

Effective Teaching Practices for
Australian Aboriginal and Torres Strait Islander Students:
A Review of the Literature

Abstract

This paper presents a review of the literature pertaining to the teacher actions that influence Aboriginal and/or Torres Strait Islander student learning outcomes. The review investigates two foci: the identification of teacher actions influencing learning outcomes for Aboriginal and/or Torres Strait Islander students and the methodological approach to how the influence of teacher behaviours on student learning has been determined. The literature review identifies that published literature in the effective teaching area is predominantly in the ‘good ideas’ category; that is assertions are made by authors with no research-based evidence for supporting such claims, especially through quantitative research which seeks to test the influence of specific facets of quality teaching, especially those facets identified by Aboriginal and/or Torres Strait Islander students as the qualities of effective teachers. The review ends by supporting Craven, Bodkin-Andrews and Yeung's (2007) assertion that “there is astoundingly little known about what Aboriginal students see as the qualities of effective teachers and the impact this has on educational outcomes.”

Introduction

Although Australia has a long-standing status as a country that delivers high quality education, more recent data from international evaluation assessments such as the Program for International Student Assessment (OECD, 2006, 2012) have categorized Australia as a low equity-high quality education performer and provider (McGaw, 2006). That is, there is evidence of inequity in school outcomes with a large achievement gap, especially between Indigenous and non-Indigenous students. Furthermore, there is evidence that the achievement gap widens as students’

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progress through school (Leigh and Gong, 2009, Stewart, Wright and Gould, 1998). As stated in the Collins' Review, there is 'unequivocal [perpetuating] evidence of deteriorating outcomes from an already acceptably low [educational] base' and 'evidence of long-term systemic failure to address this problem' (Northern Territory Department of Education, 1999). Thus, it is not surprising that through the Council of Australian Governments (COAG), all state, territorial and national governments in Australia have more recently agreed to a set of educational priorities and reform directions to reduce Indigenous disadvantage (2009). In The Melbourne Declaration (MCEETYA, 2008) this agreement is manifest in ensuring the learning outcomes of Indigenous students improve to match those of other students through a variety of actions.

In line with this acknowledged issue, the current national discourse in education shows contest among a variety of stakeholders for methods by which this disadvantage can be ameliorated by improving teaching. Evident within this contest are voices advocating for improved teaching quality that can assist in improving educational outcomes for students generally and Indigenous (both Aboriginal and Torres Strait Islander) students specifically (Archer & Hughes, 2011; Hattie, 2009; Luke, 2010; Pearson, 2011, Rowe, 2006, Sarra, 2011). A significant privileged voice is John Hattie's quantitatively based meta-analysis of more than 800 studies which identifies the impact of a long list of variables on educational achievement. Hattie (2003, 2009) identifies teachers and their teaching as a major source of statistical variance in students' achievement. Hattie (2003) asserts we need to focus attention nationally on the specific actions of teachers especially those that have been identified through his analysis that have a high effect on student learning outcomes. Hattie challenges teachers to deeply consider the consequence of their teaching upon learning, draw from the findings of the meta-analysis and engage in *dialogue* with students about their teaching and students' learning and, by doing so, make learning *visible* (2009).

Notwithstanding the significant contribution Hattie's research has on informing teaching practice, alarmingly absent in his commentary is any mention of the role culturally located teaching practices are likely to have on improving student learning for Indigenous students. As Snook, Clark,

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Harker, O'Neill and O'Neill (2010) challenge, Hattie's quantitative research on "school effect" is presented in isolation from students' cultural and social context, and their interaction with home and community backgrounds. As asserted by Sarra (2011), enacted curriculum, including teaching practice, must demonstrate links between school and the everyday realities of Indigenous Peoples' life practices and cultures. It is not surprising that the relevance of Hattie's research to Aboriginal and Torres Strait Islander students is likely to be questioned by those who have been calling for equitable schooling in Australia, especially from the communities served by schools and its teachers. For example, Craven et al. (2007) state, "[t]here is a need to critically validate the generalisability of [Hattie's and Rowe's] findings that identify and prioritise specific teacher practices to Aboriginal students to tease out facets of quality teaching that are salient to Aboriginal students. As argued by Klenowski (2009), Kostogriz (2011) and Kerwin (2011) the uncritical acceptance and application of educational methods are important factors in perpetuating the educational inequity documented in Australia. These authors call for quality teaching endorsements to be viewed critically when applied to Indigenous contexts and for pedagogical improvement to be grounded in those facets identified as salient through research to Aboriginal and Torres Strait Islander students and their communities.

The purpose of this literature review is to respond to these claims. The review seeks to analyse the literature pertaining to the suggested actions of teachers that influence Aboriginal and Torres Strait Islander students' learning. The review does not seek to dispel or privilege claims made by the dominant voices in the North Queensland effective teaching discourse (Archer & Hughes, 2011; Hattie, 2009; Pearson, 2011, Sarra, 2011), but it does seek to ensure that these voices are, as Craven et al. (2007) critically viewed, especially from a research based perspective. The review of the literature presented here focusses on these research questions:

1. What are the specific teacher actions recommended for positively influencing Aboriginal and Torres Strait Islander student learning outcomes?
2. What is the documented influence of enactment of these teacher actions on Aboriginal and

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Torres Strait Islander student learning outcomes?

3. What are the methods used to determine the effectiveness of these teacher actions?
4. And consequently, what conclusions can be made from the research about effective teaching practices for Aboriginal and Torres Strait Islander students?

Literature Review Methodology

As suggested by Randolph (2009), the stages for conducting and reporting secondary research (that is, a literature review) parallel the process for conducting primary research. Thus, the stages of (1) problem formulation; (2) data collection; (3) data evaluation; (4) analysis and interpretation and, finally, (5) presentation, are inherent stages of the review process. Drawing upon this chronology, the processes used in the stages of this review are now explicated.

Problem Formulation: Of central importance to this review is identifying and evaluating the specific teacher actions and their influence on Aboriginal and/or Torres Strait Islander student learning outcomes. The evaluation component seeks to identify the methods used in determining teacher actions of learning consequence and, subsequently, limitations to existing research, both methodologically and in understanding of influence. In line with Randolph's (2009) assertions about literature reviews, this review has two foci (1) the identification of teacher actions influencing learning outcomes for Aboriginal and/or Torres Strait Islander students; and (2) an assessment of the methodological approaches used to determine the influence of teacher behaviours on student learning. In line with the intent of research outcome reviews, this inquiry seeks to "identify findings associated with a particular line of inquiry and, subsequently, identify a lack of information on a particular research outcome, thus establishing a justifiable need for an outcome study" (Randolph, 2009, p. 2). Because it also has a methodological focus, the review focuses on, amongst other things, methodological epistemology, methods of data collection, ascertaining measures and means of analysis.

As stated by Randolph (2009), the second stage in problem formulation is to explicitly

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determine the criteria for inclusion which are influenced by the review's focus, goals and coverage. Drawing upon the imperatives stated in the previous paragraph our criteria for publication inclusion in the literature review comprised (1) Australian based publications, either (2) peer reviewed or non-peer reviewed that (3) pertained to Aboriginal and/or Torres Strait Islander students in (4) primary or secondary schooling contexts that also (5) provide recommendations for and/or claims about teaching practice.

