

# A study into “organisational readiness” and its impacts on school improvement

David Lynch, Richard Smith, Tony Yeigh and Steve Provost  
*Department of Education, Southern Cross University, Bilinga, Australia*

393

Received 24 July 2017  
Revised 11 April 2018  
Accepted 20 April 2018

## Abstract

**Purpose** – The purpose of this paper is to compare measures of socio-economic status (Index of Community Socio-educational Advantage values (ICSEA)), school performance, school funding and school readiness in terms of their impact on student performance. In this respect, the paper tests the proposition – given research that suggests the teacher is the important ingredient in improved student learning performance – that a school principal who has strategically worked to “ready” their teachers for a whole of school teaching improvement agenda will generate increased student learning results than those who have not and further this improvement will occur irrespective of the circumstance of the socio-economic circumstance of the school.

**Design/methodology/approach** – In total, 22 Government schools from a single school district in Australia participated in the study, after having been involved in a system sponsored “teaching improvement program”. A survey, consisting of 30 seven-point Likert-style scale items, was administered to all teachers and school leaders in the school district. The survey was designed to rate levels of staff perceived alignment, capability and engagement to the programme as it was implemented by the Head in each school. The information regarding each school’s ICSEA value, funding per student and student learning performance, was obtained from the database provided by the relevant authority (ACARA). All statistical analysis was completed using SPSS Version 22.

**Findings** – The findings of this study indicate that high levels of organisational readiness, as defined by the alignment, capability and engagement (ACE) approach, are associated with effective teaching and improvement in student outcomes. In turn, the authors interpret this to mean that the internal organisation of a school has important effects on student achievement that are independent to external factors such as school funding or even the socio-educational positioning of the school.

**Research limitations/implications** – The findings of this study indicate that high levels of organisational readiness, as defined by the ACE approach, are associated with effective teaching and improvement in student outcomes. The implications are that the ACE provides a framework for what the school leader needs to focus on when whole of school teaching improvement is the goal. The study did not investigate what the school leader did in each school to ready their staff.

**Practical implications** – These findings indicate the importance of leadership in a school and provide an insight into what the school leader needs to focus on when whole of school teaching improvement is the intended goal. This focus can thus be understood as the leader working to ensure all staff members are ACE to the improvement agenda.

**Social implications** – The improvement of educational outcomes is a global goal of governments. In this respect, Organisation for Economic Cooperation and Development (OECD) school systems in particular have linked education system performance and international competitiveness in ways that place pressure on the “black box” of individual schools. Reports, such as the Programme for International Student Assessment and local testing regimes testify that governments and communities are interested in the academic performance of students within and across schooling systems. The benefits of high performing schools contribute to the standard of living of citizens and the well-being of a society more generally. This paper investigates propositions that focus the work of the school leader to achieving such inherent goals.

**Originality/value** – The paper introduces the concept of school readiness. The premise is considered important to the current research because it represents the ability of schools to participate in reform agendas that are characteristic of government policy positions. The “school readiness” approach lies outside the education literature, motivated by the idea that the literature on turning around failing organisations in sectors outside of education provides clear guidelines for reforming schools. The implications for turnaround leadership are particularly encouraging and important particular organisational factors, in common with sectors outside of education, are of significant importance in enhancing teacher motivation, teacher learning and consequential improvements in student outcomes. This paper seeks to add empirical evidence in support of these approaches by adopting what the authors refer as organisational “readiness” for reform developed by Schiemann (2014).

**Keywords** School leadership, School improvement, School management

**Paper type** Research paper



## Introduction

The improvement of educational outcomes is a global goal, and in this respect Organisation for Economic Cooperation and Development (OECD)[1] school systems have, in particular, linked education system performance and international competitiveness in ways that place pressure on the “black box” of individual schools (see OECD, 2013, 2010a, b). Reports such as the Programme for International Student Assessment and local testing regimes such as National Assessment NAPLAN[2] in Australia, testify that governments and communities are interested in the academic performance of students within and across schooling systems.

The aim of this paper is to investigate the relationship between the concepts of organisational readiness (Schiemann, 2014) and school improvement (Hanushek, 2016; Leithwood *et al.*, 2008; Hattie, 2009). More specifically, we report on a research study that was conducted in 22 Government schools in an education district in Australia, where the district-wide agenda was to improve the outcomes of student learning in each school. Essentially the study tests the proposition – given research that suggests the teacher is crucial to improved student learning performance (Hattie, 2009) – that a school principal who has strategically led to “ready” their teachers for a whole school teaching improvement agenda will generate greater student learning improvement than those who have not, and that this improvement will occur irrespective of the circumstance of the socio-economic positioning of the school. In this respect, the work of school principals who were tasked with positioning their school for improvement was central to the current investigation. We begin with a review of the relevant literature, in order to provide a clear framework for this sort of positioning.

## Literature review

As noted in our introduction, schools and schooling systems are under increasing pressure to improve and sustain academic achievement, and this has engaged governments of all persuasions to take a greater interest in the performance of their education systems through policy positions, such as national testing and reporting regimes (Cobb and Jha, 2016; Buckingham, 2013). A significant effect of such interest is the “global competition in educational achievement in core subject matter areas like reading, arithmetic/mathematics and science” (Scheerens, 2013, p. 16). This is of particular concern because there has been a significant fall in the number of students studying these subjects at both the secondary and tertiary levels of education in most advanced economies (American Psychological Association, 2012; The Royal Society, 2014), and notably so in Australia (Ainley *et al.*, 2008; Lyons and Quinn, 2015; Office of the Chief Scientist, 2014), with a concomitant shortage of appropriately qualified teachers for them in schools (Harris and Farrell, 2007; Tytler, 2007).

Another reason for the current enthusiasm to reform education systems in relation to school performance stems from pressures generated by the emergent knowledge-based economy (Benjamin, 2003; Coaldrake and Stedman, 1999; Gibbons *et al.*, 2004; OECD, 1996), occurring as it has in combination with a highly competitive trade environment since the 1990s. This has led to a “commercialisation imperative” in relation to education (Hearn, Cunningham and Ordonez, 2004) that has compelled governments, education systems and individual schools to identify positive educational change in terms that are accountable and measurable (Carr, 2011; Department of Education, Science, and Training, 2002), and numerous reports cite the economic benefits of maintaining high performing education systems in such a global knowledge-based economy (cf. Access Economics, 2005; Barro, 2001; Hanushek and Woessmann, 2009, 2010; MCEETYA, 2008).

