement*, 10(4), pp. 451–479.

that there is a strong correlation between the way staff rate their leaders and the extent to which they like them¹⁶⁷. When this ‘liking’ factor is controlled for, the association between transformational leadership and organisational outcomes is significantly weaker. If assessments of transformational leadership are so heavily influenced by personal like and dislike, then teacher ratings will not reliably pinpoint their leaders’ practices, making it difficult to uncover how leaders influence student outcomes.

In summary, we suggest that the leadership practices associated with pedagogical leadership are better predictors of student outcomes than those associated with transformational leadership because (a) the theory is more grounded in evidence about effective teaching and learning, (b) assessment tools are more directly focused on educational practices and purposes, and (c) surveys are less subject to personal bias.

4.2.6 Reflections on pedagogical and transformational leadership

We began this chapter by arguing that the important question is not ‘What is the impact of leadership?’ but ‘What is the impact of different types of leadership?’ Our meta-analysis—admittedly limited—has shown that the type of leadership known as transformational has a much smaller impact on student outcomes than that which is known as pedagogical or instructional.

Given transformational leadership’s emphasis on relationships and pedagogical leadership’s emphasis on purposes that are specifically educational, one could argue that both theories are needed. As mentioned earlier, there is actually increasing convergence between the two theories as transformational leadership incorporates explicitly educational elements and pedagogical leadership incorporates explicitly relational elements (such as consensus seeking skills). Although the foci are different, the two theories are perfectly compatible if pedagogical leadership is exercised in a collaborative rather than directive manner.

A recent study by Marks and Printy¹⁶⁸ investigated integration of the two approaches in schools with high proportions of economically disadvantaged and minority students. Rather than confine responsibility for instructional leadership solely to the principal, the authors constructed a broad measure that assessed the contributions of teachers, senior management team, and principal. They also assessed the principal’s transformational leadership contribution using observations and teacher interviews. The intellectual quality of maths and social studies assignments¹⁶⁹ was used as a measure of the impact of the two kinds of leadership. Rather than use standardised tests, the researchers assessed student outcomes by coding 5000 completed assignments in terms of clearly defined dimensions. This study is important in that it is one of the few we have come across that has traced the impact of leadership on both teaching practice and student outcomes.

Of the 24 schools in the Marks and Printy study, seven rated highly on both shared instructional and transformational leadership, a style of leadership that the authors refer to as ‘integrated’. These comprised two primary, two middle, and three secondary schools. Nine schools rated low on both types of leadership, while six rated highly on transformational leadership and low on shared instructional leadership. In these six schools, the principals focused on reform in areas other than teaching and learning—for example, provision of social services¹⁷⁰.

¹⁶⁷ Brown D. J., & Keeping, L. M. (2005). Elaborating the construct of transformational leadership: The role of affect. *The Leadership Quarterly*, 16(2), pp. 245–272.

¹⁶⁸ Marks, H. M., & Printy, S. M. (2003). Principal leadership and school performance: An integration of transformational and instructional leadership. *Educational Administration Quarterly*, 39(3), pp. 370–397.

¹⁶⁹ The intellectual quality of lessons, assignments set, and student work was judged on the basis of evidence of higher-order thinking, depth of knowledge, and the making of connections beyond the classroom.

¹⁷⁰ Two of the original 24 schools were dropped from the analyses because of data missing from the leadership measures.

All schools that rated highly on shared instructional leadership also rated highly on transformational leadership. The authors comment:

Put another way, if a principal demonstrates no capacity for transformational leadership—for example, articulating an intellectual vision, providing structures for participatory decision making, building consensus toward a productive school culture, and promoting collaboration, the principal will be ill disposed to share responsibility with teachers in matters of instruction, curriculum, and assessment in a shared instructional leadership model (p. 385).

