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The Australian Educational Researcher
A Publication of the Australian Association for Research in Education

ISSN 0311-6999

Aust. Educ. Res.
DOI 10.1007/s13384-016-0209-4

Springer

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Signatures of quality teaching for Indigenous students

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Received: 24 March 2016 / Accepted: 7 June 2016

Abstract This paper presents findings from the validation of a survey instrument constructed in response to what Indigenous parents/carers and students believe constitutes culturally responsive pedagogies that positively influence Indigenous student learning. Characteristics of culturally responsive pedagogies established through interviews with Australian Indigenous parents, community members and students generated themes which were distilled into survey items by a team of Indigenous and other educators. The instrument was then put on trial with 141 teachers for statistical validation. Analyses employing the Rasch model confirmed that the instrument measured a unidimensional latent trait: culturally responsive pedagogy. Seven subscales, content validities of which were determined by a panel of experts, were also confirmed. Results highlighted differences between primary and secondary teachers' self-reported practice, and important facets of teacher pedagogy in the two different school contexts emerged. Analyses of four of the subscales of the instrument—Indigenous cultural value, self-regulation support, literacy teaching and explicitness—are presented in the context of current emphases on quality teaching and Indigenous student outcomes. The instrument can be used to measure teachers' nuances in pedagogy, and the resulting teacher profiles can be used to assist teachers to focus on particular aspects of their pedagogy to meet the needs of their students.

Keywords Quality teaching · Indigenous students · Rasch analysis · Culturally responsive pedagogy · Primary teachers · Secondary teachers

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Published online: 14 July 2016

Background

In the last decade, persistent concerns around student attainment (e.g. Masters 2009) and teacher quality have formed an agenda of widespread debate (Connell 2009). In addition, teacher quality, which has been recognised to have significant impact upon student learning (OECD 2005), has been concerning the Australian federal government (Manne 2008) leading to talk about the need for a revolution in education and schools (Rudd and Gillard 2008). The core of this 'revolution' focuses on the quality of teaching, the quality of learning and the quality of student outcomes. Conventional teaching and learning approaches are increasingly under widespread scrutiny, with many (e.g. Hattie 2009) advocating for an improvement in teaching pedagogy to raise educational outcomes for all students and Indigenous students in particular (Pearson 2011; Rowe 2006; Sarra 2011). For, as John Hattie (2009) has demonstrated through his meta-analysis of 800 educational studies, teachers and their pedagogy are a major source of variance in students' achievement. Hattie (2009) recommended that there should be a focus on the specific actions of teachers that influence student learning outcomes, challenging teachers to 'know thy student' and reflect upon the consequence of their teaching upon learning. He stressed that teachers must make learning visible by engaging in dialogue with their students about their teaching and students' learning.

The Aboriginal and Torres Strait (Indigenous Australians) people of northern Queensland presently participate in a school system that has been drawn from the predominantly white Australian culture. Although Indigenous personnel work in schools, especially primary schools, the majority of teachers, principals, and school operations administrators are not Aboriginal and the curricula and pedagogy of classrooms are based on models derived from the dominant culture (Lewthwaite and McMillan 2010). Because of this, school practices and curricula have both intentionally and unintentionally denied the inclusion of those aspects of culture that have value and are important to Indigenous children (Bishop 1996; Lewthwaite et al. 2015). At present, while Australia has been deemed to deliver high quality education, recent international evaluations conducted by the Program for International Student Assessment (OECD 2005, 2012; Thomson et al. 2010) contend that Australia is a low equity-high quality education performer and provider (McGaw 2006). That is, there is evidence of inequity in school outcomes with large achievement gaps between Indigenous and non-Indigenous students. The latest results show Indigenous Australian students are performing on average at a standard equivalent to 2½ years behind non-Indigenous students. As a result, the Council of Australian Governments (COAG) that is, all state, territorial and national governments in Australia, agreed to a set of educational priorities and reform directions to reduce Indigenous disadvantage (2009). These include a drive to ensure schools and teachers build upon local cultural knowledge and experience of Indigenous students as a foundation for learning, endorsing well established Vygotskian theoretical precepts.

The study described here presents the outcomes of the second phase of a four-phase research initiative which arose to support a move towards a better

understanding of classroom practices that have value in the learning of Indigenous students. In brief, the research has so far:

(i) used interviews and focus group discussions to obtain the views of Indigenous (in the main Aboriginal rather than Torres Strait) parents, students, community members and teachers about what constitutes culturally responsive pedagogy which has a positive impact upon Indigenous learners' outcomes;
(ii) compiled those interview responses into items to inform the construction, piloting and validation of an instrument to measure teachers' self-reported pedagogy.

The subsequent phases of the research involve teacher volunteers who will adjust particular aspects of their pedagogy in situ over a period of time to see if those adjustments make an impact upon the learning outcomes of their Indigenous (and other) students. We will observe their classroom practices and measure the learning gains of the students in their classrooms to ascertain if indeed the adopted pedagogies have led to observable gains in student outcomes. The following questions guided the first two phases of our research:

(1) what pedagogical practices do Indigenous students and their parents identify as influential to learning?
(2) do practicing teachers endorse these pedagogical practices and can they be statistically confirmed so that they can be used to measure culturally responsive pedagogy?