### *Factors relating to this report*

In this respect, a significant body of research (e.g. Hargreaves and Fullan, 2012; Hattie, 2009, 2011, 2012; Lachat and Smith, 2005; Leithwood *et al.*, 2008; Marzano *et al.*, 2005;

Shen and Cooley, 2008) has identified clear links between the teaching capacities of teachers and student academic performance, indicating that what school teachers do, matters. Indeed, the present imperative for initial teacher education in Australia highlights teacher quality in the form of specific teaching standards (the Australian Professional Standards for Teachers, cf. Australian Institute for Teaching and School Leadership, 2012) precisely in order to articulate quality teaching practices as the basis for improved student learning outcomes (cf. Hattie, 2011).

A contrasting position with a long pedigree in educational research and policy is the effects of socio-economic status (SES) ([www.abs.gov.au/ausstats/abs@.nsf/Lookup/4250.0.55.001Main+Features32009](http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4250.0.55.001Main+Features32009)) on student academic performance. In contemporary policy discussion, there have been calls for increased levels of funding and differential regimes to compensate high-need schools (Ball, 2013; Buckingham, 2014; Cobb and Jha, 2016; Gonski *et al.*, 2011). However, we note that this line of argument runs counter to research evidence suggesting there is little correlation between increased school funding and increased student academic performance (Cobb and Jha, 2016; Hanushek, 2016; Hanushek and Woessmann, 2010, 2011).

Situated between teacher quality and student SES is the role of school leadership. In an extensive meta-analysis study, Marzano *et al.* (2005) found a positive correlation ( $r = 0.25$ ) between a principal's leadership and student achievement, which potentially, can increase student achievement up to 22 per cent higher than the starting percentile (Marzano *et al.*, 2005). The main finding from Marzano *et al.* (2005), as well as from researchers such as Mendels (2012), Scheerens *et al.* (2007) and Hattie (2009), is the importance of having a competent school leader who orchestrates school resources for improved student learning. Scheerens (2012, pp. 23-24) also notes that such research provides a "relatively clear idea on what aspects of school functioning should be optimized in order to enhance student performance". These findings are important to the current research because they highlight what we identify as school readiness – the overall optimisation of resources and talent within a school – as necessary to student improvement. From this perspective, we position school readiness as a measure of effective school leadership, representing, as it does, the degree to which a school leader has optimised his or her school for student improvement initiatives.

Bringing these various factors together, it is the purpose of this research study to compare measures of SES (Index of Community Socio-educational Advantage Index of Community Socio-educational Advantage Values, ICSEA; <http://education.qld.gov.au/schools/grants/docs/acara-fact-sheet-icsea.pdf>), school performance (NAPLAN, a standardised measure of student achievement in Australia), school funding, and school readiness in terms of their impact on student performance. From this perspective, the work of school principals who were tasked with positioning their school for improvement was central to the current investigation. The context for this investigation is a state government education district in Australia comprised of 22 government schools (Kindergarten – Year 6 and Kindergarten – Year 12), each of which was participating in a "whole of school district" strategy designed to improve the learning performance (as measured by NAPLAN results) of Year 3 students, as part of the government strategy position.

Before proceeding, and for later points of reference and analysis, we further discuss the concept of school readiness and introduce the premise of teaching improvement in Australia.

### *School readiness*

School readiness is considered important to the current research because it represents the ability of schools to participate in reform agendas that are characteristic of government policy positions. Our approach lies outside the education literature, motivated by the idea

that the literature on turning around failing organisations in sectors outside of education provides clear guidelines for reforming schools. The implications for turnaround leadership are particularly encouraging and important (Murphy, 2008). Particular organisational factors, in common with sectors outside of education, are of significant importance in enhancing teacher motivation, teacher learning and consequential improvements in student outcomes (Slegers *et al.*, 2014). This paper seeks to add empirical evidence in support of these approaches by adopting what we refer as organisational “readiness” for reform, as developed by Schiemann (2014).

Schiemann’s (2014) work provides a holistic model of organisational behaviour and effectiveness in the form of an organisational readiness model known as the alignment, capability, and engagement (ACE) model. This model focuses the leadership on “talent optimization” as an expression of organisational readiness to perform, described by Schiemann (2012 as the “collective knowledge, skills, abilities, experiences, values, habits, and behaviors of all labor that is brought to bear on the organisation’s mission” (p. 282)). In this respect, the ACE model provides a means for identifying strategic leadership via the implementation of organisational readiness, wherein Schiemann (2014) proposes that leaders (in this case “school leaders”, such as principals and heads) undertake a process of talent management to reach benefits such as improved student outcomes, and that great leaders “know how to optimise their talent by focusing it, developing the right capabilities, and creating engagement” (p. 283).

A school readiness survey based on this model of leadership was used to assess the degree to which the participating schools had managed and optimised “readiness” in a way designed to support improved student outcomes, as measured by the NAPLAN. In this respect, the survey items were designed to tease out particular leadership activities that represent or have an impact on the underlying ACE concepts and principles, in light of Schiemann’s (2014) model, which seeks to capture the interplay between organisational readiness and strategic leadership in the construct of “school readiness”.

The items of this survey were designed to assess synchrony of people in terms of aligning with the goals, clientele and “brand” of the school organisation, capabilities sufficient to meet the organisation’s strategic goals in terms of the knowledge, skills, information and resources available, and engagement, in terms of staff satisfaction, commitment and willingness to take action for the benefit of the organisation, including discretionary action that benefits the organisation. The survey thus provides a means for understanding both single schools and school groups as “organisations” operating in accordance with the principles, relationships, knowledge areas, skills and attitudes represented in the ACE model of readiness. With this in mind, the items pertain to eight main areas of interest concerning leadership elements that impact on optimisation: tasks which occupy the most time, attitudes towards the principal’s role, role accountability, perceived impediments to school performance, perceived contributors to school performance, leadership behaviours, perceived importance of behaviours and time spent in leadership activities. The common denominator underlying these areas is that they all involve leadership activities that affect school readiness to some degree.

This survey thus offers a mechanism for identifying and measuring genuine leadership effects on student and staff outcomes and on professional work. More specifically, it enables researchers to determine if talent and resources have been optimised at a whole-school level, with the magnitude of the effects of the survey items able to be evaluated both internally (from one time frame to another, longitudinally) and externally (between different schools). Further, the degree of this effect can be explained by “malleable conditions defined at the school level” (Scheerens, 2013, p. 8). For example, in the case of school funding levels, investigation of “resources” may lead to a deeper understanding of how funding is being optimised (or not). Due to such characteristics, which encompass the overall optimisation of

talent and resources for schools, the survey has been identified as a “readiness survey” for the purposes of this research paper.

