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The Correlation between 'Teacher Readiness' and Student Learning Improvement

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This article reports the findings from a study that compared states of 'teacher readiness' with the learning performance of students. The central proposition is that high states of 'teacher readiness' in a school would be an indicator of improvement in whole of school student learning. This proposition is based on research evidence implicating the teacher in student learning outcome success and the key role played by school leaders. As an adjunct to this proposition we also sought to compare ICSEA values[1] and funding levels per school in an attempt to identify other improvement considerations. The findings of this study indicate that high levels of 'teacher readiness', as defined by the ACE approach, are associated with effective teaching and improvement in student outcomes. The study also drew attention to the idea that ACE focused leadership within a school has more impact on student achievement outcomes than external factors, such as school funding or even the socio-educational positioning of the school.

[1] ICSEA (Index of Community Socio-educational Advantage values) is a scale of socio-educational advantage 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).

The improvement of educational outcomes in schools across the globe is a common goal. In this respect, research by Leithwood, Harris, and Hopkins (2008), Shen and Cooley (2008), Lachat and Smith (2005), Marzano *et al.* (2005), Hattie (2009, 2011, 2012), Hargreaves and Fullan (2012), and others have identified clear links between the teaching capacities of teachers and student academic performance, indicating that 'what teachers do', does matter in schools. This implicates the school leader (the Head or Principal) to develop and sustain a whole of school strategy that foundations the improvement of each teacher's teaching.

While there is a rich seam of educational leadership literature suggesting all manner of approaches for the school principal to follow - for example, *Distributed Leadership* (Leithwoord,; Harris, 2013; Hallinder and Heck, 2009), *Coach and Mentor* (Nolan and Hoover, 2011; Tschannen-Moran and Tschannen-Moran, 2010*), Instructional Leadership* (Lunenburg, 2010; Heck, Larson, and Marcoulides, 1990; Greenfield, 1987), and *Transformational Leadership* (Hargreaves and Fullan, 2012; Leithwood, 1992) – two fundamental questions, irrespective of the leadership approach, tend to vex the school leader*: 'where do I start'?* and *'what are the fundamentals I need to have in place if school improvement is the goal'?*

In previously published works, Lynch and Smith (2016) introduced the concept of *'Readiness for School Improvement'* as a guide for answering such questions. In this paper we report the findings from a study that compared states of 'teacher readiness' with the learning performance of students. The central proposition is that high states of 'teacher readiness' in a school would be an indicator of improvement in whole of school student learning. This proposition is based on research evidence implicating the teacher in student learning outcome success (Hattie, 2009) and the key role played by school leaders (Hargreaves and Fullan, 2012; Marzano, Waters, and McNulty, 2005). As an adjunct to this proposition we also sought to compare ICSEA values[2] and funding levels per school in an attempt to identify other improvement considerations.
Before introducing the study, we briefly recount the concept of 'Readiness' for later points of reference.

[2] ICSEA (Index of Community Socio-educational Advantage values) is a scale of socio-educational advantage 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).

'Readiness' for Teaching Improvement

Lynch and Smith (2016) define "readiness" as the state in which the *organisational* conditions are such that school staff are *prepared to engage* with 'improvement agendas'. This definition is based on the work by Schiemann (2012). Leaders within the organisation not only have day-to-day administrative requirements in their position descriptions, but are also the people ideally situated to optimise people investments. Great leaders, Izzo suggests (cited in Schiemann, 2014, p. 283), know how to optimise their talent by focusing it, developing the right capabilities, and creating engagement. Thus, if a leader doesn't have people who are aligned with the goals and vision, have effective competencies and, are engaged in the task at hand, then we suggest that something may be wrong (Schiemann, 2014, p. 283). The leadership and school effectiveness literature is awash with this insight.

In order to conceptualise "readiness" for school improvement, it is imperative to survey the elements that make up a "school". Those of us in the teaching profession are rather adept at seeing "schools" as mainly "teachers" and "students", while "students" probably have a completely different perspective:

> Strategies are the main learning outcome of all those years of school. Anyone who flunks strategy basically flunks school. In classes, the points come from figuring out the specific version of the game that the teacher in that specific class has set up, in a kind of free-for-all where the rules change all the time…(Blum, 2015)

Of course, teachers, teaching, students, curriculum, and the "game" of school are fundamental ingredients of a "school" as we usually conceive of them. It is important to also think about schools as "organisations" that possess structures, adopt processes to get things done and that develop cultural cement that unites human activity into an entity. We educators are perhaps rather less likely to think about our workplaces in these ways given the role of teachers and the work of teaching.

In coming to understand the school change field while reminiscing about our careers as teachers, we explored the field of organisational research across many industries. A surprising finding is that organisations are very much alike, irrespective of what their core business is and how it is done. They all possess similar features like structures and cultures and people in them have designated as well as informal roles. Of prime importance for us is the fact that in all

organisations the *people* factor is fundamental. That is, "people" are not only an expensive ingredient, but also represent the major resource for accomplishing the organisation's mission.

