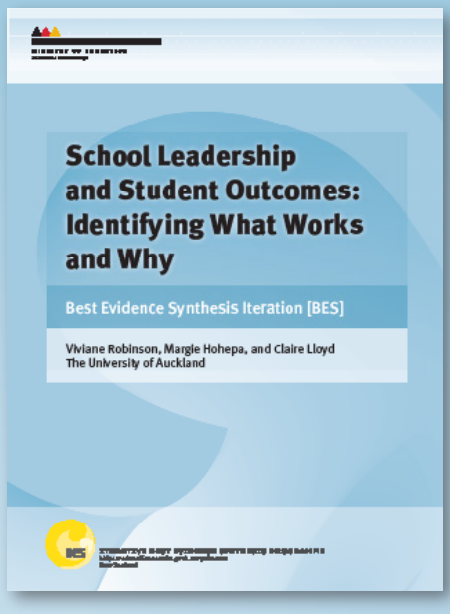
# Develop smart policy and curriculum documents to support educational improvement

This is one of a series of cases that illustrate the findings of the best evidence syntheses (BESs). Each is designed to support the professional learning of educators, leaders and policy makers.



# BES cases: Insight into what works

The best evidence syntheses (BESs) bring together research evidence about 'what works' for diverse (all) learners in education. Recent BESs each include a number of cases that describe actual examples of professional practice and then analyse the findings. These cases support educators to grasp the big ideas behind effective practice at the same time as they provide vivid insight into their application.

Building as they do on the work of researchers and educators, the cases are trustworthy resources for professional learning.

## Using the BES cases

The BES cases overview provides a brief introduction to each of the cases. It is designed to help you quickly decide which case or cases could be helpful in terms of your particular improvement priorities.

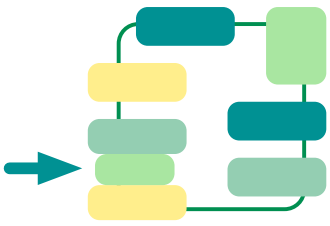
Use the cases with colleagues as catalysts for reflecting on your own professional practice and as starting points for delving into other sources of information, including related sections of the BESs. To request copies of the source studies, use the Research Behind the BES link on the BES website.

The conditions for effective professional learning are described in the Teacher Professional Learning and development BES and condensed into the ten principles found in the associated International Academy of Education summary (Timperley, 2008).

Note that, for the purpose of this series, the cases have been re-titled to more accurately signal their potential usefulness.

## Responsiveness to diverse (all) learners

Use the BES cases and the appropriate curriculum documents to design a response that will improve student outcomes



The different BESs consistently find that any educational improvement initiative needs to be responsive to the diverse learners in the specific context. Use the inquiry and knowledge-building cycle tool to design a collaborative approach to improvement that is genuinely responsive to your learners

### Develop smart policy and curriculum documents to support educational improvement

This case provides educational leaders and policy makers with six criteria for the development of policy and curriculum documents. The criteria are elaborated and supported with examples. If documents incorporate a sound, evidence-based theory about how to achieve their intent, make connections with readers' prior understandings, include misconception alerts, and are cognisant of memory capacity, then they are more likely to have a positive impact on student outcomes.

This case promotes the use of "smarter" tools to support educational improvement.

The wedge graph described in BES Case 28: *To improve learning, engage with teachers' beliefs about students and learning* is an example of a smart tool, a feature of effective practice in all BES exemplars.

# 6 Leadership through the selection and design of smart tools

## Introduction

Not all educational leadership involves face-to-face interaction. Leadership is also exercised in less personal ways, through the selection and design of such tools as written policy documents (for example, curriculum statements), graphs, software (for example, asTTle), and templates. Given the power of tools to shape teaching practice, it is important to evaluate their worth. Is a tool 'smart', because it helps those it influences to improve their practice, or is it 'dumb', because it shapes their practice in undesirable ways?

Smart tools have two particular qualities: they incorporate a sound, evidence-based theory about how to achieve the tool's purpose and they are well designed. In this case, we evaluate two curriculum documents in terms of the second quality, good design. The examples are from Aitken's study of curriculum design in social studies.

Aitken contends that effective design involves:

1. making connections with teachers' prior understandings;
2. accommodating the limited capacity of users' working memory.

He uses the research on principles of curriculum design to examine the 1997 national policy statement *Social Studies in the New Zealand Curriculum* and then provides a model social studies curriculum statement as an example of effective curriculum design.