The readiness survey was administered to schools wishing to participate in a professional development programme aimed at school reform, and based on the role of the school head as providing organisational leadership. The assumption was that schools ready for reform recognised the importance of school readiness and had implemented appropriate procedures to reach aspirational goals, such as improved teaching and student academic performance. Such schools are on the tipping point for change, while, in contrast, schools with less efficacious optimisation profiles had work yet to do on their management, leadership and teacher dynamics before sustainable reform would be possible. Thus, within the survey framework, school readiness has different entry points, depending on the optimisation profile of any given school or school district, and an underlying assumption of the research was that the effects of differing entry points would be reflected in the student outcome data (NAPLAN), also collected.

### *School improvement in Australia*

In Australia, six state and two territory governments have responsibility for compulsory schooling (i.e. reception/kindergarten through year 12) and enact such responsibilities through policy positions. SATFEL in South Australia ([www.learningtolearn.sa.edu.au/tfel/files/links/DECS\\_SA\\_TfEL\\_Framework\\_gu\\_1.pdf](http://www.learningtolearn.sa.edu.au/tfel/files/links/DECS_SA_TfEL_Framework_gu_1.pdf)) and Advancing Education in Queensland (<http://advancingeducation.qld.gov.au/SiteCollectionDocuments/Advancing-education-booklet.pdf>) are two such examples. These policy positions seek to focus schools on improvement via the use of programs involving explicit aims and goals relating to teaching quality and student achievement.

At an individual school level, these government policy positions have been designed to increase student learning outcomes through the work of school leaders, who act as instructional leaders in the sense that they encourage and model an effective pedagogy that is directed at student learning.

In our focal school district, the District Education Director – and each school leadership team (the principal and his or her senior staff) – is required to relentlessly position their schools, its global resources and the collective talents of staff to achieve improved learning outcomes in all students. Importantly, this positioning is based on local environmental factors, which include elements such as the school’s “remoteness”, the percentage of enrolled indigenous students, levels of socio-educational advantage (SEA) and NAPLAN results. Together, these elements are calculated and reported in Australia as an ICSEA value. The premise of the associated government policy positions is that it requires the school leader to take stock of his or her school’s teaching performance and enact strategies to “ready” their teachers for such an agenda. In this sense, these policies are a reflection of research evidence that identifies the importance of schools’ teaching capacities and the key role played by school leaders in school improvement agendas (cf. Hargreaves and Fullan, 2012; Hattie, 2009, 2011, 2012; Lachat and Smith, 2005; Leithwood *et al.*, 2008; Marzano *et al.*, 2005; Shen and Cooley, 2008).

Having located school readiness in relation to school improvement, we briefly provide commentary to explain each of these additional components – ICSEA, NAPLAN and School Funding – in more detail. We begin with ICSEA.

### *Index of Community Socio-educational Advantage*

ICSEA is a scale of SEA that is computed for each school in Australia. ICSEA was developed to enable fair and meaningful comparisons to be made on the basis of the performance of students in literacy and numeracy as reported by the national testing regime known as NAPLAN (ACARA, 2013). ICSEA employs a multi-level regression model to

reflect the combined influence of the student and school's cohort SEA components on NAPLAN performance, based on the following formula (ACARA, 2013):

$$\text{ICSEA (student)} = \text{SEA}[\text{student}] + \text{student indigenous status} + \text{SEA}[\text{school cohort}] \\ + \text{per cent indigenous enrolment} + \text{remoteness}.$$

### *The National Assessment Program - Literacy and Numeracy*

The National Assessment Program – Literacy and Numeracy (NAPLAN) is a national testing regime that has occurred in Australia since 2008. NAPLAN comprises a set of standardised tests in reading, writing, language conventions (spelling, grammar, and punctuation), and numeracy, which are conducted in Years 3, 5, 7 and 9 of each school year. The results of such tests are reported back to schools and provide an indication as to each school's student achievement outcomes. In this respect, NAPLAN results become a proxy for the teaching performance in each school. A capacity for NAPLAN to report on, and thus compare the performance of "like schools", furthers this proxy notion.

### *School funding*

As stated earlier, the provision of education and the operation of schools (*K* through 12) in Australia is the responsibility of States and Territory governments, acting in accordance with their respective education acts. The funding for education, however, is provided by the Australian Federal Government, in a block grant to each State and Territory, often with certain conditions attached. This is perhaps a reflection of the political scene in Australia, but it also occurs because of the central taxation system that operates at the Federal level. The Australian Education Act 2013 (the Act) is the principal legislation for the provision of this funding at a national level, with elements such as ICSEA, other specific government funding measures (as a result of various Government education policies), and the scope for school fees (especially in the case of "independent" schools) representing the global funding available for each school. This funding level is reported each year and provides a standardised calculation of funding per student/per school. The funding available to each school differs because of these various funding policies and regimes ([www.nap.edu.au/naplan/naplan.html](http://www.nap.edu.au/naplan/naplan.html)), and has resulted in much discussion and debate concerning the relationship between school funding and student achievement within Australia. We included school funding as a variable of interest for the study because of this interest.

Having now made these introductory comments, we provide an outline of the study.

### **The study**

The context for this study is an education system in Australia which is seeking to improve student learning outcomes in its State schools through a policy position focused on increasing student learning outcomes through the work of school leaders. This policy position signals to schools how schooling and teaching will be conducted and implicates school leaders as responsible for implementing the policy and reporting on student learning outcomes (NAPLAN). An author association with one school district in Australia provided an opportunity to examine and report on levels of school readiness across the school district and to also examine this in relation to each school's funding level, ICSEA values and national testing results with respect to Year 3 student outcomes (NAPLAN). Once all ethics considerations had been completed with the relevant parties, the school district was invited to participate in an investigation of school readiness as an indicator of student achievement across the district.

This school district is typical of most education districts in Australia in that it has a district office where various senior education and administration support staff are based

and a number of schools (generally around 30 primary and secondary schools) which have small to large enrolments (e.g. from 16 students and one teacher through to 1400 and 100 teachers). School districts typically include a major urban centre, where the larger schools are located, and on the periphery (meaning into the country or remote areas), a number of small schools. These remote schools are more likely to be a combined primary and secondary school (or a *K* to 12 school).