There were, however, schools that rated highly on transformational leadership but were low on instructional leadership. This suggests that transformational leadership is a necessary, but not sufficient condition for shared instructional leadership. Analyses found a definite relationship between integrated leadership and the intellectual quality of the instruction¹⁷¹: when student background factors were controlled for, students in schools with integrated leadership achieved significantly higher, on average, than those in schools that did not have such leadership¹⁷².

The Marks and Printy study suggests that it is important that leadership combine collaborative capacity-building with a keen pedagogical focus. It is not clear, however, whether this means that leaders should be specifically taught transformational leadership or simply the skills and knowledge that they need to build relationships as they go about improving teaching and learning. Transformational leadership theory does not teach leaders how to achieve this integration. It may be that the backward mapping analysis of New Zealand research discussed in Chapter 6 and the discussion of leadership knowledge, skills, and dispositions found in Chapter 8 provide more useful resources than transformational leadership theory itself.

The major limitation of the analysis reported in this chapter is the abstract, broadly-specified nature of the theories of leadership with which we have been concerned. When the focus is leadership theory rather than specific leadership practices, a great deal of potentially useful information can be overlooked. For example, the mean effect size for one study was derived from six different effect sizes. These ranged from a zero effect size for strategic resourcing to .94 and .82 respectively for communication about and coordination of instruction. Aggregation obscures these very different impacts; separate effect sizes get one closer to understanding them. The next chapter focuses on an analysis of the impact of these more specific types of leadership practice.

4.3 Summary

We began this chapter with a brief summary of five reviews of international evidence on the impact of leadership on student outcomes. These revealed wide variation in the estimated impact of leadership. Some of this variation could be explained by differences in what was being measured (direct or indirect effects) and by differences in the particular samples of studies reviewed. We reported our own meta-analysis of research on the impacts of pedagogical and transformational leadership on student outcomes. The former was shown to have a substantially greater impact than the latter. The fact that transformational leadership theory is more generic, focusing on leader–follower relations rather than on educating students, may be the explanation for this weaker effect. We noted the increasing convergence of transformational and pedagogical leadership theory as relationship skills come to be included in measures of pedagogical leadership and studies of transformational leadership gain a sharper pedagogical focus.

¹⁷¹ Controlled for student background, there was a .6 increase in instructional quality for a unit increase in shared instructional leadership.

¹⁷² The average achievement was .6 of a standard deviation higher in schools with integrated leadership.

Appendices

Appendix 4.1 *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), US.	A representative sample of 146 elementary schools	Instructional leadership	Survey of teacher perceptions of instructional leadership	Principal only	Average school scores over 2 years in grade 4 reading and maths (Ohio proficiency exams)	For maths, ES = .32 For reading, ES = .16
Andrews & Soder (1987), US.	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 maths	Gains in schools with strong instructional leadership were 2–3 times greater than in schools with weak instructional leadership. Ematical symbols
*Bamburg & Andrews (1991), US.	10 otherwise comparable high-achieving and 10 low-achieving elementary schools	Instructional leadership	19 strategic interactions of principal assessed by teachers ⁵²³	Principal only	Gain scores on CAT in maths only	For maths, $\bar{x} = 1.01$ (n = 19)
*Brewer (1993), US.	A representative national sample of 1100 high schools	Instructional leadership	Administrator and teacher surveys, plus principal ranking of academic excellence	Principal only	Gain scores over a 2-year period on test of verbal and quantitative ability	For ability, $\bar{x} = .42$ (n = 7)
Cheng (1994), Hong Kong.	A sample of 164 elementary schools	The four leadership frames of Bolman and 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 towards school, teachers, and learning	For affective outcomes, $\bar{x} = .27$ (n = 35)

⁵²³ An additional 18 items measured other aspects of leadership. Only six of these were described in sufficient detail to be included in the dimensional analysis.