If a curriculum document (whether national or school) is badly designed—if the expression of ideas is unclear or contradictory—then the integrity of the learning area will be undermined and the effectiveness of teaching compromised. If documents are well designed, they are likely to be understood and used. This will increase the probability of a positive impact on student outcomes. Policy makers and school leaders need to be familiar with what constitutes good policy/curriculum design so that they can select or develop policies that teachers will be able to understand and implement in ways that will enhance student learning.

## Context

### The principles of good tool design

Drawing on cognitive theory, Aitken identified the two principles of effective design set out above. The following box explains how they apply to the design of curriculum documents.

| Well-designed tools make connections with teachers' prior understandings | Well-designed tools accommodate the limited capacity of users' working memory |
|---|---|
| They:<br>• clearly communicate the purpose of the curriculum so that attention is focused on the underlying intentions;<br>• anticipate the existing understandings (schema) that teachers are likely to bring to the curriculum and the misconceptions these might create;<br>• link abstract principles with concrete examples so that policy intentions are most likely to be attended to by teachers. | They:<br>• use graphics to show how the various requirements of the curriculum are interconnected and to utilise the full capacity of working memory (visual and verbal);<br>• organise text logically and use signalling devices to reduce the cognitive load when connecting related text that is located in different places<br>• develop an internally coherent design that minimises complexity. |

### Design of the 1997 social studies curriculum statement

Aitken then analysed the New Zealand social studies curriculum (1997) to identify the extent to which the principles of good design were evident. Based on his analysis, he generated a set of design criteria to guide future curriculum development. To show how they would promote sense-making, the author used them to develop a model 'essence statement' for social studies[521].

[521] This statement was constructed by the author as an examplar of good curriculum design. It does not have official status.

## Leadership through selecting, developing, and using smart tools

Aitken's six criteria for evaluating the design of a policy or curriculum statement are:

1. It is logically structured around a clear and unambiguous purpose.
2. It clearly explains the rationale for change.
3. It incorporates misconception alerts.
4. It acknowledges teachers' existing understandings and integrates them into the new document.
5. It maximises internal coherence and minimises complexity.
6. It clearly connects abstract ideas to spatially contiguous detail and examples.

We outline these criteria in the following sections and conclude the case with examples from Aitken's model curriculum statement.

| Criterion 1 | |
|---|---|
| **The statement is logically structured around a clear and unambiguous purpose** | **Rationale**<br>Settling on a clear purpose makes the development process more difficult, but it is essential for creating coherence and reducing the cognitive load required to implement disparate and potentially contradictory elements. |

**Leadership dimension 8**

Coherence is enhanced when there is a single aim that is clearly aligned to the core purpose of the curriculum and when all elements of the curriculum are derived directly from this core purpose. The following example elaborates and illustrates this criterion using Aitken's model essence statement for social studies.

### A model aim statement

**The aim of social studies**
The aim of social studies is to build the capacity for students to participate in human communities and to contribute to the common good.

← There is only one aim and it is aligned to a clear purpose – in this case, "social studies as citizenship education". The aim is stated in one sentence.

"Participate in human communities" refers to the pursuit of individual and group interests and aspirations; "contribute to the common good" refers to contribution to the wider community and to fulfilling responsibilities beyond personal or immediate group aspirations.

← Key phrases in the aim are immediately defined.

***Developing understanding of how human communities operate***
By drawing on the content and methods of the social science disciplines – in particular, history, geography, economics, sociology, and political studies – students will develop understanding of *important ideas* **about how human communities operate** …

← Related curriculum elements are derived directly from the purpose by (a) repeating essential components of the aim in headings, ("human communities") and (b) using connectives in the text ("by drawing on the content …").

***Strand 1: Culture, heritage, and place***
Students will understand how communities develop a way of life and an identity based on their culture and heritage …

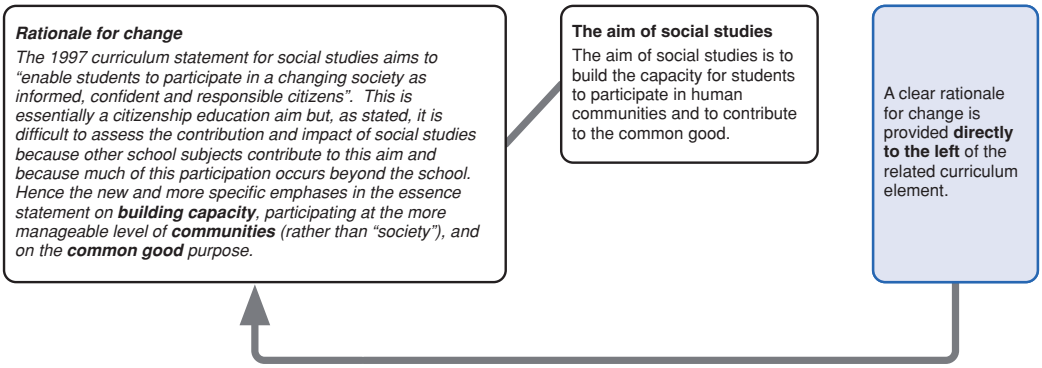
← Strand titles are aligned to the purpose of citizenship education and the relationship is defined in the text that follows.