Year 3 literacy and numeracy were chosen, as this was the focus for school improvement in the school district during the course of this study. In examining these elements, we ventured to include school funding and school community disadvantage indicators, as these factors appear capable of impacting on the readiness ability for schools. This aligns with the main purpose of the investigation to test the proposition that a school which has invested time in “readying” their staff for a strategic change agenda (in line with a government policy position) will yield higher levels of improved student learning outcomes (NAPLAN). Based on the notion of school readiness, we further proposed that schools with higher levels of readiness would outperform schools with lower levels, irrespective of their ICSEA and funding levels. This is because we view readiness as having a more fundamental impact on student outcomes given the nature of the ACE model, and because research suggests that teaching proficiency – a main outcome of readiness – is crucial to improving student performance. Figure 1 provides an overview of how the various study variables were conceived in terms of modelling the relationships of interest.

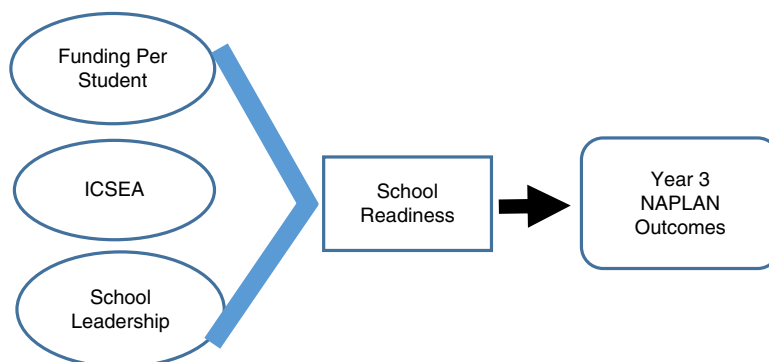
## Methods

### *Participants*

In total, 22 Government schools from a single school district in Australia participated in the study. Of these, 13 schools were rated as K-7 and 9 were rated K-12[3]. Two of the schools were categorised as remote and the rest were categorised as provincial. The number of teaching staff at each school ranged from 3 to 46 ( $M = 15.8$ ,  $SD = 11.0$ ). Total enrolments at each school ranged from 26 to 548 ( $M = 190.8$ ,  $SD = 149.1$ ).

### *Instruments*

The “readiness survey” consisted of 30 seven-point Likert-style scale items, designed to rate levels of perceived alignment, capability and engagement. A complete listing of these items is provided in Table I. The information regarding each school’s ICSEA value, funding per student in 2014, and Year 3 and Year 5 NAPLAN performance in 2015 was obtained from the database provided by The Australian Curriculum, Assessment, and Reporting Authority (ACARA).



**Figure 1.**  
Overview of the  
study variables

Item	Loading
1. Staff members in this school are committed to being responsible for improving student achievement	0.789
2. There is good teamwork and cooperation within my work unit	0.777
3. The departments and teams are focussed on making the teaching more effective for our students	0.862
4. There is good teamwork and cooperation between my Department and other units in the school	0.773
5. Our school values are clearly evident in the ways we do things	0.826
6. The school's strategic plan is clear to me	0.803
7. My view of good teaching aligns with that of the Head	0.838
8. The school's values have been clearly articulated to me	0.810
9. Everybody in this school has clear goals for what they must achieve in their work	0.803
10. The decisions that are made in this school align with the strategic plan	0.888
11. My Department or Team has the information it needs to contribute to the student achievement targets expected by the Head	0.840
12. All of the staff in the school get focused training so we can reach the school's expectations	0.855
13. The school staff has all the information about students needed to raise academic performance in this school	0.772
14. The leaders in this school are highly competent professionals	0.883
15. The resources required to teach our students are readily available	0.675
16. I feel that appropriate professional development opportunities are available to me	0.768
17. The all members of staff in the school have the necessary skills to reach our strategic goals	0.770
18. The school's professional development programs have made teachers and administrators more effective in their work	0.856
19. My Department or Team regularly evaluates progress in meeting the school's student outcomes expectations	0.808
20. The staff at this school has all of the talents and capacities needed to reach the Head's expectations	0.764
21. This is one of the best organisations to work for in this part of the country	0.820
22. I feel that the professional development in this school has made me a more effective member of staff	0.857
23. All staff value the feedback they get on their performance	0.812
24. The school is organised so there is a strong focus on improving student academic outcomes	0.890
25. The educational philosophy embodied in the school's strategic plan is something that I value highly	0.859
26. My work unit fully supports the teaching strategies adopted in this school	0.843
27. I am happy with this school as a place to work	0.882
28. In my Department or Team you can feel the high energy in support of the school's goals	0.839
29. I'm treated with respect and dignity in this school	0.854
30. My school Head inspires staff to do their best	0.846

**Table I.**  
Item loading on  
single-factor structure  
for the ACE survey

### *Procedure*

Upon the receipt of appropriate ethics approval, staff members at all schools were invited to complete the readiness survey via an e-mail distributed by the school, which contained a link to a SurveyMonkey page on which the survey was installed. Participation was voluntary, no identifying information was collected and all responses were kept anonymous.

### *Analysis*

All statistical analysis was completed using SPSS Version 22.

### **Results**

#### *School readiness survey*

A total of 338 teachers (of a total of 341 K-6 teachers or 91 per cent of total teachers employed in the school district) completed the school readiness survey. Factor analysis was initially conducted on the items of the survey, employing a principal components extraction.