Theoretical framework

This research was informed by the ideas underpinning *culturally responsive pedagogy* (*CRP*), that is, using the cultural knowledge, prior experiences, frames of reference, and performance styles of students to make learning more relevant to and effective for them (Gay 2000). Culturally responsive teaching has its roots in Vygotskian theory. Vygotsky (1978) stressed the fundamental role of social interaction in the development of cognition; he believed strongly that community played a central role in the process of 'making meaning'. As early as the 1930s, his theory advocated for the use of cultural tools for the facilitation of learning. These ideas and propositions are intrinsically linked to cultural identity and, as emphasised in Aboriginal culture, in collaborative learning wherein the teacher or more knowledgeable other is a facilitator of the learning process. Although several studies have focused on the identification of the critical elements of instruction which influence the school success of Indigenous students in Australia (e.g. Osborne 1991, 1996), few have focused on grounding the studies in the voice of Indigenous students themselves and/or their Aboriginal educators (Lloyd et al. 2015). Further, none of those studies has tested these suggested claims, despite a call from the Aboriginal community for such (Craven et al. 2007):

> There is a need to critically validate the generalisability of findings to Aboriginal students to tease out facets of quality teaching that are salient to Aboriginal students; elucidate their perspectives of teacher quality; and test the influence of specific facets of quality teaching on academic outcomes and the consequences of the findings for developing interventions for Aboriginal school students (Craven et al. 2007, p. 4).

Following the protocols used by Bishop et al. (2003) in Aotearoa, New Zealand with their ongoing *Te Kotahitanga* project, researchers have identified a variety of practices through their conversations with Māori students that contribute both to positive learning environments and student success in learning. These practices are located mainly in students' home culture. By doing so, they have developed an "Effective Teaching Profile" for teachers of Māori students based on operationalizing interaction and pedagogical practices that students believe address and promote their educational achievement.

Central to the adoption of these practices has been the teacher's recognition of the validity of students' claims, acknowledging Hattie's attention to "know thy student" (Hattie 2009). These practices have been tested quantitatively to determine their efficacy. Bishop et al.'s (2003) research determined, from perceptions of Maori students, the teaching practices that support their success as learners. They used students' voices to question the protocols of mainstream classrooms and, in response, promoted a dynamic and synergistic relationship between home and community culture and school culture (Ladson-Billings 1995). This questioning ultimately and purposely "problematizes" teaching, upsets the orthodoxy of classrooms, and encourages teachers to ask about the nature of the student–teacher relationship, their teaching, the curriculum, and schooling (Ladson-Billings 1995). By creating this disequilibrium, educators are pushed to seek resolution of these issues to make their classrooms more *culturally* responsive by employing a culturally preferred pedagogy. As suggested by Gay (2000), culturally responsive teachers *respond* to the cultural knowledge, prior experiences and performance of students to make learning more appropriate and effective for them. They teach to and through the strengths of their students, reducing the discontinuity between the home cultures of these students and the social interaction patterns of the classroom (Kanu 2002; Lewthwaite and McMillan 2010).

The experiences of New Zealand Maori students are useful in the consideration of Australian Aboriginal students' preferences at school. While Maori culture differs from Aboriginal cultures in several respects, it also shares common attributes. A common element in Maori and Aboriginal cultures is the central role of music, art and dance as a reflection of traditional spiritual beliefs and the importance of the relationship to the surrounding environment and sense of place that both cultures espouse (Ford 1996). Similarly, both cultures emphasise relationship over task and cooperation over competition with a preference for cooperative and collaborative learning models in classrooms (Duchesne et al. 2013). An obvious difference between the two cultures is conferred upon the two cultures by the fact that the Maori population is approximately 15 % of the New Zealand population, whereas Australian Aboriginal peoples and Torres Strait Islanders constitute 3 % of

the Australian population, numbers that impose different power relations within communities. In addition, there is relatively more homogeneity in Maori culture as there is one Maori culture, speaking one Maori language with regional dialectical variations, whereas there are many different Aboriginal cultures in Australia reflecting many different spoken Aboriginal languages. The first language of Aboriginal Australians is one of the Aboriginal languages with English as a second or sometimes third or fourth language. It is common for Aboriginal people to be multilingual and understand and use more than one Aboriginal language (Ford 1996). Another notable difference experienced by Maori students compared to Aboriginal students is that they experience the integration of Maori language in the English science curriculum in New Zealand schools, whereas in Australia, Aboriginal students are not taught in any language other than English (Duchesne et al. 2013), a situation that does not assist with their literacy attainment and one contrary to the underlying premise of culture-based education. Culture-based education advocates that the educational experiences provided for children *should* reflect, validate, and promote their culture and language. This advocacy which has long been held but largely neglected in Queensland schools (Lloyd et al. 2015) is the impetus for the current research project.

Aims

In order to document pedagogical behaviours that Indigenous parents, students, and teachers believe enhance Indigenous student learning, we conducted interviews with Indigenous parents, teachers, and students and an extensive literature review; this is described in detail in Lewthwaite et al. (2015). The research described here focuses on some of our findings arising from the question:

> To what extent do teachers endorse teaching practices that have been identified by Indigenous students and parents as influential in their learning?

A full description of sampling methods, development, initial piloting, Rasch analyses and relevant Rasch validation statistics of the instrument we developed for measuring Culturally Responsive Pedagogy (CRP), is detailed in Boon and Lewthwaite (2015). Reported here are some of the differences and nuances in pedagogy that we found when comparing secondary and primary teachers in Catholic education schools which we believe are noteworthy. Catholic Education schools were the research focus because Catholic Education were our research partners who funded the research along with the Australian Research Council through a Linkage Grant.