## Criterion 2

| The statement clearly explains the rationale for change | **Rationale**<br>Drawing attention to the underlying purposes counteracts the tendency to attend only to the surface features of policy or curriculum. |
|---|---|

In the example below, the 'Rationale for change' box alerts users to important differences between the aim of the 1997 curriculum statement and the aim found in the new essence statement. Placement of the rationale next to the relevant text minimises the cognitive load required to connect the two.

### A model rationale

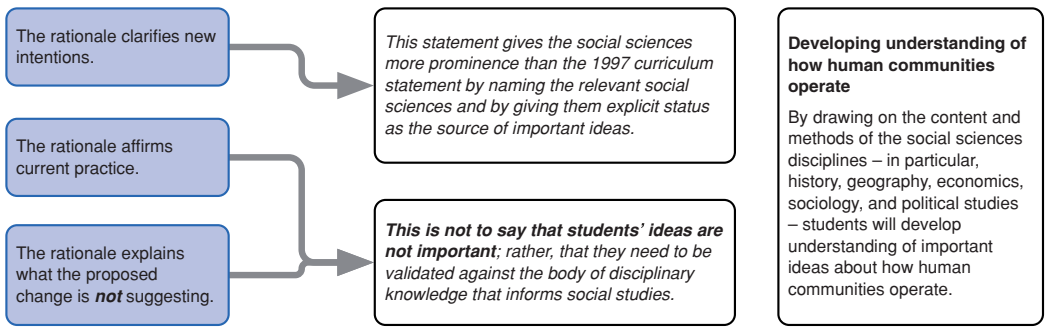



## Criterion 3

| The statement incorporates misconception alerts | **Rationale**<br>Misconception alerts serve to counteract possible over-assimilation by clarifying how the new policy differs from the old or from what might be assumed. In other words, their function is to minimise confusion about what the policy is and is not. |
|---|---|

Misconception alerts avert possible misinterpretation by (a) clarifying in what ways the statement requires significant new understandings and practice, (b) affirming current practice, where teachers might incorrectly understand that it was to be discarded, and (c) explaining specifically what the statement is not suggesting. The model essence statement explains that the aim of social studies will be achieved by 'developing understanding of how human communities operate' and by 'developing and applying the skills necessary for effective participation in human communities'. The diagram shows how misconception alerts clarify the meaning of 'developing understanding of how human communities operate'.

### A model misconception alert




Leadership dimension 8

Leadership dimension 8

## Criterion 4

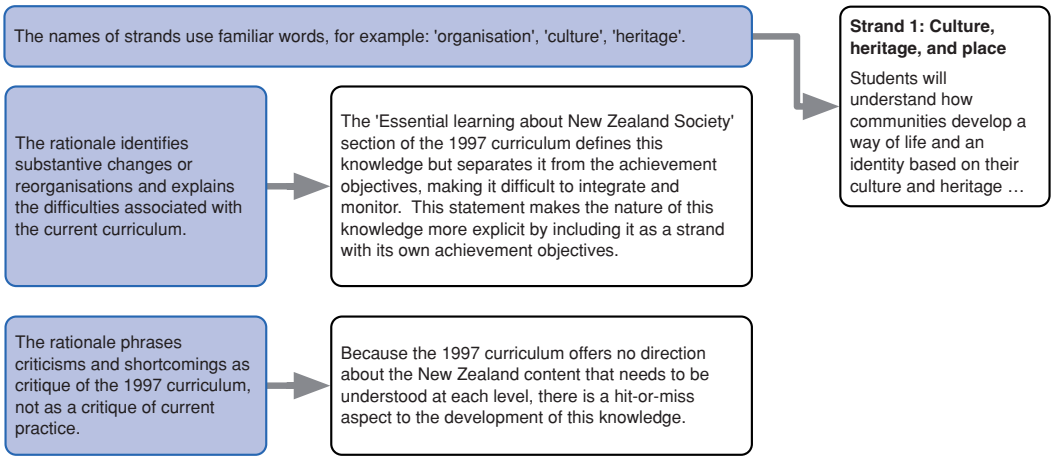
| The statement acknowledges teachers' existing understandings and integrates them into the new document | **Rationale**<br>This helps teachers make links to their current understandings and reduces perceptions that the required changes will be disruptive and unreasonable. |
|---|---|

It is desirable to have continuity of language and meaning between old and new policies. When shifts in language and meaning are necessary, well-designed statements make links between old and new understandings. This can be achieved by:

- providing a rationale that alerts teachers to changes in emphasis;
- describing the difficulties associated with current policy (where more substantive change is required).