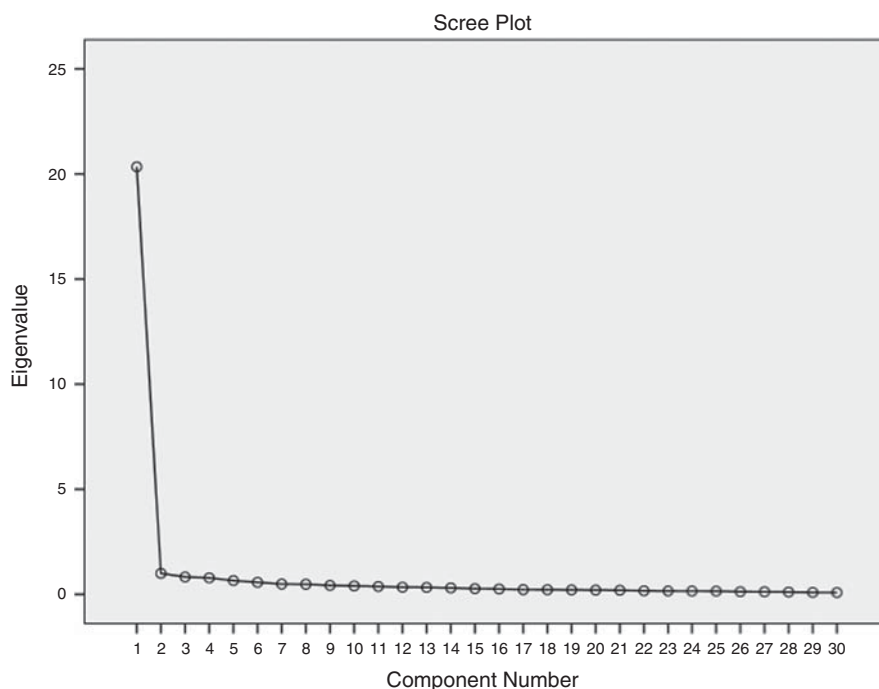


This was to discern the underlying structure of the survey, as well as provide some indication as to the interdependency of its items. Figure 2 shows the scree plot obtained for the extracted components. This plot indicates that a single factor accounts for the majority of the variance among the survey items, explaining 68 per cent of the total variance obtained in the survey. Communalities (a measure of interdependency) ranged from 0.46 to 0.79. Table I shows the loading for each item on this factor. All items loaded on the factor, the smallest loading being 0.675 (Item 15). Cronbach's  $\alpha$ , a measure of inter-item reliability, for all items was 0.98, and there was no items which could have been deleted in order to have increased this value. A reliability coefficient of greater than 0.6 is usually considered to be the minimum requirement for a scale to be interpreted. This factor will be referred to as "Readiness", and has a very high level of internal consistency.

A mean score for "Readiness" was calculated for each respondent. The percentage of respondents with a score representing each of the seven values of the Likert scale employed is shown in Figure 3. Note that this distribution is skewed heavily to the left, showing that the vast majority of respondents (85 per cent) had a mean greater than the mid-point of the range (4). These data indicate that, in general, levels of readiness between staff and schools are high. However, there is a small percentage of staff (around 6 per cent) with very low levels of readiness (a mean of below 3). Altogether this data suggests a high degree of readiness optimisation for the participating schools in the study.

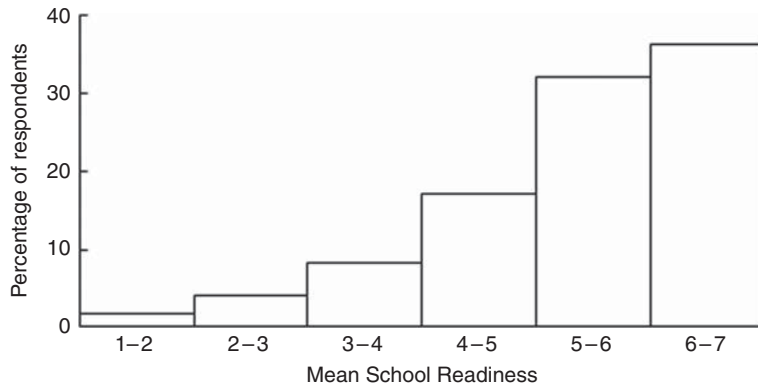
#### *Income, ICSEA, "readiness" and NAPLAN scores*

Across the schools surveyed, 2014 income per student ranged from \$10,180 to \$35,555, with a mean of \$17,807 and standard deviation of \$6028. ICSEA scores ranged from 855 to 1,012, with a mean of 962.4 and standard deviation of 41.2. Readiness scores ranged from 4.1 to 6.9, with a mean of 5.6 and standard deviation of 0.78. Thus, although considerable variation in



**Figure 2.** Scree plot showing the eigenvalues obtained in a principal components extraction of the items of the ACE survey

**Figure 3.**  
Percentage of respondents  
categorised by mean  
“School Readiness”



income per student exists for these schools, they appear to share greater consistency in terms of their socio-educational ratings and measure of readiness. Table II provides descriptive NAPLAN statistics at the school-level for the schools surveyed.

Table III shows the Pearson’s correlation coefficients among these various NAPLAN tests. In general, these Year 3 tests correlate quite highly with each other except for persuasive writing (PW), which does not correlate significantly with numeracy or grammar and punctuation. This tells us that students who did well on the literacy sub-sets of the NAPLAN also tended to do well on the numeracy component, and that the literacy sub-sets in particular are closely associated in terms of their component elements. Even PW, which does not correlate significantly with grammar and punctuation (G and P), is nonetheless significantly correlated with reading (R) and spelling (S). It is not surprising that the literacy components correlate with one another so closely, as they work together to support overall literacy as a skill set. To a lesser degree, yet similarly, because numeracy skills often involve a lot of reading and comprehension, it is not unexpected that reading and numeracy are also closely associated here.

Table IV shows the correlations between income per student, ICSEA, readiness, and the NAPLAN tests. Note that Income per student, ICSEA, and readiness do not correlate with

	<i>n</i>	Min.	Max.	Mean	SD	
<b>Table II.</b> Descriptive statistics for NAPLAN performance for the schools surveyed	Year 3 reading	19	339	467	401.5	31.9
	Year 3 numeracy	20	301	432	374.4	35.8
	Year 3 spelling	19	347	427	388.8	25.2
	Year 3 grammar and punctuation	19	346	469	410.2	34.5
	Year 3 persuasive writing	19	297	437	386.9	36.1

	<i>R</i>	<i>n</i>	<i>S</i>	G+P	PW	
<b>Table III.</b> Correlations between Year 3 NAPLAN scores across the schools surveyed	Reading	–	0.820**	0.834**	0.723**	0.481*
	Numeracy	0.820**	–	0.799**	0.799**	0.404
	Spelling	0.834**	0.799**	–	0.816**	0.679**
	Grammar+Punctuation	0.723**	0.799**	0.816**	–	0.402
	Persuasive writing	0.481*	0.404	0.679**	0.402	–

**Notes:** \*,\*\*Significant at 0.05 and 0.01 levels, respectively

each other and that Income per student does not correlate with any of the NAPLAN tests. However, ICSEA correlates significantly and to a moderate degree with three of the NAPLAN tests and readiness correlates significantly with reading, numeracy, and spelling, as well as having similar (though not significant) relations with grammar and punctuation and with PW.

Due to the clear impact of readiness as a variable that significantly affected the NAPLAN tests for these schools, as well as being a variable that represents internal school influence, a composite score was obtained by calculating the mean score across all the NAPLAN tests for further comparison against this factor. Figure 4 provides a scatterplot showing the relationship between readiness and this overall score. There appears to be a moderate and linear relation between the two variables, although there are two schools in particular that seem to be outliers (these may relate to the 6 per cent skew shown in Figure 3). This finding was encouraging, so a regression analysis was conducted to determine the relative importance of the various factors. This analysis was significant ( $F(3, 19) = 5.5, p = 0.009$ ), and accounted for 50 per cent of the variance in NAPLAN performance.  $\beta$  analyses were also performed to determine the independence of each regression factor. The  $\beta$  for ICSEA ( $\beta = 0.41, p = 0.041$ ) and school readiness ( $\beta = 0.45, p = 0.027$ ) were significant, indicating that both variables represent independent sources of influence on the NAPLAN. In contrast, the  $\beta$  for income per student was not significantly related to performance ( $\beta = 0.27, p = 0.141$ ).