Data Collection: The means by which secondary data were collected was consistent with the systematic protocols use in literature reviews (Cresswell, 2013; Randolph, 2009). Research on best practice teaching pedagogy suitable for Aboriginal and Torres Strait Islander students was sourced primarily by searching three James Cook University (JCU) library online databases: Onesearch, which covers all books owned by the library, and two education journal databases: Informit and ProQuest, together including: Australasian Education Directory, AiATSIS Indigenous Studies bibliography, Education in video, EdiTLib Digital Library, Educational Research Abstracts online, Educational Resources Information Centre, ScienceDirect, theses and conference proceedings. All three databases were searched with the following keyword combinations: (1) pedagog* (or teaching*) Aborigin* (abstract only) Australia education (abstract only); (2) pedagog* Indigenous (or teaching*) (abstract only) Australia education (abstract only) and (3) pedagog* (or teaching*) Torres Strait (abstract only) Australia education (abstract only). The abstract only limiter was not applied to the Onesearch interrogation. Further, journals commonly used by Australian educational researchers such as *Australian Educational Researcher*, *Journal of Australian Teacher Education*, and *Australian Journal of Indigenous Education*, were thoroughly examined for publications specific to the review focus.

In addition to the primary search, reference lists of articles and books read were inspected for relevant publications, in order to cast as wide a net as possible into research on suitable pedagogies. Many publications sourced in this manner were reports on government funded

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programs carried out in schools that were not published in peer reviewed journals. These publications were included, despite the lack of peer review, because we sought as wide a variety of voices and suggestions for effective pedagogy for this research. As well, inclusion of only peer reviewed articles might have significantly limited the voice of Aboriginal and Torres Strait Islander perspectives on effective teaching practices. The data collection process stopped when the authors came to a point where they collectively believed they had arrived at saturation, and there was sufficient evidence that everything reasonable had been done to identify all relevant articles (Randolph, 2009).

Data Evaluation: Following the selection of papers that met the selection criteria, the authors began by extracting data that were specific to our goals and foci: (1) identifying and evaluating the specific teacher actions and their influence on Aboriginal and/or Torres Strait Islander student learning outcomes and (2) determining the methodological approaches by which these outcomes had been ascertained. We constructed a grid in which data from each article was recorded. This grid included (1) researchers/authors, (2) date, (3) context, (4) methodology, (5) pedagogical claims, and (6) evidence to support asserted claims. In order to test the reliability of this process, the authors independently completed an analysis for two articles and then compared outcomes based upon this pilot.

Analysis and Interpretation: Following the evaluation, we merged all studies into one spreadsheet and the authors made sense of the extracted data as informed by the research goal and foci. Essential themes, corresponding, complementary and rival findings and conclusions were identified for each of the two foci.

Presentation: The authors shared a draft summary of the review process with their research associates and research partners, who include both Aboriginal and Torres Strait Islander teacher

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researchers, requesting critical analysis of the findings (Randolph, 2009). Based upon the extent of agreement among the informants, the authors were able to confirm, through corroboration, the findings from the review.

Literature Review Results

The journal database searches sourced 236 publications, of these 154 were excluded after reading the abstract on the basis of the criteria detailed above, or due to repetition between the two databases. The remaining 82 were collected from online journals, other internet sites in the case of theses and reports, or the JCU library in the case of conference proceedings and book chapters. A further ten publications were excluded after reading as they also did not meet inclusion criteria. In addition, 19 publications comprising, primarily, hard-copy versions of theses, conference proceedings, book chapters and obscure journal papers could not be obtained and were therefore not included. The journal database searches ultimately yielded 53 publications. The Onesearch search yielded 12 books, of which 13 separate chapters were included after reading online abstracts. The remaining 28 of the included publications were sourced from the references of publications found in searches.

Based upon the literature review to prioritise investigation into identified effective teaching practices and the evaluation of the efficacy of these practices, this considerable body of literature regarding pedagogy of teaching Aboriginal and Torres Strait Islander students was classified into six groups. Evidence based publications were separated from non-evidence based publications. The evidence based publications were then separated into three categories based upon the content of the study. Figure 1 below illustrates the classification criteria and process.

Insert Figure Here

Figure 1: *Classification of publications reviewed*

The first category included non-evidence based publications that called for better practice in teaching Indigenous (either Aboriginal or Torres Strait Islander or, more typically, both) students with little mention of actual practice. The publications were not related to particular projects, programs, resources and made no reference to individual teacher behaviours influencing student learning. Further, they were not informed by empirical study. For this reason, we referred to this first category as “opinion publications”. The second category included non-evidence based publications that provided practical suggestions for improvement in the teaching of Indigenous (again, either Aboriginal or Torres Strait Islander or, more typically, both) students. Authors’ comments primarily arose from Indigenous leaders, teachers or researchers with firsthand experience of working with Aboriginal or Torres Strait Islander students and/or communities. Authors’ claims about teaching practice were based on subjective experience rather than empirical research. We refer to this publication category as “practical suggestions”. The third category of publication included evidence based studies that sought to listen and, in some cases, respond to the voice of Aboriginal or Torres Strait Islander students, families and/or communities with respect to their needs in the education of children. These projects typically provided examples of best practice grounded in the data collected from Aboriginal and/or Torres Strait Islander students, families or community members. We refer to this category of publications as “Indigenous voice”. The fourth category included independently conducted empirical studies which had a bearing on pedagogy and thus we refer to this category as “independent research”. In contrast, the fifth and sixth categories of publication were associated with program evaluations, usually government sponsored. The fifth category focussed on descriptions of programs, projects and resources implemented in schools and made claims about the efficacy of the program but with no attention to specific teacher behaviours and with little empirical base for supporting the claims made regarding the programs’ efficacy. We refer to these as “progress or evaluation reports”. The sixth category of publications included

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reviews of literature or projects. In contrast to the “progress or evaluation reports”, the publications in the last category are compilations rather than individual project reviews. We refer to this category as “compilations”.

In the sections that follow the details of many of the publications are presented, albeit in a brief manner. In our selection of both recent and more historical publications, we were mindful of ensuring representing Aboriginal, Torres Strait Islander and non-Indigenous scholars. The scholars’ claims are not critiqued; instead they are simply presented as data findings that are used in answering the research questions informing the review.

Opinion Publications

The publications placed into this first category called for improved teaching of Aboriginal and Torres Strait Islander students, but were not grounded upon empirical research and typically void of reference to specific teaching practice. Typically, these articles were written from a critical theory perspective, highlighting systemic issues in Australian education as underlying impediments to Aboriginal and Torres Strait Islander educational achievement. Some of the issues raised by authors included attention to pervasive and perpetuating issues such as institutional racism (e.g. Dunn, 2001), colonialistic attitude and the hegemonic nature of schooling that fails to identify the epistemological foundations of Aboriginal and Torres Strait Islander cultures (e.g. Osborne and Guenther, 2013) and deficit theorising (Ionn, 1995). In brief, the papers were dominated by theoretical foundations grounded in the sociology of education, drawing especially from the claims of scholars such as Bourdieu, Bernstein, Freire and Giroux.