Reference	Schools	Leadership theory	Leadership measure	Who is leader?	Measure of student outcomes	Magnitude of effects
*Eberts & Stone (1986), US.	A nationally representative sample of approximately 300 elementary schools	Instructional leadership	Teacher and principal surveys	Principal only	Pre- and post-test scores on standardised maths test	For maths $\bar{x} = .14$ (n = 8)
*Friedkin & Slater (1994), US.	20 Californian elementary schools	Social network theory	Teacher survey of persons in school (i) with whom issues are discussed, (ii) from whom advice is sought, (iii) who are close personal friends	Both principal and teachers can be included in network.	4-year average of school maths, reading, and language scores on CAP, adjusted for SES	For combined achievement, $\bar{x} = .44$ (n = 6)
Goldring & Pasternak (1994), Israel.	34 elementary schools	Principal's (P's) control and coordination of the teaching programme	Principal's allocation of time to set tasks, degree of influence over teaching, importance attached to certain goals Teacher reports of degree of goal consensus	Principal only	Scores for grade 5 maths and reading and grade 6 reading	Standardised discriminant coefficients showed that the emphasis principals placed on involving parents (.42) and implementing innovations (-.51) discriminated between more- and less-effective schools. The emphasis principals placed on personal growth and potential (+ve) and moral and social values (-ve) discriminated between more- and less-effective schools. Staff agreement on educational goals was strongest discriminator (+ve).
Griffith (2004), US.	117 urban elementary schools	Transformational leadership	3 domains of transformational leadership: charisma, individualised consideration, intellectual stimulation	Principal only	(i) Individual-level analysis: student report of grade levels achieved, converted to GPA; (ii) School-level analysis: residual standardised test scores	For school grades, ES = .68

Reference	Schools	Leadership theory	Leadership measure	Who is leader?	Measure of student outcomes	Magnitude of effects
Hallinger, Bickman, & Davis (1996), US.	87 Tennessee elementary schools participating in a state programme	Instructional leadership	18 items on instructional leadership as part of CSEQ	Principal only	Gain scores on grades 3 and 6 reading tests (BSFT)	For reading, ES = .22
*Heck (1992), US.	23 high-achieving elementary schools and 17 high-achieving high schools	Instructional leadership	Teacher survey of 3 domains of instructional leadership	Principal or designee	CAP scores	Primary schools: For achievement $\bar{x} = 1.1$ (n = 8) High schools: For achievement $\bar{x} = .42$ (n = 8)
Heck (2000), US (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 maths on SAT	For combined achievement, ES = .41 For combined gains, ES = .37
*Heck, Larsen, & Marcoulides (1990), US.	30 otherwise comparable high- and low-achieving elementary and high schools	Instructional leadership	Teachers reported on frequency of implementation of 22 instructional leadership behaviours.	Principal or designee	CAP scores on combined maths and reading (and language in high schools)	For combined achievement, $\bar{x} = .86$ (n = 22)
*Heck & Marcoulides (1996), Singapore.	A convenience sample of 26 high schools	Transformational leadership ⁵²⁴	Leadership as part of managerial processes, including resource availability, responsiveness to teachers' (unspecified) problems, and visionary and collaborative leadership	School administrators	A national test on a variety of curriculum areas	ES for combined achievement $\bar{x} = -.12$ (n = 3)

⁵²⁴ Of the three leadership variables included in this study, only one was described in sufficient detail to contribute to the dimensional analysis.