### Discussion

Two fundamental propositions underpinned the study. The first one was a general principle stating that schools which had better optimised staff talent and school resources for strategic change – readiness – would produce higher levels of improved student learning outcomes as measured by the NAPLAN. That is, that a positive and significant relationship would exist between the school readiness survey and the NAPLAN results. The second proposition was more specific and stated that schools with higher levels of readiness would outperform schools with lower levels, irrespective of their ICSEA and funding levels. That is, the relationship between the NAPLAN and school readiness survey would be more compelling than the relationships occurring between the NAPLAN and the ICSEA, and the NAPLAN and school funding.

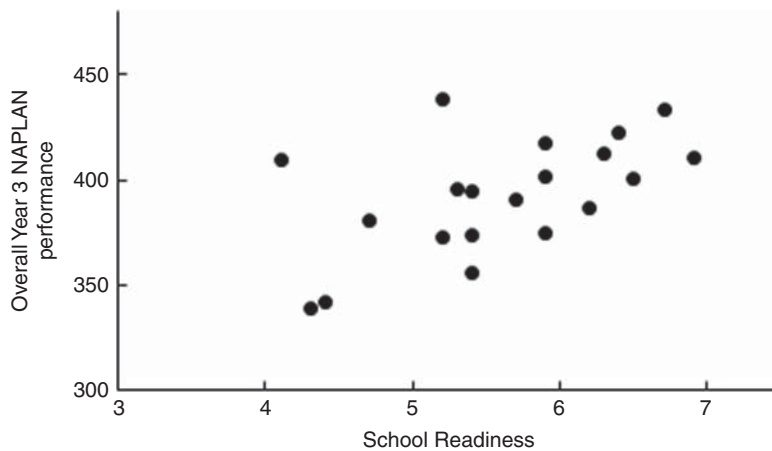
The first proposition was clearly supported by the findings of this study. As shown in Table IV, the relationship between school funding, ICSEA and school readiness were all non-significant and negative, underscoring the independence of these factors and making it unlikely that carry-over effects from one of them was affecting the results of the others. More important, school funding did not correlate significantly with any of the NAPLAN outcomes, which may indicate that funding levels

	\$/student	ICSEA	Readiness
Income Per Student 2014	–	–0.041	–0.082
ICSEA	–0.041	–	0.239
“Readiness”	–0.082	0.239	–
Year 3 Reading	0.098	0.484*	0.456*
Year 3 Numeracy	0.070	0.507*	0.532*
Year 3 Spelling	0.200	0.405	0.461*
Year 3 GP	0.181	0.511*	0.407
Year 3 PW	0.270	0.248	0.438

**Notes:** \*,\*\*Significant at 0.05 and 0.01 levels, respectively

**Table IV.**  
Correlations between  
income per student,  
ICSEA, “readiness”  
and the district’s 2015  
NAPLAN performance

**Figure 4.**  
Relationship between  
“Readiness” and  
overall Year 3  
NAPLAN performance



have less of an influence on student achievement, or, as argued by Buckingham (2013), Hanushek and Woessmann (2010) and Birmingham (2016), that available funding is not being spent where it is optimally needed for student improvement effects. Further, Hanushek and Woessmann (2011, p. 161) cite several studies which find positive associations of student achievement with the quality of instructional material and the quality of the teaching force. They state, “While these cross-country associations reveal to what extent different input factors can descriptively account for international differences in student achievement, studies that focus more closely on the identification of causal effects have reverted to using the within-country variation in resources and achievement” (p. 161).

ICSEA and school readiness were positively correlated with one another, but this was again not significant. However, both the ICSEA and school readiness correlated significantly with multiple NAPLAN outcomes, indicating that both do exert an influence on student achievement. Of particular interest is that school readiness maintained noticeable associations with all the NAPLAN areas, including significant correlations with reading, numeracy, and spelling, and non-significant but similar correlations with grammar and punctuation and with PW. It also displayed a positive relationship with a composite of the NAPLAN scores, wherein school readiness accounted for 50 per cent of the variance in overall NAPLAN performance. Because of this, further analyses were conducted and revealed that the relative importance of the various factors were indeed independent to one another, as well as showing that school readiness displayed the highest level of significance in relation to student achievement as represented in the NAPLAN outcomes ( $\beta = 0.45$ ,  $p = 0.027$ ). These findings support the second proposition for this study, that school readiness exerts a more pervasive influence on student achievement outcomes than any of the other factors involved in this investigation.

## Conclusions

McKinsey’s research (Ogg and Kirkland, 2017) shows that workers’ roles and the processes that support them differentiate agile organisations from the rest. This is an important insight in an environment where schools are under heavy pressure to achieve unaccustomed outcomes, because there are assumptions in school culture that take for granted how teachers work, both individually and together. For many schools, “staff” is an

---

administrative term that refers to a mobile workforce that fills establishment positions. People come to work but too often they do not really perceive themselves as a core part of that whole endeavour to teach students at the highest levels of achievement.

Under the present historical conditions, it is abundantly apparent that schools as “organisations” have to operate differently. The emphasis on the word “talent” in ACE means something different. It refers to someone who is incredibly capable and willing to reach agreed performance outcomes. Schools need the right people, and enough talent working on agreed goals, if they are to create desired outcomes within reasonable time frames. As noted in an interview with Ogg and Kirkland (2017): “We used to think about what people are our most important asset. And people said that, but they didn’t mean that. Now all of a sudden, the world shifts from a people focus to a talent focus”.

The findings of this study indicate that high levels of organisational readiness, as defined by the ACE approach, are associated with effective teaching and improvement in student outcomes. In turn, we interpret this to mean that the internal organisation of a school has important effects on student achievement that are independent to external factors such as school funding or even the socio-educational positioning of the school.

Following the readiness approach to staff development, there is reason to believe that the school leadership in this district focussed on “optimization” as the strategy best suited to contribute significantly to teaching quality. In this sense, getting the “talent” agenda together would seem to be a pre-requisite condition for meaningful school reform when it comes to student outcome improvement. This further emphasises what principals and other school leaders need to focus on: being able to develop high levels of teacher readiness in terms of alignment, capability, and engagement in all teachers.