According to several authors, institutional racism and colonialist attitude remain entrenched in Australian education (Dunn, 2001; Kerwin, 2011; Osborne and Guenther, 2013). Kerwin (2011) argued that greater recognition of the hegemonic influence of a pervasive dominant paradigm of ‘Western invasion’ will lead to more equitable practice suggesting that the domination by Australia's

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mainstream culture in remote schools can only be overcome by self-determination (Bucknall, 1995; Reynolds, 2005). Such influence was seen to be symptomatic of a wide variety of practices influencing teachers and their interactions pedagogically with students. As examples, Kostogriz (2011) contended that the National Accelerated Literacy Program continues to perpetuate institutionalised inequality, as it sets the mainstream conservative power discourse for the literacy learning, providing little consideration of the language code of schools that marginalises students that do not speak Standard Australian English. In addition, Garvis (2006) protested that the Queensland model for identifying gifted children is culturally biased against Aboriginal children. Many authors called for an alternative, radical pedagogy drawing from an awareness of systemic issues that fail to recognise the existing order entrenched in schooling. For example, Hewitson (2007) called for ‘a pedagogy of hope’, based on critical theory, to overcome these persisting issues.

The deficit thinking authors stated was common among teachers generally centred around the negative themes of Indigenous language, logic and cognition, attitude, and culture. For example, although linguistic analysis describes Aboriginal English as a rich language, distinct from Standard Australian English (SAE) (for example, Harkins 1994), many teachers were perceived to hold preconceived notions of Aboriginal English as a depauperate language, or indeed a “bad” version of SAE (for example, Berry and Hudson 1997). Cahill (1999), Malcolm et al. (1999a, 1999b), Cahill and Collard (2003) and Berry and Hudson (1997) promoted the need for greater understanding of Aboriginal English in Australian classrooms. Acknowledging the need for understanding Aboriginal logical thinking, for example, “circular thinking” or “thinking the long way round”, were documented by Berry and Hudson (1997) and Yunkaporta and McGinty (2009). Considerable attention was given to the ‘negative’ classroom attitude of Aboriginal students, as perceived by teachers, and how teachers need to acknowledge potential differences between Indigenous and non-Indigenous students in listening styles, autonomy and sources of disengagement in order to reduce discontinuity between school and home culture (Berry and Hudson, 1997). Clancy and Simpson (2001) and Simpson and Clancy (2012) described an Aboriginal student's lack of knowledge of

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implicit school culture and his teacher's lack of knowledge of the student's culture as potential contributors to conflict between student and teacher. They called for greater understanding of the differences between mainstream school culture and Aboriginal culture. In a review of the commonly identified 'self-fulfilment of teacher low expectations', Trouw (1997a) called for teachers to base expectations of students on individual performance rather than ethnic group membership. Similarly, Yunkaporta and McGinty (2009) and Berry and Hudson (1997) documented that some teachers of urban Aboriginal students felt that these students have "lost" their Aboriginal culture and should therefore be treated the same as non-Aboriginal students. In addition, Aboriginal students from modern, as opposed to traditional, families, could be viewed in the same way as non-Aboriginal students. However, for several authors Aboriginality as an identity (or indeed, as many distinct and specific identities) remains strong and deserves specific recognition and respect (Christie 1995; Jolly 1995; Kerwin 2011; Tripcony 1995)

In response to these identified issues, this category of literature called for change in teaching and teacher education, recognising that addressing deficit teacher beliefs were at the heart of such change. Martinez (1994) called for cross-cultural training for teachers after documenting the inadequate cultural training and induction received by a beginning teacher going to a remote Aboriginal school, and subsequent disaffection experienced by that teacher and his classes. Similarly, Yunkaporta and McGinty (2009), Colman-Dimon (2000), Bond (2010) and Harrison and Murray (2012) concluded that cross-cultural training for teachers should be provided by local Indigenous elders or facilitators. This would ensure that non-Indigenous teachers respect knowledge rights and incorporate deep, authentic and local knowledge. Considerable emphasis in the literature focused on the need for increased use of two-way teaching, in which the teacher learns about the culture of the children he/she teaches, in addition to teaching mainstream culture, and is seen an extension of cross-cultural teacher training. This open-minded and respectful approach has been advocated initially by Honeyman in 1986, and more recently by Kerwin (2011) and Reynolds (2005).

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The importance of incorporating Aboriginal and Torres Strait Islander perspectives into the curriculum was widely espoused (e.g. ACARA 2014, MCEETYA 2008), however authors identified the need for local and specific knowledge inclusion to avoid essentialising and homogenising Indigenous peoples (Harrison and Greenfield, 2010). Tripcony (1994) advocated the inclusion of Aboriginal perspective through the use of extant and local biographies. Yunkaporta and McGinty (2009) documented the creation of such a specific perspective with the local Aboriginal community in their year-long project. Such in-depth projects showcased the genuine incorporation of Indigenous perspectives into school curricula. These authors also cautioned against tokenistic inclusion, inclusion of non-local resources or inclusion of Indigenous knowledge by non-Indigenous teachers as these run the risk of stereotyping Indigenous cultures and perpetuating misunderstanding (Harrison and Greenfield, 2010).

It was advocated that incorporation of Indigenous perspectives should not only include content taught and ways of working, but also assessment of learning. Klenowski (2009) commented that equitable assessment needs to test knowledge and skills of different cultures, whereas most assessment currently privileges mainstream Australian culture to the exclusion of others, such as Aboriginal and Torres Strait Islander students. Similarly, Frigo and Simpson (2001) exhorted teachers to ensure that assessment tasks are culturally appropriate. Cautions around cultural perspectives were evident within the literature, especially from Indigenous scholars. For example, Nakata (1995, 1999) warned that excessive culturally sensitive teaching with preoccupation with the inclusion of cultural content can create low expectations in the curriculum, and in order for Torres Strait Islanders to achieve power, and therefore equity, they need to gain an excellent education including SAE and Western thinking. Similarly, Yunupingu (1999) agreed that Aboriginal students need to be fluent in both cultures in order to operate successfully in both societies. As well, Hughes (2010, cited in Sullivan and van Riel 2013) argued that mathematics curricula should not be heavily modified for Aboriginal students. In addition to culturally sensitive teaching, Munns, Martin and Craven, (1999) argued that explicit interventionist pedagogies are

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required to engage students and reduce “Aboriginal resistance”; that is, oppositional behaviour which stems from fear of academic risk taking and shame.

In all, the publications in this category called for an improvement in the educational experience provided for Aboriginal and Torres Strait Islander students, drawing attention primarily to systemic issues associated with the socio-political influences on education. Although the adjustments to practice necessary were identified in many publications, the authors contest that such an improvement requires a fundamental change in mindset, at all levels of education from the macrosystem government level to the belief system manifest at the microsystem classroom in the student-teacher interface. They asserted that it is only with this change of mindset that Aboriginal and Torres Strait Islander students will, ultimately, experience a change in teacher practice and learning outcome.

Practical Suggestions

The second category, in contrast to the more generalist statements made in category one, included non-evidence based publications that provided practical pedagogical suggestions for improvement in the teaching of Indigenous students. Authors’ comments primarily arose from Indigenous leaders, teachers or researchers with firsthand experience of working with Aboriginal or Torres Strait Islander students and/or communities. Because authors’ claims were based on subjective experience rather than empirical research and often referred to tangible and observable practices one might see evidenced in a teachers’ behaviour, we refer to this publication category as “practical suggestions”.