A caveat is also necessary at this point. Although it is important to be clear about the behaviours and principles that underpin good pedagogy (James and Pollard 2011), before we can think about the validity of any measures of teaching effectiveness, the use of the intended measures must be clear from the outset. Potentially they could be used in selection for initial professional entry; for awarding certification as a qualified teacher; for recognising professional progression, perhaps linked to probation, tenure, promotion, retention, or performance-related pay; for identifying under-performing teachers, with associated support or

firing. In this research, the intended use of the instrument is to help teachers reflect on their pedagogy to assist in their teaching and learning of Indigenous students.

Methods

In brief, a team of three professionals in education identified seven categories and generated 83 items for the initial pool of items gathered from the interview phase. Specifically, the category characteristics identified in the qualitative phase were broken down to survey items by the research team with the help of a senior school teacher and administrator responsible for curriculum development and delivery for appropriate pedagogy for Indigenous students in Catholic Education and an Indigenous teacher. This was deemed important in order to ensure that the wording of the items was unambiguous and the intended meaning of the items was retained. Further, the items were at that stage grouped into distinct clusters thought to inform responsive pedagogy and reflective of those categories identified by the parents, community members and students. The categories that were identified by Indigenous parents, students and teachers for the purpose of the survey instrument were: Pedagogical expertise, Literacy teaching, Explicitness, Ethic of care, Self-regulation support, Behaviour support and Indigenous cultural value. The items that were included in the survey were constructed in such a way as to honour the views of the Indigenous parents, community members and students interviewed and to represent important aspects of culturally responsive pedagogy (CRP) as informed by the literature. The constructed CRP instrument was then piloted with a group of 141 Catholic Education teachers for refinement. The final sample consisted of 80 primary and 61 secondary school teachers.

The survey was made available to teachers teaching in Catholic education schools in parts of North Queensland online via Survey Monkey. Respondents were informed that the study had been granted ethical clearance by James Cook University and Catholic Education, Queensland. They were further informed that "Participation is completely voluntary and confidential. You are free to withdraw at any time for whatever reason by exiting the survey. You are not obliged to answer any questions that you may be uncomfortable with. You will not be identified in any way when the results are published and nothing will connect you to your responses. If you give your name at any point this will be removed before your responses are saved, stored and analysed. All data will be stored in secure files that are password protected (if computer files) or in lockable filing cabinets and accessible only to the researchers. After five years all files will be destroyed".

No demographical information was sought other than whether the teacher was a secondary or primary teacher. Specific instructions for answering the survey questions were printed above the first question referring to pedagogy, explaining the response format, namely that "*The statements in this questionnaire deal with the actions or behaviours that might be seen or used in the classroom. Answer the questions based upon the degree you believe these actions or behaviours are used in your classroom. There are 5 possible answers for each behaviour ranging from*

"almost never" to "almost always". Please be honest and accurate in your answer."

The items required teachers to respond in a Likert scale format with the response format being:

Almost never <20 % of the time
Once in a while: 20–39 % of the time
Sometimes: 40–59 % of the time
Frequently: 60–79 % of the time
Almost always ≥80 % of the time

Results

The instrument for culturally responsive pedagogy was validated via Rasch analysis (Boon and Lewthwaite 2015). Of the 141 teachers, only 138 were retained in the final analyses because three exhibited scoring that indicated ad hoc responses. Rasch analysis was used to assess the instrument for unidimensionality and person–item fit. Of the original 83 items, 62 items were retained; these were shown to form a unidimensional scale (Boon and Lewthwaite 2015). Results showed the instrument was unidimensional and reflected seven subscales. As a result, because it is sensitive to nuances in pedagogy, it is able to measure nuances in the underlying factors comprising CR pedagogy; consequently it can also measure quality teaching as defined by a range of criteria (Hattie 2009). The items for the full instrument are reported in Boon and Lewthwaite (2015). Sample items of the CRP instrument grouped by subscale are listed below (Table 1).

In presenting the results of our analyses, we rescaled all Rasch measures because negative measures are more difficult to interpret for non-technical readers. The rescaling process ensured that each of the subscales would fit between 0 and 100

Table 1 Examples of items included in the CRP instrument factors

Subscale	Item example
Indigenous cultural value	Resources with local Indigenous content are provided
Explicitness	Learning objectives are displayed and articulated
Self-regulation support	Students are provided with time to ensure mastery of ideas
Ethic of care	I explicitly encourage learner development in the broad sense not just academic learning
Literacy teaching	Basic literacy skills are regularly revised
Behaviour support	I address off task behaviour with less intrusive correction skills such as non-verbal cues and proximity
Pedagogical expertise	Learning and assessment are placed within the broader contexts of what is familiar to students

units with higher numbers indicating a greater probability that the item would be endorsed (for item ranking) and a greater CRP measure for each teacher (person ability). This was for the convenience of the readers only and does not imply that a person whose score on a subscale is 45 has attained 45 % of the subscale measured; it means simply that a person with a score of 45 has greater difficulty endorsing the items on the test than a person whose score is 55. A summary of the sample of teachers' CRP and subscale mean scores, range of scores and related statistics is shown in Table 2. As shown in Table 1, literacy teaching behaviours exhibit the greatest variability among all teachers (S.D. 8.43 and Range 46.68) a finding that raises some concerns.