The findings of this district-wide investigation indicate that the benefits of leadership significantly outweigh those stemming from the more generalised school-funding-per-student strategies that are currently being used to assist student achievement via the amount of money that goes into a school. Indeed, the overall strength of school readiness as an influence on student achievement suggests that improving school performance is more complex than simply providing more funding, and that more effective and sustainable school reform may well be gained by school leaders placing a greater emphasis on talent development across the staff of every school.

The ACE approach utilised in this study is a potential tipping point that empowers school leaders to decide on standards, place staff strategically and develop school-wide leadership networks targeting agreed strategic outcomes at the immediate, local school level. This suggests that the notion of school readiness, when aligned correctly, can have economic and commercial impacts on education that are commensurate with the available leadership ability. Using a readiness approach, effective school leaders are able to pinpoint each school employee’s skills, experiences, attitudes, performance, potential and dreams for the future, while spelling out a way of highlighting the meaningfulness and purpose of teaching and administrative work in an organisation called “school” that can motivate staff generally. This suggests that school Heads need to look beyond “management” to a deeper knowledge of their staff resources, their roles and tasks and the level of performance they achieve, if they wish to achieve their own potential as a school leader who is able to position their school for improved student outcomes. It also means that education systems need to consider the impact of readiness as a distinct factor for school improvement, leading over time to changes in educational policy that seek to better conform to knowledge economy imperatives while at the same time improve the quality of system level outcomes. Future research in this area should therefore seek to include a focus on how these aspects of readiness are able to contribute to knowledge in the area of school leadership, in addition to measuring the influence of school readiness as a direct leadership factor.

**Notes**

1. For details, see [www.oecd.org/](http://www.oecd.org/)
2. The National Assessment Programme – Literacy and Numeracy (NAPLAN) is an annual national (for Australia) assessment for all students in Years 3, 5, 7 and 9. All students in these year levels are expected to participate in tests in reading, writing, language conventions (spelling, grammar and punctuation) and numeracy.
3. Kindergarten is the first phase of schooling in Australia and precedes Year 1.

**References**

- ACARA (2013), "Guide to understanding index of community socio-educational advantage", Australian Curriculum, Assessment and Reporting Authority, available at: [www.acara.edu.au/\\_resources/Guide\\_to\\_understanding\\_2013\\_ICSEA\\_values.pdf](http://www.acara.edu.au/_resources/Guide_to_understanding_2013_ICSEA_values.pdf) (accessed 12 June 2016).
- Access Economics (2005), *The Economic Benefit of Increased Participation in Education and Training*, Dusseldorp Skills Forum and Business Council of Australia, Sydney.
- Ainley, J., Kos, J. and Nicholas, M. (2008), *Participation in Science, Mathematics and Technology in Australian Education*, Australia Council for Educational Research, Canberra.
- American Psychological Association (2012), *Facing the School Dropout Dilemma*, American Psychological Association, Washington DC.
- Australian Institute for Teaching and School Leadership (2012), "Australian professional standards for teachers", available at: [www.aitsl.edu.au/australian-professional-standards-for-teachers](http://www.aitsl.edu.au/australian-professional-standards-for-teachers) (accessed 12 June 2016).
- Ball, S. (2013), *The Education Debate*, The Policy Press, Bristol.
- Barro, R.J. (2001), "Human capital and growth", *American Economic Review*, Vol. 91 No. 2, pp. 12-17.
- Benjamin, R. (2003), "The environment of American higher education: a constellation of changes", *Annals of the American Academy of Political and Social Science*, Vol. 585, January, pp. 8-30.
- Birmingham, S. (2016), "AEU's own goal with school funding calculations: media release", available at: [www.senatorbirmingham.com.au/Media-Centre/Media-Releases/ID/3192/AEUs-own-goal-with-school-funding-calculations](http://www.senatorbirmingham.com.au/Media-Centre/Media-Releases/ID/3192/AEUs-own-goal-with-school-funding-calculations) (accessed 12 June 2016).
- Buckingham, J. (2013), "Education policy trends in Australia", *Independence*, Vol. 38 No. 2, pp. 6-7, available at: <http://search.informit.com.au.ezproxy.scu.edu.au/documentSummary;dn=173799539531097;res=IELHSS> > (accessed 12 June 2016).
- Buckingham, J. (2014), "School funding on a budget", Target 30, available at: [www.cis.org.au/app/uploads/2015/07/t30.09.pdf](http://www.cis.org.au/app/uploads/2015/07/t30.09.pdf) (accessed 12 June 2016).
- Carr, K.J. (2011), "Commercialisation Australia: program guidelines", available at: [www.commercialisationaustralia.gov.au/AboutUs/Documents/Commercialisation%20Australia%20Ministerial%20Program%20Guidelines%20No1%20of%202011.pdf](http://www.commercialisationaustralia.gov.au/AboutUs/Documents/Commercialisation%20Australia%20Ministerial%20Program%20Guidelines%20No1%20of%202011.pdf) (accessed 31 August 2012).
- Coaldrake, P. and Stedman, L. (1999), *Academic Work in the Twenty-First Century: Changing Roles and Policies*, Department of Education, Training, and Youth Affairs, Sydney.
- Cobb, D.A. and Jha, N. (2016), "Educational achievement and the allocation of school resources", *The Australian Economic Review*, Vol. 49 No. 3, pp. 251-271.
- Department of Education, Science, and Training (2002), "Meeting the challenges: the governance and management of universities", Department of Education, Science, and Training, ACT, Canberra.
- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P. and Trow, M. (2004), *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*, SAGE, London.
- Gonski, D., Boston, K., Greiner, K., Lawrence, C., Scales, B. and Tannock, P. (2011), "Review of funding for schooling", Department of Education, Employment and Workplace Relations, available at: <https://docs.education.gov.au/system/files/doc/other/review-of-funding-for-schooling-final-report-dec-2011.pdf> (accessed 12 June 2016).