By framing such explanations as critiques of current policy rather than current practice, users are less likely to be alienated.

### A model connection to existing understandings




## Criterion 5

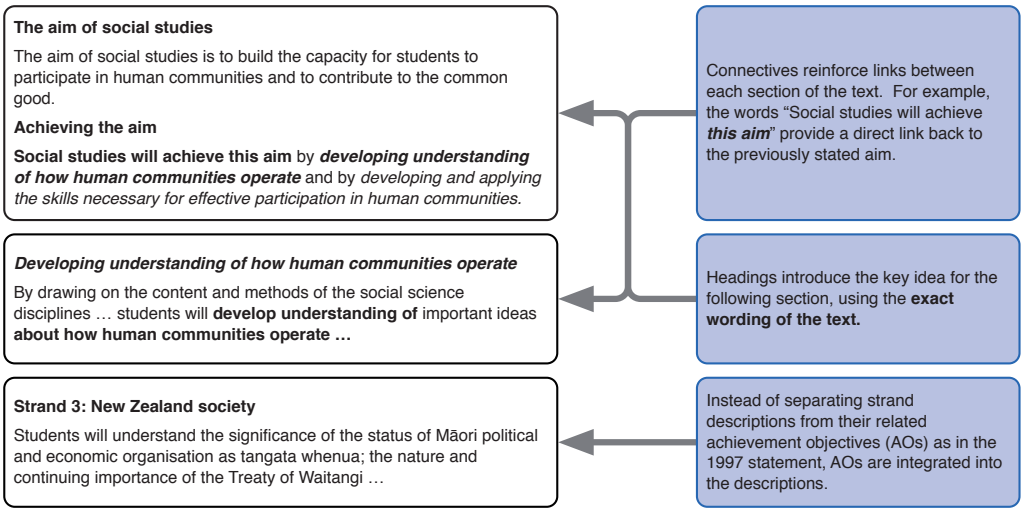
| The statement maximises internal coherence and minimises complexity | **Rationale**<br>Working memory poses severe limits on users' ability to understand and integrate multiple, interacting elements. Complexity is reduced through the use of fewer elements and through giving examples of how competing elements can be integrated. |
|---|---|

Complexity is reduced when:

- the same words are consistently used to communicate the same idea throughout the text (instead of varied to avoid repetition);
- headings are used to highlight the important ideas, and the words from the headings are then used in the subsequent text;
- connecting words and phrases are used to reinforce links between the different sections of the text.
- related sections of the text are placed together.

Complexity is further reduced by simplifying the structure of the text (for example, by reducing the number of curriculum requirements or achievement objectives).

## A model showing how coherence can be maximised




Leadership dimension 8

### Criterion 6

| The curriculum statement clearly connects abstract ideas to spatially contiguous detail and examples | **Rationale**<br>Helps accurate interpretation of principles and reduces cognitive load that is imposed if principles and examples are spatially separated. |
|---|---|

Text that communicates abstract ideas does not aid sense-making because abstract statements can be "understood in superficial and idiosyncratic ways"[522]. Abstract ideas in curriculum statements are most likely to be understood when they:

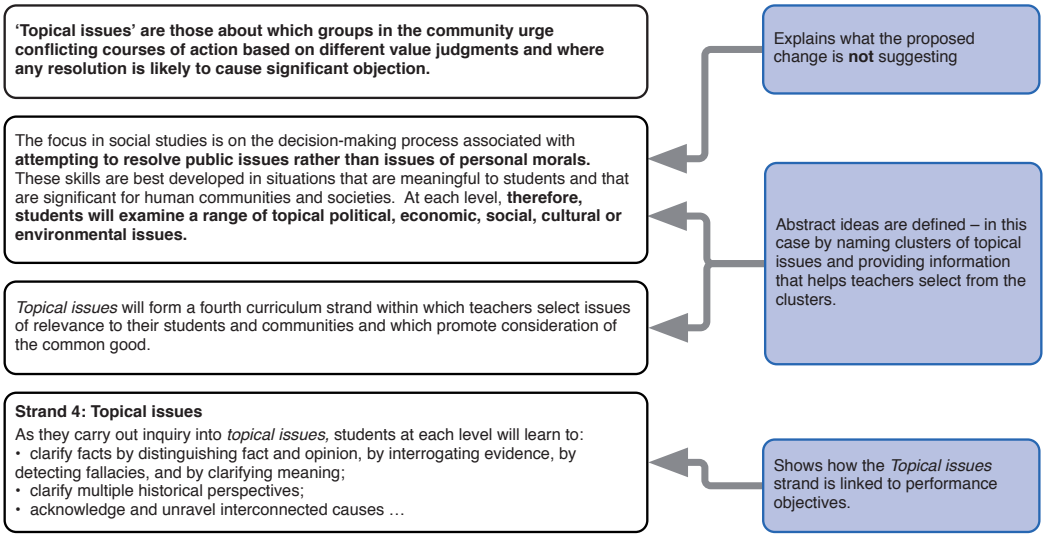
- are supported by definitions that make their meaning clear (for example, by explaining how they will be applied or by giving examples);
- are accompanied by misconception alerts that anticipate misunderstandings;
- come with performance objectives that make it clear what the desired outcomes are in terms of teaching and learning.

When curriculum statements are constructed in this way, the cognitive load on teachers is significantly reduced because they do not have to figure out for themselves what the abstract ideas mean and how they are to be applied. The following model shows how these techniques clarify the meaning of the concept 'topical issue'.

[522] Spillane, J. P., Reiser, B. J., & Reimer, T. (2002). Policy implementation and cognition: Reframing and refocusing implementation research. *Review of Educational Research, 72*, pp. 387–431. See p. 416.

## Leadership dimension 8

### Model showing how the meaning of abstract ideas can be clarified with the help of concrete examples




## Conclusion

While we have used a curriculum statement to illustrate good policy design, the six criteria outlined above are applicable to any national or school policy. A policy's design has a big influence on how well it is understood and implemented. Ensuring that policies and other tools are well designed is an important leadership task.

## Key questions

Examine a curriculum statement or policy statement that influences leaders' or teachers' practice:

1. Is the purpose clear?
2. What understandings/misunderstandings are teachers likely to bring to their interpretation of the statement ?
3. Are concrete examples provided to support the abstract ideas?
4. Could a graphic be used to indicate how the elements of the statement relate to each other?
5. Do the words used signal how the different parts of the text relate to each other?
6. Do the different elements of the policy (goals, procedures, success indicators …) form a coherent whole?

## Source

Aitken, G. (2005). *Curriculum design in New Zealand social studies: Learning from the past.* Unpublished doctoral thesis, University of Auckland.

## Further reading

Halverson, R., Kelley, C., & Kimball, S. (2004). Implementing teacher evaluation systems: How principals make sense of complex artifacts to shape local instructional practice. In W. K. Hoy & C. G. Miskel (Eds.), *Educational administration, policy and reform: Research and measurement* (pp. 153–188). Greenwich, CT: Information Age Publishing, Inc.

Spillane, J. P. (2006). *Distributed leadership.* San Francisco, CA: Jossey-Bass.

Spillane, J. P., Reiser, B. J., & Reimer, T. (2002). Policy implementation and cognition: Reframing and refocusing implementation research. *Review of Educational Research, 72*, pp. 387–431.

# 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<br>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.<br>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<br>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.<br>The emphasis principals placed on personal growth and potential (+ve) and moral and social values (–ve) discriminated between more- and less-effective schools.<br>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;<br>(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:<br>For achievement $\bar{x} = 1.1$ (n = 8)<br>High schools:<br>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<br>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);<br>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;<br>Marshall Islands: national test scores in reading and maths | California:<br>For combined achievement, $\bar{x}$ = .51 (n = 22)<br>Marshall Islands:<br>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);<br>(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<br>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:<br>For participation, ES = .08<br>For identification, ES = .16<br>Teacher leadership:<br>For participation, ES = .20<br>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<br>Instructional leadership measure includes degree of focus on and influence over teaching, curriculum, and assessment | Transformational leadership mostly principal only<br>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:<br>6–8% of variance in achievement was attributed to principal, after controlling for year and school effects.<br>High schools:<br>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;<br>(ii) Student absenteeism. | Principal leadership:<br>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;<br>(ii) Student engagement with school;<br>(iii) Academic self-concept. | For participation, ES = .10<br>For engagement, ES = .30<br>For self-concept, ES = .16 |
| Van de Grift & 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.