We also wanted to examine the relationships between the overall CRP scale and the subscales that comprised it. It was of interest to us to see that while a higher overall CRP score was accompanied by higher individual sub-scores, there were strong variations between teachers in the level of endorsement that they declared for the various subscales of the instrument (Fig. 1).

There were clear variations in the teacher CRP profiles when one examines the means of each subscale plotted against the means of the CRP measures (Fig. 1); variability which is concealed when one looks at the overall means (Table 1). The least variable subscale is pedagogical expertise, which is clearly closely aligned to overall CRP. In Fig. 1, the mean values of the CRP have been calculated by grouping together individuals whose CRP is within a range of 3–5 points, from a total CRP range of 40.7–74.8. Thus a CRP mean of 1 represents the mean of those individuals whose CRP measure was 40.7–44.8, a mean of 12 represents those individuals whose CRP measure ranged from 61.3 to 64.9 and so on. It is clear that the subscales deviate considerably from a straight line that might be expected when plotting CRP against each subscale. This deviation is stronger at both ends of the distribution. The subscales that seem to generally fall below the others are self-regulation support and Indigenous cultural value, with a strong variability being demonstrated in literacy teaching as well. There could be various ways of explaining particular teacher CRP profiles. For example, one might infer that a teacher with a CRP mean of 2 (representing 10 teachers in this sample) is likely to be very supportive of self-regulation, but have much lower focus on Indigenous cultural value inclusion in their class, a lower literacy teaching focus and fewer

Table 2 Mean, Standard Deviation, Range, Minimum and Maximum measures of all scales ($N = 138$)

	Range	Minimum	Maximum	Mean	SD
Ethic of care	38.46	37.90	76.36	54.10	7.96
Pedagogical expertise	42.45	35.48	77.93	53.51	6.50
Literacy teaching	46.68	30.73	77.41	53.85	8.43
Behaviour support	39.78	38.24	78.02	54.09	7.98
Explicitness	41.05	37.38	78.43	53.83	7.62
Self-regulation support	40.60	38.27	78.87	53.39	6.24
Indigenous cultural value	39.14	38.81	77.95	53.30	6.84
Total CRP	34.10	40.70	74.80	53.33	5.73

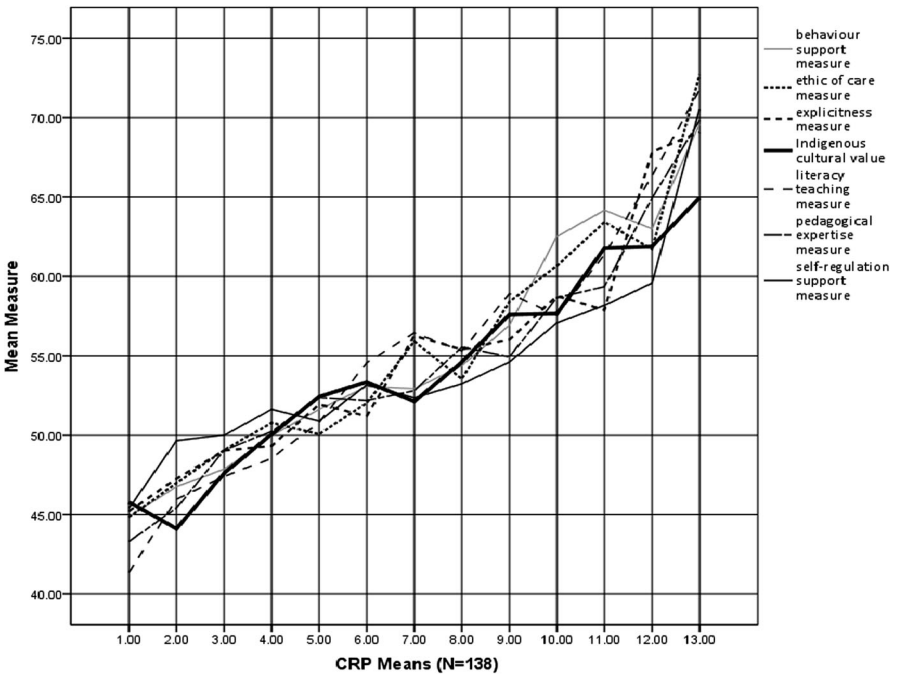


Fig. 1 Mean Rasch measures of CRP by all subscales ($N = 138$)

strategies characterising pedagogical expertise. Conversely, a teacher with a CRP mean of 12 (representing 7 teachers in the graph) might be predicted to have a strong focus on explicit teaching, literacy teaching and to demonstrate a range of strategies that characterise pedagogical expertise, but their focus on self-regulation support and Indigenous cultural values is likely to be much lower.

Analyses suggest that some of this variability is related to the teaching context of teachers, that is whether they are in secondary or primary schools. Analyses of variance (ANOVAs) showed that significant differences occurred between primary and secondary teachers in their overall CRP measure ($F(1136) = 5.89, p < 0.05$), in their Indigenous cultural value ($F(1136) = 7.18, p < 0.005$), behaviour support ($F(1136) = 10.12, p < 0.005$), literacy teaching ($F(1136) = 8.50, p < 0.005$), and pedagogical expertise ($F(1136) = 4.72, p < 0.05$). These differences are represented in Fig. 2.