Strongly advocated in the literature was the imperative for teachers establishing positive affective relationships with students (Harrison 2011; Harslett, Godfrey, Harrison, Partington & Richer, 1999; Hudsmith 1992). Positive relationships with students were seen to be evidenced in teacher actions such as speaking kindly, calmly and slowly and being sensitive to likely the social

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codes of Aboriginal and Torres Strait Islander students, for example making some provision for talk or movement around the classroom (except when the talk or movement interfered with learning of others) (Harrison, 2011; Hudspith, 1997). In line with this accommodating of students' social norms, it was suggested the teacher needed to act as a facilitator rather than autocrats (Harrison, 2011; Nichol and Robinson, 2010) in assisting students in navigating the norms and customs often imposed and rewarded in mainstream schooling.

Inclusion of community in school life was recommended by several authors (e.g. Harrison, 2011) as fundamental to ensuring the home to school transition was continuous rather than disruptive. Some schools effectively used Aboriginal and Islander Education Workers (AIEWs) as cultural intermediaries between students, community and non-Indigenous teachers (Cooper, 2008). Many practices were suggested in this area. For example, Elders could be invited to teach culture at school (Wemyss, 2003; Sarra 2011). Home visits could be used to facilitate relationships with school families (Harrison and Murray, 2012; Sarra 2011). The celebration of cultural identity, experience, language and knowledge was also believed to enhance relationships with students and community (Harrison, 2011; Hudsmith 1992; Sarra, 2011).

Corresponding to the deficit-theorizing literature described in the previous section, it was commonly identified that low expectations of Indigenous students' academic achievement have been a significant causation of low achievement in the past (MCCEETYA 2000). Therefore, the communication of high expectations of Aboriginal and Torres Strait Islander students were espoused with respect to school attendance (Sarra, 2011), academic achievement (ABC 2004; Bissett 2012; Martinez 1994; Milgate and Giles-Brown 2013; Sarra, 2011, Sullivan, Jorgensen, Boaler, & Lerman, 2013; Trouw 1997a; Yunkaporta and McGinty, 2009) and life chances. A variety of tangible actions were identified as evidence of such expectations. For example, Harrison, (2011) recommended that cultural images displayed in classrooms should reflect those high expectations. McRae et al. (2000, p.147) provided a checklist of students' abilities outside school to assist

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teachers to value students' abilities and knowledge that, in turn, could be used to assist teacher's in accurately informing their expectations for students in their learning, both academically and socially.

Understanding learners as culturally located citizens was a significant theme in authors' assertions. Hughes, More, and Williams (2004) identified four spectra of "Ways of Working": global -analytic, concrete-abstract, verbal-imaginal and trial & feedback-reflective. They suggested that teachers identify both student and teacher strengths in these ways of working and use student strengths to teach difficult concepts, but also to strengthen students' weaker ways of working. Although Hughes et al. (2004) were reticent to essentialise Aboriginal students and the practices influencing learning, they do suggest that some ways of working are more likely to be used by Aboriginal students. Similarly, Harrison (2011) suggested that Aboriginal and Torres Strait Islander students should be taught in holistic/ top down manner in which the context and big picture is first identified, then details follow (equivalent to the global way of working in Hughes et al., 2004) (see also Dunbar-Hall, 2001; Frigo et al., 2004 ; Hanlen, 2002; Hudsmith, 1992; Ladhams 2005; Malcolm et al. 1999a, 1999 b; Munns et al., 1999 and Sarra, 2011 for similar suggestions).

Concrete materials and experiential tasks were encouraged to be provided for those students at the concrete end of the concrete-abstract spectrum (Bissett, 2012; Dawson 1991; Frigo et al., 2004, Hudsmith 1992, Ladhams 2005; McRae et al., 2000; Matthews, Howard & Perry, 2003; Sarra, 2011; Wemyss, 2003). Hughes et al. (2004) suggested that many Aboriginal students preferred the imaginal end of the verbal-imaginal spectrum, whereas non-Indigenous teachers were likely to teach predominantly verbally (see also Sullivan, Jorgensen, Boaler & Lerman, 2013; Warren, Young & deVries, 2007; Wemyss, 2003 and Yunkaporta, 2010). The trial and feedback-reflective spectra was seen to be more complex and many students used a mix of ways of working, however, several authors recommended provision of time for trial and error, in particular, without criticism in early trial stages (Bissett, 2012; Brogden and Kelly, 2002; Frigo et al., 2004; Hudsmith,

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1992; Ladhams, 2005; McRae et al., 2000; Malcolm et al., 1999b Wemyss, 2003).

Hughes et al. (2004) also identified classroom settings in which children worked best. These were discussed within the focus of cooperative-competitive, group-individual, and formal-informal organisational settings of classrooms. Many authors suggested that Aboriginal and Torres Strait Islander children tended to favour group collaboration rather than individually competitive settings (Bissett, 2012; Bond, 2010; Frigo et al., 2004; Harrison 2011; Hudsmith, 1992; Hudspith, 1997; McRae et al., 2000; Nichol and Robinson, 2010; Parkin, 1998; Sarra, 2011; Sullivan et al., 2013; Wemyss, 2003; Yunkaporta and McGinty, 2009). Informal settings were perceived to be preferred by Aboriginal students according to Yunupingu (1999) and Nelson and Hay (2010).

As a consequence of the personal autonomy of Aboriginal children documented by Harris (1980) in his extensive anthropological study of the peoples of North East Arnhem land, upon which much later writing draws, student self-directed learning was favoured as a pedagogy for teaching Aboriginal students. This corresponds with the acceptance of autonomy in Aboriginal children but that this should not be equated with teacher permissiveness (Hudspith 1997). In particular, suggestions that students should negotiate task content, timelines, format, mode and classroom housekeeping were common (Bissett, 2012; Brogden and Kelly, 2002; Cahill, 1999; Colman-Dimon, 2000; Cresswell, Underwood, Withers & Adams, 2002; Hanlen, 2002; Hudsmith, 1992; Hudspith, 1997; Jorgensen et al., 2013; McRae et al., 2000; Martinez, 1994; Milgate and Giles-Brown, 2013; Nichol and Robinson, 2010; Sarra, 2011; Sullivan et al., 2013; Wemyss, 2003; Yunkaporta and McGinty, 2009).

In contrast to Harris's (1980) comments, there was a consensus in the literature that explicit teaching is recommended over independent learning. Recommendations include explicit teaching, in general (Harrison, 2011; Trouw, 1997b), of reading and writing (Hudspith, 1997), of reading strategies (Hale, Greene & Dries, 2012), of text structural types (Hudspith, 1997; Trouw, 1997b) of culture (Sarra, 2011) of metaphor, meaning and anthropocentrism in text (Beattie, 1999), of

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classroom behaviour and school culture (Hudspith, 1997), of the roles of students and teacher (Hudspith, 1992) of justification and reasoning (Harrison, 2011; Hughes et al., 2004; Trouw, 1997b) of students' progress (Hudspith, 1997) and of language (Trouw, 1997b), including subject vocabulary and metalanguage (Dawson, 1991; Ladhams, 2005; Malcolm et al, 1999a).