We appreciated Schiemann's (2012; 2014) position that "staff" are the organisation's "talent" and that forging common ground between the goals of the organisation and those of the individuals in it, is a major investment (Schiemann, 2014, p. 238). If this ground is insufficiently developed, the chance of generating meaningful change is restricted. In organisations like schools, optimising talent is a complex process that requires effective leadership (Schiemann, 2014, p. 282).

Scheimann's organisational perspective is a powerful reminder of what is at stake in the development of an effective school. The existing concepts and ways of expressing "teaching" and "school" have to be taken head-on. It is all to do with the language used by professional practitioners: it governs, not the subject matter of "teaching" and "school" but rather the group of practitioners who have a stake in maintaining the present arrangements. Any reform attempt must then begin by locating what Kuhn (1970) referred to as the responsible group or groups.

> …paradigm debates are not really about relative problem-solving ability, though for good reasons they are usually couched in those terms. Instead, the issue is which paradigm should in future guide research on problems many of which neither competitor can yet claim to resolve completely. A decision between alternate ways of practicing science is called for, and in the circumstances that decision must be based less on past achievement than on future promise. ... A decision of that kind can only be made on faith *(Kuhn, 1970, pp. 157-8).*

To continue with Schiemann's approach, rather than seeing staff as "employed" he refers to people being "embedded" in the organisation. This approach has compelling characteristics in so far as it links the recruitment, training, retention, satisfaction, and effectiveness of staff with a school's vision and goals, without the cultural baggage and connotations of "teacher" and "school" and, provides an alternative view of the school-as-organisation. In this way, our awareness is enhanced to the fact that there are logically necessary *mutual obligations* between the organisation and embedded people, a feature generally missing from public service and other work conditions, and we are bound to say, from a good deal of educational research on school and system change.

In such an environment, it is unlikely that toxic arrangements, such as staff not being supported emotionally or professionally, an inability to achieve operational goals and commitments, poor internal communication and interpersonal relationships that are driven by manipulative and self-centred agendas, will flourish.

The core categories of the model are *Alignment*, *Capabilities,* and *Engagement* or ACE. These distinctive but interdependent categories include synchrony of people with the goals, clientele, and brand of the organisation, wherever they are located within it. Again, capabilities are defined as the available knowledge, skill, information, and resources available to people sufficient to meet the organisation's goals. Finally, engagement includes people satisfaction, commitment, and willingness to take action for the benefit of the organisation in a discretionary way. Together these categories provide an agenda for understanding and exploring the main issues in the school effectiveness literature.

The three dimensions of ACE together form an indicator of how an organisation is travelling. The A, C and E elements are, all other things being equal, a "canary in the mine", a litmus test of organisational readiness to commence change and innovation initiatives and programs. Correspondingly, these elements also provide the principal with an insight into elements that require remediation.

The Study

In all Australian States and Territories, a strategic focus is upon improving student learning outcomes using NAPLAN[3] results as a performance indicator. One school district in Australia (comprising 22 schools with primary students), had a particular focus on literacy improvement and an Author association with this district provided an opportunity to compare levels of 'teacher readiness' with student learning outcome results (year 3 and 5 NAPLAN results). This paper reports associated findings.

[3] 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.

In examining these elements, we ventured also to include school funding and school community disadvantage indicators (ICSEA), as community debates in education in Australia tend to focus on these factors when poor schooling outcomes are reported in a school. This aligns with the main purpose of the investigation, which was to test the proposition that a school which has invested time in 'readying' their staff for a strategic change agenda (such as whole of school teaching improvement) will yield higher levels of improved student learning outcomes (NAPLAN). Based on the notion of 'Teacher Readiness', we therefore 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, as well as on research suggesting that teaching proficiency - a main outcome of readiness - is crucial to improving student performance.

To ascertain staff readiness, a survey invitation was issued to all teachers in all schools with primary students in the school district, consisting of thirty 7-point Likert scale items, designed to evaluate levels of perceived *alignment, capabilities, and engagement* in teachers. The response rate was 99% (or 388 teachers of a total of 341 teachers employed in the district). Information regarding each school's ICSEA value, funding per student in 2014, and Year 3 NAPLAN performance in 2015 was also obtained from the database provided by The Australian Curriculum, Assessment, and Reporting Authority (ACARA). Statistical analysis was completed using SPSS Version 22.

As previously outlined, two fundamental propositions were put forward for the study. The first one was a general principle stating that schools which had better optimised staff talent and school resources as part of a school-wide improvement agenda ---'readiness'--- would produce higher levels of improved student learning outcomes as measured by the NAPLAN: 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. By this we mean, that the relationship between the NAPLAN and 'Teacher Readiness' survey would be more compelling than the relationships occurring between the NAPLAN and the ICSEA, and the NAPLAN and school funding.

The Results

The first proposition was clearly supported by the findings of this study. As shown in Table 1 (for example using Year 3 NAPLAN results), the relationship between school funding, ICSEA, and 'Teacher 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 tends to indicate that funding levels have less of an influence on student achievement or as Buckingham (2013), Hanushek & Woessmann (2010), Birmingham (2016), for example, argue, is an indication that available funding is not being spent where it is optimally needed for student learning improvement effects. Further, Hanushek and Woessmann (2011) cite several studies which find positive associations of student achievement with the quality of instructional material and the quality of the teaching force. "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" (Hanushek and Woessmann, 2011, p.161).