It is quite clear (Fig. 3) that even when teachers have overall equal measures of CRP their teaching behaviours are unique, and based on the priorities they consider important for their classrooms. For instance, one teacher enacts an extremely high ethic of care for their students but much lower levels of behaviour support. Contrasted with that is the next teacher, whose highest score on CRP emanates from their emphasis on literacy teaching but whose behaviour support behaviours are almost nonexistent (Fig. 3). This is not unexpected and in fact may be beneficial for some students since not all students respond to particular teacher's pedagogy

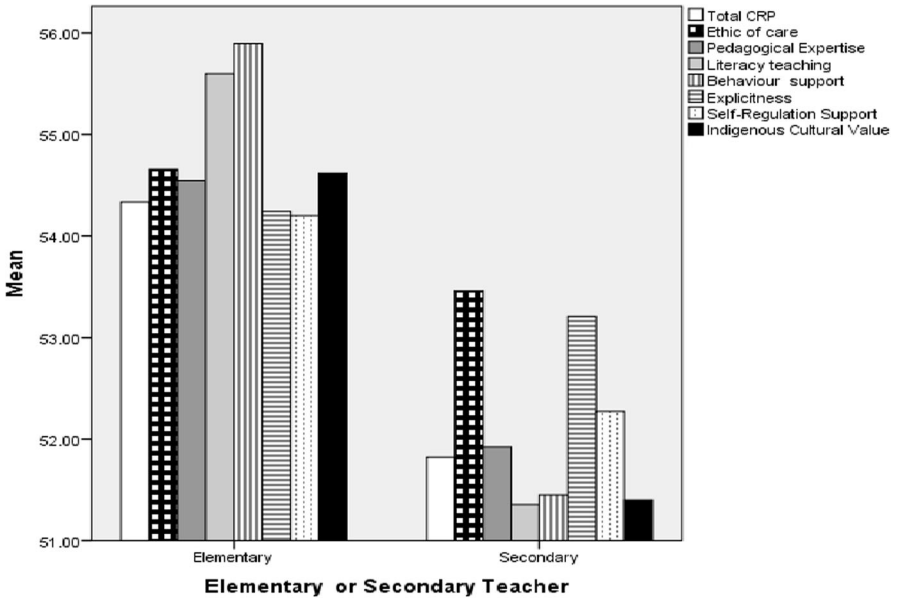


Fig. 2 Comparison of mean measures of all subscales for primary and secondary teachers

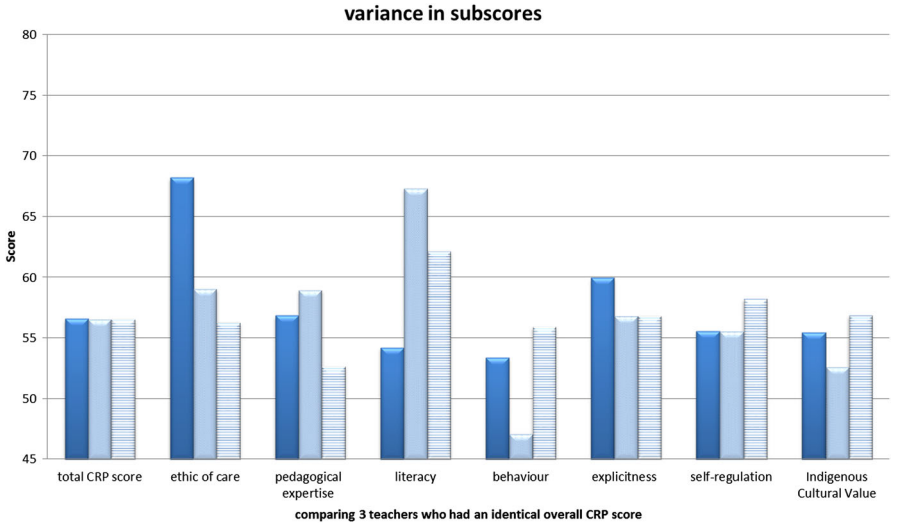


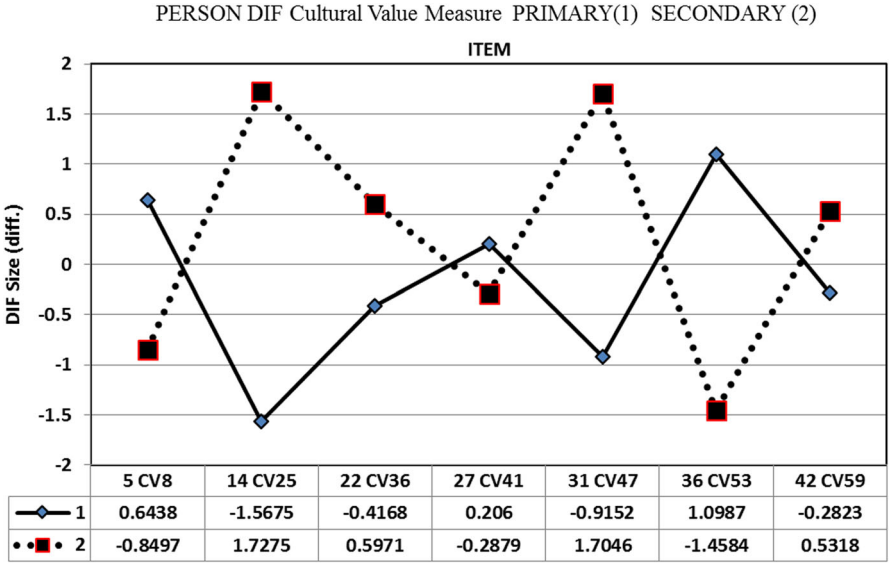
Fig. 3 Comparing 3 teachers with identical overall score on CRP

equally. However, it does show that where a teacher does not emphasise, for example, literacy teaching, that teacher can be made aware of their teaching profile nuances and they can then adjust their pedagogy to focus on particular salient aspects to meet their students' needs.