Because many Indigenous students were learning SAE as a second or additional language, speaking, reading and writing SAE posed significant additional cognitive loads on students. Therefore, it was suggested cognitive load should be reduced (Nichol and Robinson 2010). In addition, the cultural concept of “shame” motivated the suggestion that classroom risk should be decreased for Indigenous students. Extensive scaffolding could reduce both cognitive load and learning risk (Clark, 1997; Rose, Gray & Cowey, 1999). Risk could be reduced by minimising reprimands (Harrison, 2011; Hudsmith, 1992; Hudspith, 1997), avoiding public reprimands to individuals (Cahill, 1999; Hudspith; 1997) and individual performances (Harris; 1980; Hudsmith, 1992; Perso, 2012; Sullivan et al; 2013; Wemyss, 2003), inviting responses of the class rather than individuals (Cahill, 1999; Hudsmith, 1992), self-assessment of work (Nichol and Robinson, 2010) and allowing students to nominate their readiness for assessment (Harris 1980) were also seen as effective teaching practices. Cognitive load could be reduced by using oral or visual rather than written representations in learning and assessment tasks (Hughes, 1992; Nichol and Robinson, 2010; Sullivan et al., 2013; Warren et al., 2007; Wemyss, 2003; Yunkaporta, 2010), by placing tasks in familiar contexts (Harris, 1980; Perso, 2012) and by allowing students and teacher aides to use home language in the classroom (Brogden and Kelly, 2000; Harkins, 1994).

Included within this category was attention to how many Indigenous students have fluctuating hearing acuity (Lowell, Budukulawuy, Gurimangu, Maypilama & Nyomba, 1995). Burrow, Galloway, and Weissfner (2009) made several recommendations to assist students with hearing loss, including the minimisation of classroom noise, use of hearing buddy systems to provide peer support, classroom amplification, pre-teaching new words and concepts and use of

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routines to enable children to predict instructions.

Several scholars, both Indigenous and non-Indigenous, espoused pedagogical frameworks for supporting students in their learning. For example, Yunkaporta (2010) proposes a framework grounded in Aboriginal epistemology which identified eight ways of working for Aboriginal students, for teachers to use as a starting point for more inclusive teaching. These ways are story-sharing, non-verbal learning, in which critical thinking is developed through introspection, links to local community and to place, and the use of symbols and images caters to visual-spatial learners. Deconstruction and reconstruction of knowledge was seen to be important, as was fostering initial global or holistic learning and then progressively studying the detail rather than step-wise analytic learning. Similarly, non-linear thinking, in which children learn in cyclic and indirect ways, is different to, but not irreconcilable with, linear thinking (Yunkaporta 2010).

Similarly, Osborne (1996) and Osborne and Wilson (2003), provided a pedagogical framework for culturally responsive pedagogy for Torres Strait Islander students, which is likely applicable to most Indigenous and minority contexts. They identified nine signposts that encapsulated both a set of ways of thinking and a set of specific actions that can support teachers in their teaching of Torres Strait students to enhance their learning (see Ch 3 of Osborne, 2001, for a description of his attempts to implement CRP).

In all, this category of publications provided insight into the considerable breadth of specific practices and pedagogical frameworks suggested to be of consequence for Aboriginal and Torres Strait student learning. It is within this category that authors were making reference to specific teaching practices, most commonly identifying how teaching practice must adjust to support Aboriginal and Torres Strait Islander learners on their cultural terms. Although the reference was to specific practices, the recommendations, most commonly suggested broad application of these practices for Aboriginal and Torres Strait Islander students collectively. It is noteworthy that many of the suggested adjustments are commonly cited in the effective teaching literature today (Archer

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& Hughes, 2011; Hattie, 2009). Despite this obvious connection, the literature, in sharp contrast, provided a detailed culturally located nuanced understanding of effective teaching practice for Aboriginal and Torres Strait Islander students. In addition, authors also drew attention to the assertions made in category 1; that is, drawing attention to political-socio-historical influences on students and their communities. Despite the informed stance of those presenting such assertions, no empirical evidence was presented to corroborate claims or, which could lead to identifying which may be most salient for Aboriginal and/or Torres Strait Islander learners.

Indigenous (or Aboriginal/Torres Strait Islander) Voice

The third category of publication included evidence based studies that have sought to listen and, in some cases, respond to the voice of Aboriginal or Torres Strait Islander students, families and/or communities with respect to their needs in the education of children. These projects typically provided examples of best practice grounded in the data collected from Aboriginal and/or Torres Strait Islander students, families or community members. We refer to this category of publications as “Indigenous Voice”.

There were 13 publications that sought to express the voice of Aboriginal or Torres Strait Islander students, families, communities and/or teaching staff with respect to pedagogy. The most extensive research into Indigenous voice in education was conducted as part of the Dare to Lead Project, and briefly reported by Milgate and Giles-Brown (2013) and Giles-Brown and Milgate (2012). Interviews with school staff, students and families at 675 schools throughout Australia revealed that the following major instructional themes were important to Aboriginal and Torres Strait Islander students and families in fostering learning: Cultural Environment, especially the celebration of cultural identity; quality teachers, who collaborate with AEWs, are culturally aware, have high expectations, know students, create personalised learning plans and develop good relationships with students and families; Community Engagement, especially efforts that encourage the participation of Elders and families in school life, Health and Wellbeing, predominantly the

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mitigation of racism, which was reported to be still prevalent; Curriculum, the inclusion of Indigenous perspectives and a negotiated curriculum at the local level; and School Leadership, especially through actions that worked to include Aboriginal and Torres Strait Islander parents on school committees and overall school governance. It is noteworthy that these assertions correspond with both the prominent systemic and more tangible pedagogical themes evidenced in Category One and Two,

These themes are echoed in Herbert's (1995) survey of 300 students and parents from ten school communities across Northern Territory, Queensland, New South Wales, and Western Australia. In addition, this report recommended a shift in teacher preoccupation with process to an emphasis on people and the segregation of sexes for particular subjects, such as gender issues. Bond (2010) reported similar themes from her research on Mornington Island. She conducted interviews with an undisclosed number of Mornington Island elders and conveyed a strong message that community elders should direct school cultural curricula, be involved in teacher appointments, and be employed by school as cultural consultants. Elders felt that teachers should conduct two-way teaching and be extensively trained by elders in language, history, and culture. In addition, teachers should build strong community relationships and make lessons fun. Similarly Munns et al. (2008, 2013) draw attention to the imperative of schools and teachers engaging with community in all educational matters. This is echoed in Colman-Dimon's (2000) interviews with 12 members of a remote community in N.T. emphasising the themes of relationships between teachers and community, the legacy of historical relationships between Aboriginal peoples and non-Aboriginal authorities, the necessity of teacher cross-cultural training and the importance of providing education negotiated with community, rather than the "imposition of inappropriate pedagogy, curriculum and lack of meaningful personal relationships" (Colman-Dimon 2000). Mander-Ross (1995) interviewed 20 Aboriginal students at one school regarding their attendance and engagement. She found that these students wanted fun learning activities, competition between boys and girls to be avoided, access to Indigenous role models/mentors and for Aboriginal students

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to be represented on student council. The themes of quality teaching, cultural environment, curriculum and community engagement, described above, were also reported by Docket, Mason and Perry (2006) as important in facilitating successful transition into primary school for Aboriginal children.