Table 1. Correlations between Income per student, ICSEA, Readiness and the district's 2015 NAPLAN performance using Year 3 NAPLAN results as an illustrator.

	$/student	**ICSEA**	**Readiness**
Income Per Student 2014		-.041	-.082
ICSEA	-.041		.239
Staff-'Teacher Readiness'	-.082	.239	
Year 3 Reading	.098	.484*	.456*
Year 3 Numeracy	.070	.507*	.532*
Year 3 Spelling	.200	.405	.461*
Year 3 GP	.181	.511*	.407
Year 3 PW	.270	.248	.438

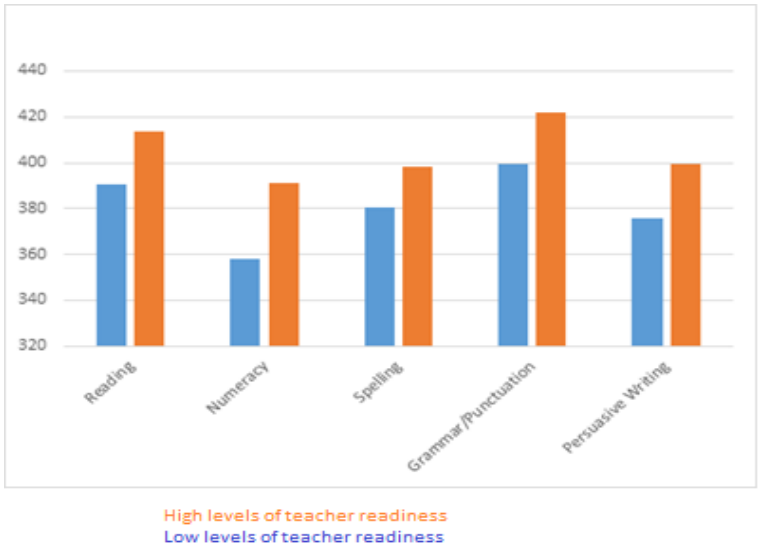
(* indicates significance at .05 level. ** indicates significance at .01 level.)

ICSEA and 'Teacher Readiness' were positively correlated with one another, but this was again not significant. However, both the ICSEA and 'Teacher Readiness' correlated significantly

with multiple NAPLAN outcomes, indicating that both do exert an influence on student achievement. Of particular interest is that 'Teacher 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 Persuasive Writing. It also displayed a positive relationship with a composite of the NAPLAN scores, wherein 'Teacher Readiness' accounted for 50% 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 'Teacher Readiness' displayed the highest level of significance in relation to student achievement as represented in the NAPLAN outcomes (r = .45, p = .027). These findings support the second proposition for this study, that 'Teacher Readiness' exerts a more pervasive influence on student achievement outcomes than any of the other factors involved in this investigation. Illustration 1, further demonstrates the performance of schools --- using Year 3 and Year 5 NAPLAN results--- with high levels of 'teacher readiness' compared with those with low levels.

Illustration 1: The performance of schools with high readiness compared with those of low readiness in terms of Year 3 and Year 5 NAPLAN results

Average NAPLAN performance Year 3 and 5 aggregated



What does this Study Suggest?

The findings of this study indicate that high levels of 'teacher readiness', as defined by the ACE approach, are associated with effective teaching and improvement in student outcomes. The

study also drew attention to the idea that ACE focused leadership within a school has more impact on student achievement outcomes than external factors, such as school funding or even the socio-educational positioning of the school. Since internal school direction is generally managed by the school executive, especially the principal, this implicates school leadership as having a pivotal role in the execution of positive educational change as an aspect of competitive educational competence. Schools tend to be hierarchical in nature, with direction from the principal setting the tone and atmosphere for change that occurs in relation to teaching and learning. Thus, one of the primary "take-aways" from this study is that an emphasis on the leadership quality of schools needs to be recognised as equally important - if not more so – to the emphasis currently placed on teaching quality. It further emphasises what the principal needs to focus upon: that being developing high levels of teacher 'readiness' and this we define as states of alignment, capability and engagement in all teachers.

Because of these results, 'Teacher Readiness', and its strong impact on student achievement that encompasses all the NAPLAN areas, inclines us to suggest, and which is supported by authors such as Buckingham (2014) and Woessmann (2016), that 'more funding' for schools is not 'the' answer. We hasten to add that more 'targeted levels' of funding might have greater impact, but this proposition falls outside the scope of this study. However, 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 'Teacher Readiness' as an influence on student achievement requires us to further consider this aspect of educational delivery as central to ongoing discussions and research in the area.

Further Research

The authors are currently investigating the impact of 'Teacher Readiness' in secondary schools, assuming results will be similar. Importantly however, the authors plan to investigate the specific actions of school leaders in this study, to collate and identify what effective ACE based leaders do when they 'say' they are readying their teachers and compare results with the ACE implementation theory. These findings will be used to inform the professional development of school leaders.

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