- 
- Hanushek, E. and Woessmann, L. (2010), *The High Cost of Low Educational Performance: The Long-Run Economic Impact of Improving PISA Outcomes*, OECD Publishing, Paris.
- Hanushek, E.A. (2016), "What matters for student achievement", *Education Next*, Vol. 16 No. 2, available at: <http://ezproxy.scu.edu.au/login?url=>; <https://search-proquest-com.ezproxy.scu.edu.au/docview/1790928145?accountid=16926> (accessed 12 June 2016).
- Hanushek, E.A. and Woessmann, L. (2009), "Do better schools lead to more growth? Cognitive skills, economic outcomes, and causation", *Journal of Economic Growth*, Vol. 17 No. 4, pp. 267-321.
- Hanushek, E.A. and Woessmann, L. (2011), "The economics of international differences in educational achievement", in Hanushek, E., Machin, S. and Woessmann, L. (Eds), *Handbook of the Economics of Education*, Elsevier, Amsterdam, pp. 89-200.
- Hargreaves, A. and Fullan, M. (2012), *Professional Capital: Transforming Teaching in Every School*, Teachers College Press, New York, NY.
- Harris, K. and Farrell, K. (2007), "The science shortfall: an analysis of the shortage of suitably qualified science teachers in Australian schools and the policy implications for universities", *Journal of Higher Education Policy and Management*, Vol. 29 No. 2, pp. 159-171.
- Hattie, J. (2009), *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement*, Routledge, London.
- Hattie, J. (2011), "Challenge of focusing education reform", *The Australian*, 7 June, available at: [www.theaustralian.com.au/business/news/rethinking-education-the-challenge-of-focusing-reform/story-fn8ex0p1-1226069556190](http://www.theaustralian.com.au/business/news/rethinking-education-the-challenge-of-focusing-reform/story-fn8ex0p1-1226069556190) (accessed 7 June 2011).
- Hattie, J. (2012), *Visible Learning for Teachers: Maximising Impact on Learning*, Routledge, New York, NY.
- Hearn, G.N., Cunningham, S.D. and Ordonez, D. (2004), "Commercialisation of knowledge in universities: the case of creative industries", *Prometheus*, Vol. 22 No. 2, pp. 189-200.
- Lachat, M. and Smith, S. (2005), "Practices that support data use in urban high-schools", *Journal of Education for Students Placed at Risk*, Vol. 10 No. 3, pp. 333-349.
- Leithwood, K., Harris, A. and Hopkins, D. (2008), "Seven strong claims about successful school leadership", *School Leadership & Management*, Vol. 28 No. 1, pp. 27-42.
- Lyons, T. and Quinn, F. (2015), "Understanding declining science participation in Australia: a systemic perspective", in Henriksen, E.K., Dillon, J. and Ryder, J. (Eds), *Understanding Student Participation and Choice in Science and Technology Education*, Springer, London, pp. 153-168.
- Marzano, R.J., Waters, T. and McNulty, B.A. (2005), *School Leadership that Works: From Research to Results*, ASCD, Alexandria, LA.
- MCEETYA (2008), *Melbourne Declaration on Educational Goals for Young Australians*, Ministerial Council on Education, Employment, Training and Youth Affairs, Melbourne.
- Mendels, P. (2012), "The effective principal", *JSD*, Vol. 33 No. 1, pp. 54-56, 58, available at: [www.wallacefoundation.org/knowledge-center/school-leadership/effective-principal-leadership/documents/the-effective-principal.pdf](http://www.wallacefoundation.org/knowledge-center/school-leadership/effective-principal-leadership/documents/the-effective-principal.pdf) (accessed 12 June 2016).
- Murphy, J. (2008), "The place of leadership in turnaround schools: insights from organizational recovery in the public and private sectors", *Journal of Educational Administration*, Vol. 46 No. 1, pp. 74-98.
- OECD (1996), *The Knowledge-Based Economy*, OECD, Paris, available at: [www.oecd.org/sti/sci-tech/1913021.pdf](http://www.oecd.org/sti/sci-tech/1913021.pdf) (accessed 12 June 2016).
- OECD (2010a), *The High Costs of Low Performance*, Organisation for Economic Co-operation and Development Publishing, Paris.
- OECD (2010b), *Strong Performers and Successful Reformers in Education Lessons from PISA for the United States*, Organisation for Economic Co-operation and Development Publishing, Paris.
- OECD (2013), "Industrial policies in a changing world", available at: [http://dx.doi.org/10.1787/persp\\_glob\\_dev-2013-10-en](http://dx.doi.org/10.1787/persp_glob_dev-2013-10-en) (accessed 12 June 2016).

- Office of the Chief Scientist (2014), *Science, Technology, Engineering and Mathematics: Australia's Future*, Australian Government, Canberra.
- Ogg, S. and Kirkland, R. (2017), "Interview: using talent management to create value", available at: [www.mckinsey.com/global-themes/leadership/using-talent-management-to-create-value?cid=other-empl-alt-mip-mck-oth-1701](http://www.mckinsey.com/global-themes/leadership/using-talent-management-to-create-value?cid=other-empl-alt-mip-mck-oth-1701) (accessed 12 June 2016).
- Scheerens, J. (2012), *School Leadership Effects Revisited: Review and Meta-Analysis of Empirical Studies*, Springer, Dordrecht.
- Scheerens, J. (2013), "What is effective schooling: a review of current thought and practice", International Baccalaureate Organisation, available at: [www.ibo.org/globalassets/publications/ib-research/continuum/what-is-effective-schooling-report-en.pdf](http://www.ibo.org/globalassets/publications/ib-research/continuum/what-is-effective-schooling-report-en.pdf) (accessed 12 June 2016).
- Scheerens, J., Luyten, H., Steen, R. and Luyten-de Thouars, Y. (2007), *Review and Meta-Analyses of School and Teaching Effectiveness*, Department of Educational Organisation and Management, University of Twente, Enschede.
- Schiemann, W.A. (2014), "From talent management to talent optimization", *Journal of World Business*, Vol. 49 No. 2, pp. 281-283.
- Shen, J. and Cooley, V. (2008), "Critical issues in using data for decision-making", *International Journal of Leadership in Education*, Vol. 11 No. 3, pp. 319-329.
- Sleegers, P.J.C., Thoonen, E.E.J., Oort, F.J. and Peetsma, T.T.D. (2014), "Changing classroom practices: the role of school-wide capacity for sustainable improvement", *Journal of Educational Administration*, Vol. 52 No. 5, pp. 617-652.
- The Royal Society (2014), *Vision for Science and Mathematics Education*, The Royal Society, London.
- Tytler, R. (2007), *Re-Imagining Science Education: Engaging Students in Science for Australia's Future*, Australian Council for Educational Research, Canberra.

#### Further reading

- Leithwood, K., Seashore Louis, K., Anderson, S. and Wahlstrom, K. (2004), *Executive Summary: How Leadership Influences Student Learning*, The Wallace Foundation, New York, NY.

#### Corresponding author

David Lynch can be contacted at: [david.lynch@scu.edu.au](mailto:david.lynch@scu.edu.au)