The importance of teacher characteristics and flexible school entry and exit processes to attainment of Aboriginal students were highlighted in a survey of 14 secondary students attending an urban Queensland school by Nelson and Hay (2010). They found that students' attitudes towards particular subjects were dependant on the teachers' affective qualities, particularly friendliness and supportiveness. In her survey of 10 Aboriginal women and their children/grandchildren from one remote and one urban community, Hanlen (2002) found that her subjects wanted improved inclusion of authentic Aboriginal linguistic, cultural, social perspectives and connections in the curriculum, greater self-determination for students, more evidence that teachers value students' cultural identity and teacher acceptance of a variety of literacies, for example, environmental literacies and inspirational literacies (including oral, art, song literacies). The attention to literacy development and teaching practices was also emphasised in Rennie (2013), who, following interviews with seven students over their transition from remote primary to urban boarding secondary school in N.T., recommended five principles for the literacy teaching of Aboriginal students. These included making connections to students' worlds; broadening the definition of literacy to include environmental literacies and inspirational literacies; making teaching explicit and experiential; maintaining high expectations; and understanding that the students are caught between two worlds.

Within this third section, authors were presenting suggestions to improved practice based upon the voiced concerns of students and their communities. The claims voiced in this section of the analysis correlated strongly with the empirically unsupported claims in previous sections about teaching practice of consequence for Aboriginal and Torres Strait Islander students, especially in recognising the systemic issues in education persisting today that continue to influence the student

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teacher interface. While the references portraying the voices of Indigenous Australia are quite limited in number and scope, Paul Hughes believes that much more has been recorded in unpublished conference papers and submitted to policy makers, but has not been disseminated in the public record (Mellor and Corrigan, 2004). Despite this, what is apparent within this category is that no empirical evidence is presented to corroborate that such actions in fact do influence student learning outcomes.

Independent Research

The fourth category included ten independently conducted empirical studies which sought to determine the influence of pedagogy or adjusted pedagogy and thus we refer to this category as “independent research”. In contrast to the fifth and sixth categories of publication, to follow, these studies were not associated with program evaluations, usually government sponsored. It is noteworthy, that the empirical studies addressed a breadth and, what might be identified, as disparate. For example, included in this category was Hudspith's (1994) identification of the types of humour observed in classrooms and their influence in supporting a positive classroom environment. Bodkin- Andrews, O'Rourke and Craven's extensive intervention study (2010) found that Aboriginal students were associated with lower self-esteem, self-concept, home educational resources, maths and English grades but not lower aspirations as compared to non-Indigenous students. In one of the few quantitative intervention studies conducted, Frigo et al. (2004) conducted a quantitative longitudinal study associated with determining the influence of a pedagogical intervention on 119 early years students in 13 schools identified as having high cultural competence for responding to students' responsively. Variables associated with influencing student success included school, region, attentiveness, attendance, language background and initial achievement. The school accounted for: 34 % and 46% of variance in literacy and numeracy achievement respectively, and region (i.e., remoteness) accounted for 15% and 17% of variance in literacy and numeracy achievement respectively. Interestingly, teacher knowledge of a student's

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mother's occupation or work status correlated to student achievement in both literacy and numeracy, especially numeracy.

Gardner and Mushin (2013) recorded classroom talk in a remote Prep/Grade1 classroom. Preliminary conversational analysis showed that Aboriginal children were less likely to ask questions (especially, why, when and how questions) or answer questions promptly compared to non-Aboriginal children. Warren et al. (2007) conducted a pilot study in an Indigenous Catholic P-13 school in preparation for a longitudinal study on the importance of oral language and visual representations in maths. The article gave a description of mathematics lessons in which teachers of a year 6/7 and 4/5/6 class used familiar contexts to explain mathematical concepts and language. This has been echoed by Ewing, Cooper, Baturo, Matthews and Sun (2010) who found that effective teachers of mathematics used local indigenous knowledge such as navigating, boat building and construction of houses to teach measurement.

In all, the few independent studies conducted to determine the effect of pedagogical practices were, aside from Frigo et al. (2004), small scale, of short duration, and grounded in qualitative data sources and methods. Due to the qualitative nature of the research they were unable to draw any statistical claims regarding the practices investigated. As well, none of the studies identified in the review were grounded in enacting teaching practices identified by Aboriginal and Torres Strait Islander students and their communities as practices to be implemented.

Progress or Evaluation Reports

The fifth category focussed on descriptions of programs, projects and resources implemented in schools and made claims about the efficacy of the program but with, usually, no attention to specific teacher behaviours and with little empirical base for supporting the claims made regarding the program's efficacy. We refer to these as "progress or evaluation reports". This group of 23 publications included both progress and evaluation reports of projects or programs most

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commonly based in State schools. They included research on the implementation of programs or teaching methods in schools (for example, Callingham and Griffin, 2002), curriculum development projects (for example, Bissett, 2012) and professional developments for teaching staff (for example, Catholic Education Office 1994). Many contained elements of working with local community and almost all claimed to be successful in promoting learning outcomes for Aboriginal and Torres Strait Islander students. However, these reports were primarily descriptive in nature, and although many supported claims for efficacy through quotes from teachers, students or communities involved, little or no empirical evidence was supplied. The exceptions to this pattern were the evaluations of the Quicksmart maths intervention program (Pegg and Graham, 2013) and the Accelerated Literacy programs (Gray et al., 2003).

The Quicksmart intervention maths program was implemented in 600 primary and secondary schools across Australia for students with persistently low maths achievement (Pegg and Graham, 2013). The authors compared the results of the 3000 Indigenous students with the non-Indigenous students in the program, and found that Indigenous students were as successful in closing the achievement gap with students not in the program, as were non-Aboriginal students. They concluded that the program was as successful for Indigenous students as it was for non-Indigenous students. Accelerated Literacy is a reading and writing program which includes several recommended pedagogies for teaching Aboriginal and Torres Strait Islander students. The program, also called Scaffolding Literacy, is described in detail by Rose et al. (1999) and qualitatively evaluated by Cresswell et al. (2002). Gray et al. (2003) provided summary data for six school clusters in which the “Scaffolding Literacy in Indigenous Schools Program” was piloted. Cresswell et al. (2002) reported that schools credited massively improved literacy levels, including independent reading, writing, vocabulary, as well as improved attendance, attentiveness in literacy lessons, community engagement and staff retention to the program.

Sullivan and van Riel (2013) compared the geometry understanding of Aboriginal students before and after a series of lessons designed to include the following recommended pedagogies:

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direct teaching of maths vocabulary, collaborative work, reinforced links with home language, concrete materials, repetition and building on students' prior knowledge. They found that the majority of students completed the assessment tasks correctly following the lessons. Similarly, Callingham and Griffin (2002) evaluated the Improving Numeracy for Indigenous Secondary Students Project (INISSS). In this program, problem solving tasks and concrete materials were used to provide context to, and promote mathematical thinking in, students. The authors asserted that they found improved gains for Indigenous students using this method compared to a control group.

Other efforts that have sought to develop locally specific curriculum projects in order to improve literacy outcomes for Aboriginal and Torres Strait Islander students include Junkaporta and McGinty (2009), Zeegers and Beales (2010), Parkin (1998), and Hale et al. (2012). In all cases, the pedagogies used, and the data collected, were so briefly overviewed that neither a critical appraisal of the project, nor a thorough understanding of the teaching methodologies are possible from these reports. This is also characteristic of Bissett's (2012) description of the initial stages of an environmental sustainability project at a remote primary school in Queensland. This article was a progress report; therefore no evaluation of the efficacy of the changes was able to be made.