Specific differences between primary and secondary teachers within selected subscales

It was of interest to us to examine more closely the subscales addressing **literacy teaching, self-regulation support, and explicitness** because these are matters that are particularly salient in educational discourse at present, while **Indigenous cultural value** was especially important to the focus of our research and the stakeholders, the Indigenous parents, teachers, community members and students. Moreover, The Framework of Australian Professional Standards for Teachers stipulate that teachers must know, design and implement effective teaching strategies for teaching Aboriginal and Torres Strait Islander students. At the proficient level, which is the level required for practicing teachers, that requires an ability to implement "…effective teaching strategies that are responsive to the local community and cultural setting, linguistic background and histories of Aboriginal and Torres Strait Islander students"(AITSL 2016, p. 2). Moreover, we wanted to examine any differences between primary and secondary teachers in relation to these subscales because in the transition between primary and secondary school many students appear to lose momentum. The full data set from 2008, when the National Assessment Program-Literacy and Numeracy (NAPLAN) was introduced, shows some gains at primary level where there have been statistically significant improvements, including in year 3 reading and year 5 numeracy. In high school, however, where students prepare for the workforce, there has been no significant national improvement since 2008 (Ainley and Gebhardt 2013).

The mean differences between primary and secondary teachers' pedagogy profiles across the four above mentioned subscales are displayed and discussed in the appropriate sections below (Figs. 4, 5, 6, and 7 respectively). These figures show the



	5 CV8	14 CV25	22 CV36	27 CV41	31 CV47	36 CV53	42 CV59
1	0.6438	-1.5675	-0.4168	0.206	-0.9152	1.0987	-0.2823
2	-0.8497	1.7275	0.5971	-0.2879	1.7046	-1.4584	0.5318

Fig. 4 DIF size in logits of the item DIF for primary and secondary teachers relative to the overall difficulty of each item in cultural value measures

Differential Item Functioning (DIF) of particular items that comprise each subscale so that actual pedagogical differences between primary and secondary teachers' endorsements of particular teaching behaviours can be examined more closely. Differential Item Functioning (DIF) investigates items in a survey, one at a time, for signs of interactions with sample characteristics, in this case whether the teacher is a primary or secondary teacher. DIF size shows the size in logits of the item DIF for each group relative to the overall difficulty of each item. This plot is used to see differences between different classification groups, for example primary and secondary teachers.

Cultural value measures were particularly low in those who were secondary teachers (Fig. 4) above. Figure 4 shows that in this cohort of teachers, item 14CV25 (I communicate personally with families) is particularly difficult for secondary teachers to endorse as well as item 31CV47 (Relatives and community Elders are invited to contribute to or observe classroom learning). Whereas item 36CV53 (Contemporary Aboriginal and Torres Strait Islander perspectives are included in all subject areas) was easier for secondary teachers to endorse than for primary teachers. This might be related to the scheduling that is currently mandated of a range of topics within schools. This demands that particular topics are included in the daily teaching within particular calendar dates across all primary schools in response to the Curriculum into the Classroom (C2C) imperative now applied to school teaching. All schools in Queensland are able to and indeed encouraged to access these resource materials in order to implement the Australian Curriculum and the timing of these is also specified. A modified set of the C2C materials is available to Queensland independent and Catholic schools which they also use.

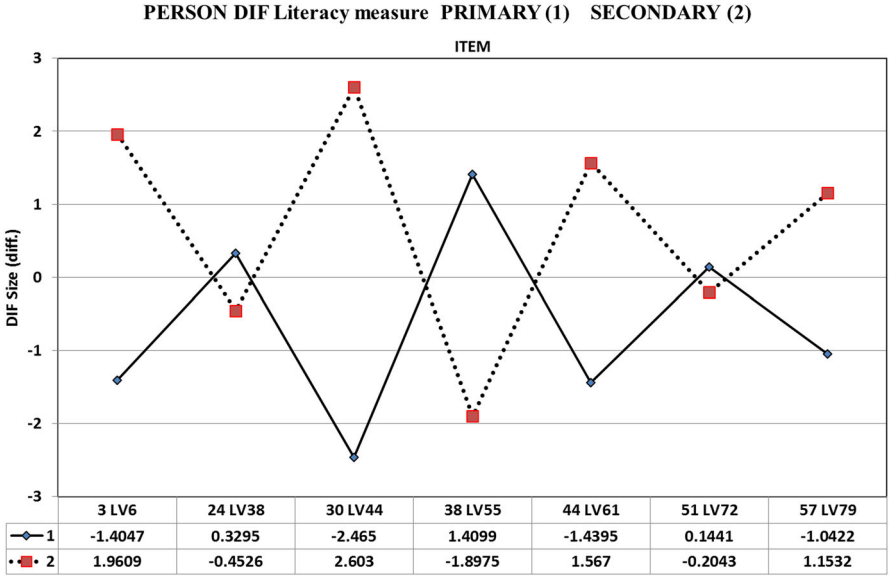


Fig. 5 DIF size in logits of the item DIF for primary and secondary teachers relative to the overall difficulty of each item in literacy measures