Reference	Schools	Leadership theory	Leadership measure	Who is leader?	Measure of student outcomes	Magnitude of effects
*Heck, Marcoulides, & Lang (1991), US & Marshall Islands.	32 elementary & high schools (US); 3 elementary and 1 high school (Marshall Islands)	Instructional leadership	Teachers reported on frequency of implementation of 22 instructional leadership behaviours.	Principal or designee	California: CAP scores; Marshall Islands: national test scores in reading and maths	California: For combined achievement, $\bar{x} = .51$ (n = 22) Marshall Islands: For combined achievement, $\bar{x} = .33$ (n = 22)
*Hoy, Tarter, & Bliss (1990), US.	58 high schools	Neither	(i) Principal supportiveness and directiveness (within OCDQ-RS); (ii) Principal influence, academic emphasis, consideration, initiating structure, resource support	Principal only	Reading and maths achievement, New Jersey HSPT	For combined achievement, $\bar{x} = .42$ (n = 7)
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 as measured by the Student Engagement and Family Educational Culture Survey	For identification, ES = .30 For participation, ES = .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: For participation, ES = .08 For identification, ES = .16 Teacher leadership: For participation, ES = .20 For identification, ES = -.08
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: 'those in positions of responsibility in your school'	Gain scores on Key Stage 2 tests	The impact of transformational leadership in terms of student outcomes for literacy and numeracy is "not significantly different from zero".

Reference	Schools	Leadership theory	Leadership measure	Who is leader?	Measure of student outcomes	Magnitude of effects
*Leitner (1994), US.	27 urban elementary schools	Instructional leadership	Measured by Hallinger's PIMRS	Principal only	Gain scores over one year for reading, maths, and language	For combined achievement, $\bar{x} = .02$ (n = 60)
Marks & Printy (2003), US.	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 on and influence over teaching, curriculum, and assessment	Transformational leadership mostly principal only For instructional leadership, the measure combined both teacher and principal influence.	Student achievement on maths and social studies assignments, marked against three standards of intellectual quality	For combined achievement, ES = .56
*May & Wagemaker (1993), NZ.	175 primary schools	Instructional leadership	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	For reading, ES = .12
Ogawa & Hart (1985), US.	124 elementary and 151 high schools	Leadership as incumbent	Change in principalship	Principal only	Maths and reading scores on CAP achievement test over a 6-year period	Elementary schools: 6–8% of variance in achievement was attributed to principal, after controlling for year and school effects. High schools: The effect was similar for reading but smaller (3%) for maths.

Reference	Schools	Leadership theory	Leadership measure	Who is leader?	Measure of student outcomes	Magnitude of effects
Pounder, Ogawa, & Adams (1995), US.	35 elementary and 25 high schools	Leadership as an organisational quality	Amount of influence exercised by people in 4 different leadership roles	Principal only, school secretary, single staff member, collective group of staff ⁵²⁵	(i) SAT-adjusted school average over the previous 3 years; (ii) Student absenteeism.	Principal leadership: For achievement, ES = -.20
Silins & Mulford (2002), Australia.	96 high schools	Transformational leadership	Survey of teacher perceptions of their principal's transformational leadership skills	Principal and teacher leadership measured separately	(i) Student participation in school; (ii) Student engagement with school; (iii) Academic self-concept.	For participation, ES = .10 For engagement, ES = .30 For self-concept, ES = .16
Van de Griff & Houtveen (1999), Netherlands.	383 elementary schools completed the survey; 174 elementary schools assessed students	Instructional leadership	Teacher survey of instructional leadership using 15-item Rasch scale	Principal only	Student achievement on 180-item test of language, arithmetic, and information processing	Instructional leadership had a small but significant effect on student achievement outcomes.
*Wellisch, MacQueen, Carriere, & Duck (1978), US.	9 successful and 13 unsuccessful elementary schools, based on number of grades/subjects showing improvement in one year	Instructional leadership	Teachers' reports of principal's concern about instruction, coordination of instructional programme, and feedback on teacher performance	Principal plus	Grades 3, 4, and 5 in reading and maths over 2 years on CAT	For combined achievement, $\bar{x} = .55$ (n=6)

⁵²⁵ Even though the impact of four different leadership roles is assessed, not all results are reported in a manner that enables calculation of an effect-size statistic.