A variety of teacher professional developments are also included in this section. Cahill and Collard's "Deadly Ways to Learn" report (2003) describes a professional development in culturally responsive teaching termed two-way learning. They found that collaborative professional development with teachers and Aboriginal Education Workers (AEWs) regarding Aboriginal English changed the teachers' beliefs regarding parity of esteem of Aboriginal English, which then affected planning and spontaneous decision making by teachers. The FELIKS documents (Berry and Hudson, 1997; CEO, 1994), and literature from the Deadly Ways to Learn project (Cahill, 1999; Konigsberg and Collard 2002; Malcolm et al., 1999a, 1999b) are professional development resources for teachers about Aboriginal English, Aboriginal culture and teaching students to code switch between SAE and Aboriginal English or Kriol. An additional language resource developed

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by the FELIKS team is a CD- Rom encouraged for use by students (Brogden and Kelly, 2002).

Professional development projects associated with the Maths in the Kimberley Project (Jorgensen et al., 2013) resulted in young teachers aligning their practices more closely to their beliefs with respect to intellectual quality and mathematical content. Sullivan et al. (2013) reported that the project taught teachers to use complex instruction, maths instruction scaffolded both mathematically and culturally. The authors report that although the professional development resulted in changes to mathematics teaching pedagogy, the majority of teachers had left the region within the two-year study period. Changes to pedagogy were measured using the Productive Pedagogies (Gore et al., 2004 based on quantitative meta-analysis of Fred Newman and Associates, see Lingard and Ladwig, 2001) and findings included increases in all intellectual quality parameters through the use of narrative and connectedness of mathematics content to students' lives.

The Getting it Right project gave teachers professional development to implement the First Steps in Mathematics program in W.A. (Ladhams, 2005). This program focussed on a diagnostic basis for teaching, understanding operations, broadening maths activities offered to children (especially hands-on, fun activities), explicit teaching of maths language, explicit teaching of the use of concrete materials and diagrams, broader range of operations questions and using narrative and relevant cultural context to aid engagement and understanding. Ladhams (2005) claimed that as a result of the shifts in pedagogy the children's mathematical skills improved, including flexibility of thinking, understanding of mathematical language, solving mathematical problems and explaining mathematical thinking; however, there were no data to presented support these claims.

Although considerable insight is gained from these progress and evaluation reports about potential practices of consequence for enhancing Indigenous student outcomes, there is little attention in these evaluations to specific teacher behaviours influencing outcomes and little empirical base for supporting the claims made regarding program efficacy. In all, the influence of such interventions is limited to claims about programs rather than the specific pedagogical practices inherent within such programs. Further, although statements are made pertaining to the likely

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influence of such program interventions on student learning outcomes, no causal claims are made.

Compilations

The sixth and final category of publications included reviews of literature and synopses of projects. In contrast to the “progress or evaluation reports”, the publications in the last category are compilations or syntheses rather than individual project reviews. We refer to this category as “compilations”. McRae et al. (2000) report on the 83 Strategic Results Projects from the Indigenous Education Strategic Initiatives program, which aimed to identify how improvements in academic achievement by Indigenous students might be achieved in early childhood, primary, secondary, VET and adult education settings. Forty-three projects were aimed at primary and secondary school students. Several projects emphasised the provision of access to Indigenous teaching staff or mentors (e.g., SS4, SS2, SS6, SS9,SS1) inclusion of Indigenous perspectives e.g. SS5, intensive intervention programs (e.g. SS1, L5), preferred ways of working (e.g. SS3), cultural peer support for Indigenous students, courses in Indigenous languages and the development of individual learning plans for students. Two projects (L7 and L8) used the Scaffolding Literacy pedagogy (Gray 1999). Outcomes were expressed as the degree to which the project met its targets, and varied for the different projects, but the report concludes “if outcomes for Indigenous students are to be improved: they must be given respect, their culture and its relevant implications must be respected; they must be taught well and they must attend consistently” (McRae et al., 2000, p178).

Five mathematics programs designed to improve the teaching of mathematics to Indigenous students have been reviewed by Matthews et al (2003): “Count me in too Indigenous” aimed to make maths more culturally and contextually appropriate. “Counting On” focussed on identifying and addressing students learning needs. “Mathematics in Indigenous contexts [k-6]” comprised the involvement of families in children's learning, the provision of professional development to teachers and the development of contextual maths units. The aims of the “Mathematics in Indigenous

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contexts [6-8]” were to develop pedagogy suitable for, and identify needs of Aboriginal and Torres Strait Islander students in transition from primary to secondary school, and increase teacher awareness of students' needs. The “Aboriginal students Waa Gaay camp” planned to foster students mathematically thinking and working using problem based questions. The review found that all five projects had a basis of social justice and empowerment, and the majority of the projects were also based on engagement, connectedness and relevance, but no data were presented regarding the efficacy of the differing emphases of the projects. The article called for research into suitable pedagogies for teaching mathematics to Aboriginal students, in addition to the development of resources, the placement of mathematics within social, political, historical and cultural contexts, professional development for teachers and the implementation of appropriate programs in schools.

Mellor and Corrigan (2004) provided a review of Indigenous education in Australia. They reviewed and synthesized current national data on achievement, attendance and attainment for Indigenous Australians, educational policy and research and provided suggested directions for future research and education. They identify seven key principles important to all students: health and nutrition, transitions, effective teaching, relationships between school and community, attendance, the influence of school on students' social, emotional and moral development and the role of education in life success. In addition, the authors identified issues particularly important in the education of Indigenous students, namely weak links between education and employment, high teacher mobility in remote schools, inadequate teacher training or professional development and the pedagogical implications of the differences between Indigenous cultures and mainstream school culture. In particular, they promote pedagogy that caters for holistic learning, cooperative learning styles, the importance of affirming students' identity, the prioritisation of independence over politeness by many Indigenous cultures and the different knowledges brought to school by Indigenous children, compared to non-Indigenous children. The importance of matching pedagogy to the class, rather than advocacy of general principles was emphasised. The authors suggested that further research into the reasons for lack of parental involvement in school and the incorporation of

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professional development into classroom teaching is needed. Furthermore, they argue that much of the research they reviewed is limited in size, isolated from general education research and non-quantitative. In addition, the voice of Indigenous Australians, while it has been recorded, has not been collated and disseminated to a broad audience.

Tracey Frigo collated the literature on teaching mathematics to Indigenous primary students available, and the maths programs in use in Australia, in 1999 (Frigo, 1999). Her summary emphasises the importance of making meaning in maths through the placement of mathematics in culturally appropriate contexts and the central importance of language in mathematics learning. Maths language should be explicitly taught and its use fostered in students. Application of ESL techniques was identified as being of use. In addition, recognition and affirmation of Indigenous students' prior maths knowledge and cultural identities were recognised as key factors in establishing good affective relationships between teachers and students.