Secondary teachers also scored poorly in the realm of literacy teaching compared to primary teachers (Fig. 5 above); however, this might be because some of the responding teachers were from areas other than English. Of course, all teachers are charged with the task of teaching literacy to their students, and so their specialist teaching area should not prohibit them from emphasising the functional vocabulary of their subject area and indeed literacy skills in general. In particular, secondary teachers found it difficult to endorse the following items:

3LV6: Buddy reading occurs
30LV44: Literacy skills are taught and practiced in the context of modelled age appropriate text
44LV61: Basic literacy skills are regularly revised

This result might relate to appropriate resource materials not being available in the respective schools or it might be connected to behaviour management contingencies (in respect of "buddy reading"); alternatively a difficulty in endorsing 30LVV44 and 44LV61 might arise because specialist support teachers come into the classrooms to assist with students who have particular learning needs, and therefore the regular classroom teacher is reliant upon these other support personnel to cater for the literacy needs of their students. Lastly, secondary school teachers might not have the skills or the time to pursue the literacy needs of their students as well as delivering the specific requirements for their specialist areas.

Curiously, primary teachers were less likely than secondary teachers to endorse the following item:

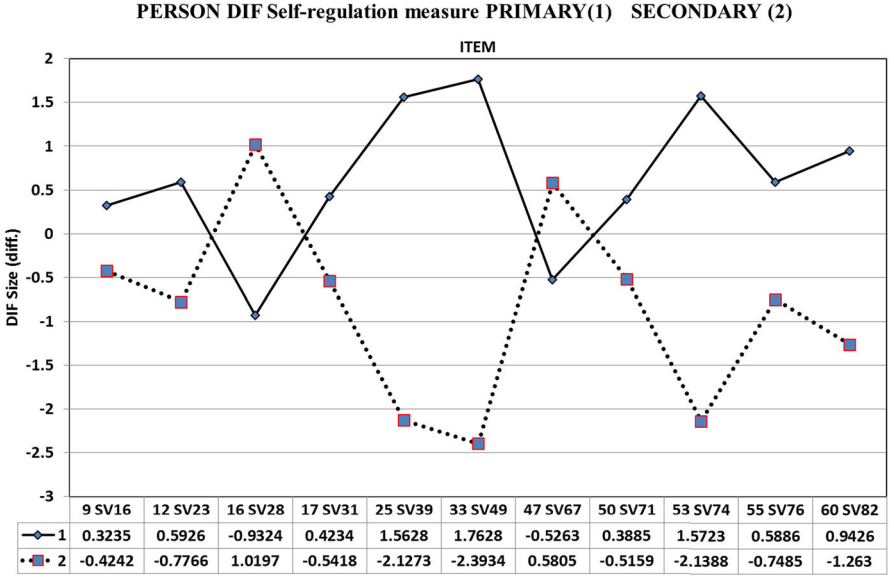


Fig. 6 DIF size in logits of the item DIF for primary and secondary teachers relative to the overall difficulty of each item in self-regulation measures

38LV55: ESL (English as a second language) strategies are used when teaching students learning English as a second or additional language.

Most likely primary schools do not have the resources or specialist training to support those students who have English as a second language. However, the need for such support is critical in the case of Indigenous students who often speak languages other than English at home and in their communities.

Self-regulation (Fig. 6 above) was of particular interest to us because self-regulated learners are generally more engaged learners since they avoid issues of impulse control and inappropriate behaviour and have greater levels of motivation for learning (Carver and Scheier 2001). Once again secondary teachers scored lower than primary teachers overall in their self-reported enactment of these behaviours. However, primary teachers found it more difficult than secondary teachers to endorse:

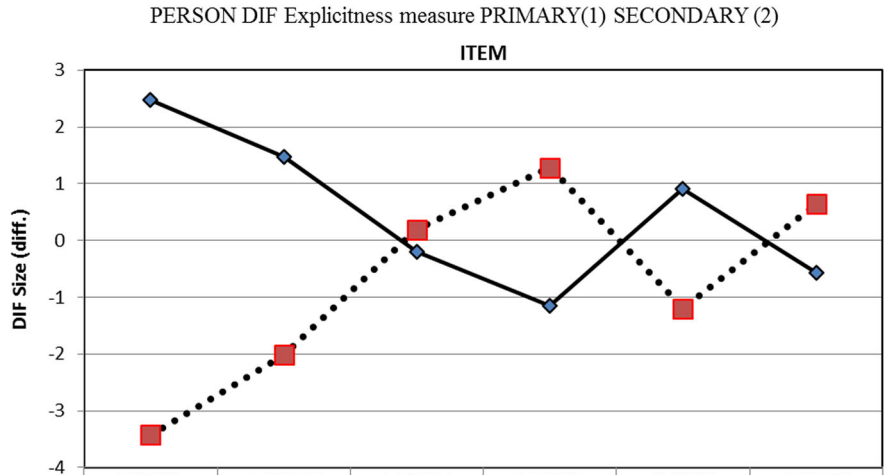
25SV39: I act as a learning facilitator
33SV49: Students are provided with time to ensure mastery of ideas
53SV74: Lessons are paced to allow students time for task completion.

On the other hand, secondary teachers were less likely to endorse

16SV28: Individual goals for student achievement are established.

The most likely reason for this could be that secondary teachers do not have the same amount of time with particular students as primary teachers do to enable them to establish individual goals for student achievement. Nonetheless, it is of concern that when responding to items 25SV39, 33SV49 and 53SV74 primary teachers' responses indicated that they found it hard to consistently enact those behaviours (i.e. to act as a learning facilitator, or provide time to students to facilitate mastery and so on) since such teacher behaviours reinforce self-control and preempt impulsive, disengaged behaviour and the need for more effort and time to be spent on classroom behaviour management.