Appendix 4.2 Calculation of mean effects of leadership theory by type

For the purpose of estimating the impact of leadership theory, we were able to calculate effect sizes for all but five of the 27 studies. For studies that compared two groups of schools—for example, schools where students were achieving either above or below the levels that background characteristics would suggest—an effect size for leadership was calculated using a formula in which the difference between the means of the two groups was divided by the standard deviation of the combined data. Corrections were made for sample size, using Hedges'⁵²⁶ formula. For studies that did not involve between-group comparisons, different formulae were used to obtain comparable statistics. These formulae converted product-moment correlations, Kendall's tau coefficients, and regression coefficients to z scores.

There is no one approach to interpreting effect sizes. We used this convention:

- 0 – .19, no or weak effect;
- .2 – .39, small effect;
- .4 – .59, moderate effect;
- > .6, large effect.⁵²⁷

⁵²⁶ Hedges, L., & Olkin, I. (1985). *Statistical methods for meta-analysis*. New York: Academic Press.

⁵²⁷ See Glass, G. V., McGaw, B., & Smith, M. L. (1981). *Meta-analysis in social research*. Newbury Park, CA: Sage Foundation Publications.

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Note: All Best Evidence Synthesis Programme publications can be accessed at www.educationcounts.govt.nz/goto/BES

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Glossary of Māori terms

Ako	Teaching and learning, understood as a single, reciprocal process
Hapū	Sub-tribe
Hui	Meeting, gathering, usually with a specific kaupapa
Iwi	People, nation, tribe
Kaiako	Teacher, instructor
Kanohi ki te kanohi	Face to face
Kaumātua	Elder, old man or woman, adult
Kaupapa	Purpose, agenda
Koro	Male elder, old man, grandfather
Kuia	Female elder, old woman, grandmother
Kura	School
Kura kaupapa Māori	Māori-medium school with an identifiable philosophical base (e.g., Te Aho Matua)
Kura whānau	The support network of families and extended families associated with a school
Ngāti	Prefix denoting tribe
Pākehā	New Zealand-born non-Māori, especially those of European descent
Pāngarau	Mathematics
Pānui	Reading
Pōwhiri	Formal welcome or opening ceremony
Taonga	Prized possession, treasure, inheritance
Te Aho Matua	Literally, the central thread; the philosophical statement that guides the operations of many kura
Te Kotahitanga	A professional development intervention for non-Māori teachers of Māori in English-medium schools. For a description of this intervention, see Case 7 (Establishing a culturally responsive pedagogy of relations) in Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007), <i>Teacher Professional Learning and Development Best Evidence Synthesis</i> . See also the Te Kotahitanga website: http://edlinked.soe.waikato.ac.nz/departments/index.php?dept_id=20
Te reo Māori	The Māori language
Te reo Māori me ōna tikanga	Māori language and customs
Tikanga	The usual and accepted procedure or way of doing things; protocol
Tuhituhi	Writing
Tumuaki	Principal, head teacher, leader
Whakapapa	Ancestry, genealogy
Whānau	Family, to be understood in a much more encompassing sense than the nuclear family; network of mutual supports and obligations
Whanaungatanga	Sense of kinship, family, belonging

Mo ngā tamariki, kia rua ngā reo. Ko te reo o ngā mātua tipuna tuatahi, ko te reo o tauwi tuarua. Kia ōrite te pakari o ia reo, kia tu tangata ai ngā tamariki i roto i te ao Māori, i roto hoki i te ao o tauwi.

I runga i tēnei whakaaro, kia tere pakari ai te reo o ngā tamariki, me whakahaere ngā mahi katoa o te kura i roto i te reo Māori. Tae atu ki te hunga kuhu mai ki roto i te kura, me kōrero Māori katoa, i ngā wā katoa.

Kura kaupapa Māori, therefore:

- respect all languages;
- expect full competency in Māori and English for the children of the kura;
- affirm that total immersion most rapidly develops language competence and assert that the language of the kura be, for the most part, exclusively Māori.

Te Aho Matua o ngā Kura Kaupapa Māori.
English interpretation by Dr Kāterina Te Heikōkō Mataira