In an extension of the previous review, Frigo and Simpson (2001) made suggestions to inform the pending revision of the NSW K-10 maths syllabus. In addition to emphases from Frigo (1999) on language and context, this review highlighted the importance of relationships between school and home and the concept of learner centred syllabus providing flexibility for teachers to address their students' needs and cater to their students' knowledge, culture and interests, both during teaching and assessment. In addition, they recommended the following teaching strategies: provision of a range of tasks, explicit teaching of maths concepts and code-switching and maintenance of a supportive classroom environment.

A recent literature review on culturally responsive teaching has been provided by Perso (2012). We draw attention to this document because it was unassumingly released at a time when Australia's media attention and the political discourse in education was focusing on 'effective teaching'. Largely absent from this discussion was any attention to culturally responsive teaching, assuming uniform pedagogy for all. She summarised the theory and practice of teaching culturally, both internationally and in Australia. She presented several sets of characteristics of culturally

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competent teachers as described by international authors and, for the most, which have been presented already in this paper. Within her account are elements of practice that are commonly mentioned within the effective teaching literature espoused by Archer & Hughes (2011) and Hattie (2007). Notwithstanding this correspondence, Perso draws attention to Indigenous Australians and the imperative for culturally competent teachers to adopt learner-centred and strength-based approaches, develop close affective relationships with students, use relevant and interesting content, use extensive scaffolding and situate learning in cultural contexts, teach to a variety of learning styles, use low risk questioning techniques and maintain high expectations of students (Truow 1999). She suggests that culturally aware teachers are also aware of the problematic nature of the hegemonic practice of education and how they can operate within it for their students, not just academically but socially, politically and culturally.

These compilation studies present considerable insight into practices and programs that can be implemented to improve student learning outcomes and reiterate teaching practices emphasized within this paper that may be effective for Aboriginal and Torres Strait Islander students. Despite this contribution, none of the compilation documents were supported with any robust empirical research to support claims made regarding efficacy of individual teacher practices or entire programs.

Interpretation

As Randolph (2009) suggests, the final stage of the analysis is to make sense of the extracted data as informed by the research goal and foci. Essential themes, corresponding, complementary and rival findings and conclusions were identified for each of the two foci: (1) the identification of teacher actions influencing learning outcomes for Aboriginal and/or Torres Strait Islander students; and (2) an assessment of the methodological approaches used to determine the influence of teacher behaviours on student learning.

The anecdotal, theoretical and qualitative research endorsements presented in this account

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assist in identifying both systemic issues and teaching practices that may influence educational outcomes for Aboriginal and/or Torres Strait Islander students. What is evident within the literature presented is the nuance of the construct of effective teaching practice for supporting Indigenous students in their learning. In line with the culturally responsive pedagogy literature, the results of this review indicate that most authors do not endorse a reductionist view that there is a uniform 'effective' pedagogy for Indigenous students or a culturally specific pedagogy that creates a "two race" binary framework (Donald & Rattansi, 1992; McConaghy, 2000). Instead theorists, researchers and practitioners suggest that effective teachers are most importantly responsive to developing the full educational potential of each student through the heightened awareness of how they can work congruently with each student and the knowledge, skills, values, norms, resources, epistemologies and histories each represents (Castagno & Brayboy, 2008). As Barnhardt and Kawagley (2010) assert, what is required for improved practice is more than simply substituting one body of knowledge or practice; instead, it requires substantial rethinking of not only what is taught and how it is taught but also attention to the broader contextual issues within which teaching occurs.

Despite this premise, the literature is dominated by 'opinion' and qualitative reports, many of which are funded by government, and as such, may be biased towards claiming success. Other research has been presented by the providers of professional development or resources (e.g., Brogden and Kelly, 2002; Catholic Education Office, 1994), but these studies are also likely to focus on positive outcomes. The independent research grounded in quantitative methods determining the efficacy of specific teacher behaviours is limited to Hudspith's analysis of humour by teachers (1994) and Frigo's longitudinal study (2004). In conclusion, strikingly absent in the literature are studies that seek to determine through quantitative research the influence of pedagogies that are identified by Aboriginal and Torres Strait students and families themselves as influences on student learning outcomes.

Qualitative studies cannot test whether individual factors actually make a difference to student outcomes, nor can they gauge the relative importance of different factors. Quantitative analysis,

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similar to Hattie's meta-analyses, is necessary for this level of understanding. Empirical results were presented for only a few projects (Gray, Cowey & Axford, 2003; Pegg and Graham, 2013) and these did not allow for a critical comparison of the most efficacious pedagogies studied. Both studies compared before and after testing for the maths and literacy programs, and consequently concluded that the entire programs were successful pedagogically, but no understanding of the comparative importance of individual pedagogical actions embedded within the program can be gleaned. Similarly, a meta-analysis could not be performed on the research summarised here, as none but those mentioned above report any data. Because of this absence of data associated with the identification of practices salient for Aboriginal and/or Torres Strait Islander learning, it is not surprising that any significant regard is given nationally for consideration of practices of consequence based upon quantitative effort. Comparative analysis of the individual pedagogies is an important step in advancing understanding of teaching that might be responsive to Aboriginal and Torres Strait Islander students' learning preferences.

Summary

In all, the literature review moves towards confirming the long-standing concern of the limited scope and depth of research in appropriate place-based pedagogy undertaken with and for Aboriginal and Torres Strait Islander students and their communities. As Price and Hughes (2009) claim, there is [still] astoundingly little known about what Aboriginal and Torres Strait Islander students see as the qualities of effective teachers, and the impact this has on educational outcomes. As Craven et al. assert (2007, p. 4), "There is a need to critically validate the generalisability of [the effective teaching] 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." This literature validates the need for

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such research. Considering the influence of Hattie's imperative for responding to evidence-informed teaching and to make learning visible by opening the dialogue between students and teachers and test the claims made by students, what is particularly absent in the national effective teaching discourse is any empirically-based research that responds to what Indigenous students and their communities are saying about the teaching practices that influence their learning. As Rowe (2003) laments, there are grounds to support the perceived growing uneasiness [in Australian education] related to how little is known about teacher quality and effect from Indigenous students' own perspectives.

As stated earlier, the current national discourse in education shows contest among a variety of stakeholders for methods by which educational disadvantage can be addressed for Aboriginal and Torres Strait Islander students by improving teaching. Evident within this contest are voices advocating for improved teaching quality that can assist in improving educational outcomes for students in general and Indigenous students specifically (Archer & Hughes, 2011; Hattie, 2009; Luke, 2010; Pearson, 2011, Rowe, 2006, Sarra, 2011). Considering the significant contribution on policy and teacher development in other countries such as Canada and New Zealand made by evidence-based studies in culturally responsive teaching grounded in Indigenous communities and their students' voiced identification of influences upon their learning (for example, Authors 2007, 2009, 2010, 2013, 2014), it is disturbing little similar empirically-based research exists in the Australian context, especially considering the widening achievement gap between Indigenous and non-Indigenous students. This literature review validates the essential need for empirically-based Culturally Responsive Pedagogy (CRP) research on teaching practices consistent with the voiced concerns of Indigenous students and the communities they represent. The ongoing research that this literature review informs now seeks to (1) identify culturally appropriate responsive pedagogy for Indigenous learners from the perspectives of Indigenous students, their communities and their teachers; and, then, (2) implement and evaluate the success of these classroom pedagogies on student learning and by so doing (3) gauge the relative importance of different practices.

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