Explicit instruction (Fig. 7, below) has recently been one of the most expounded virtues in teacher pedagogy. For example, O'Neill et al. (2013) cited recent shifts in the conceptualisation of effective literacy teaching which have focused on the need for teachers to make teaching explicit or in Hattie's (2009) terms, learning "visible". Moore (2013) called for explicit teaching to assist in children's vocabulary in early childhood, Atkins (2013) called for explicit teaching for reading comprehension in primary school, Ciullo et al. (2015) advocate for explicit teaching in social sciences for all including those with learning disabilities, while similar calls were made for explicit science teaching (Peters 2012). In the political sphere, there has also been a strong call to use explicit instruction in the classroom. Echoing Minister Pyne's exhortations, Townsville-based federal Liberal National Party MP Ewen Jones was quoted as saying that Direct and Explicit Instruction had the potential to help any child with learning difficulties. "You don't have to go



	7 XV10	10 XV17	13 XV24	21 XV35	40 XV57	45 XV62
1	2.4814	1.4767	-0.193	-1.1559	0.9016	-0.5759
2	-3.4221	-2.0183	0.1888	1.2793	-1.2005	0.6382

Fig. 7 DIF size in logits of the item DIF for primary and secondary teachers relative to the overall difficulty of each item in explicitness measures

to…remote Queensland to find the problem. It's happening right here in Townsville'' (Walker 2014). Although it is not without unequivocal, in relation to Indigenous learners, in particular Aboriginal learners whose first language might not be English, explicit instruction is perhaps key to raising their academic outcomes. It was strongly emphasised in the stakeholder interviews as being critical in drawing the attention of the learners to the key elements of the learning tasks.

Secondary and primary teachers demonstrated no significant differences between their overall scores on the subscale of explicit instruction. However, it was of interest that primary teachers found it much more difficult than secondary teachers to endorse the following items:

> 7XV10: Learning objectives are displayed and articulated
> 10XV17: I give constructive individual feedback

This result might be related to the nature of primary teaching which tends to be more thematic and holistic rather than subject based, and therefore the learning objectives might be multiple and embedded in the content and activities rather than specific as is often the case in secondary settings. Or alternatively, primary teachers might consider that the articulation of objectives is not something that primary school students would be able to appreciate. As for the item on feedback which is considered one of the most important aspects of quality pedagogy (Hattie 2009), this is a very surprising result which might be connected to the time contingencies within primary classrooms.

Discussion and Limitations

The current status of Indigenous student underachievement is a serious problem for Australian educators and the Australian educational system. A two-and-a-half year achievement lag behind their non-Indigenous peers is unacceptable for Indigenous Australians. It is imperative that the current inequities in educational outcomes between Indigenous and non-Indigenous students lead to a scrutiny of current educational practices with respect to the extent to which they are culturally inclusive. Furthermore, it is important that the educational community is culturally competent and possessed of the knowledge and skills to effectively teach diverse groups of students. One way forward is to examine closely teachers' classroom practices.

The culturally responsive pedagogies described in this study, and the instrument designed to assess these, make a contribution to our understanding of ways in which teachers can be assisted to examine their own implicit biases and assumptions and reflect upon their practice. The instrument constructed and piloted to provide a profile of culturally responsive teaching has much promise. It is able to provide practicing teachers with an overall picture of their teaching against the characteristics that Indigenous students and parents believe are most supportive of learning for Indigenous students. It potentially gives the opportunity to a teacher to reflect on areas which could be moderated to accommodate the needs of Indigenous students more holistically, or to focus on simply one area which could be in need of adjustment. A particular use of the instrument could be to reflect on the behaviours of those teachers who are in charge of students transitioning to secondary school. This is a time of noted student disengagement, so additional attention to the behaviours which could support this transition period will likely prove fruitful.

The instrument could also be used by students in a modified form to appraise their teachers, in a research environment, and for principals to observe and arrange for professional development to enhance their staff skills appropriately. It is most important to note that the kinds of behaviours measured by the instrument are not only efficacious for Indigenous learners. They are excellent indicators of quality teaching for all students across all years of schooling.

Moving forward these research findings also need to be validated with other groups of Indigenous stakeholders from diverse parts of Australia, since there are many Indigenous cultural groups in Australia unlike New Zealand, to ensure that the views represented by this group of Indigenous stakeholders are in accordance with the views of other Indigenous cultural groups.

The main limitation of this instrument is that these responses are self-reported. The next phase of the research will establish via observations the occurrence and frequency with which these behaviours occur in the classroom. Most critically, we will also measure whether adjustments of these behaviours by particular teachers have a measurable effect on student outcomes.

Another potential limitation that might be raised is that, theoretically and practically, there is a problem involved in trying to 'operationalise' good pedagogy through the development of a set of measures of good pedagogy that can be reliably

used to assess teacher effectiveness. One is to be too specific: to define it in terms of a checklist of observable, effective practices or skills. Potentially there could be a problem in attempting to reduce good teaching to constituent elements since the whole may be greater than the sum of its parts. The reflective and conscious choices a teacher makes in coordinating their skills may be an essential part of what makes them effective. Focusing on simply the behaviours might be too limited. The element of judgement in context is not an easily measured component of pedagogy.

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