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

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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. This 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. Where there is evidence supporting best practices, the evidence is primarily qualitative in nature. The review affirms the need for empirical evidence 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 and Torres Strait Islander students." Craven, Bodkin-Andrews and Yeung's (2007, p4)

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 have categorized Australia as a low equity-high quality education performer and provider (OECD, 2012). This sustained disparity in equity is especially evident in comparative achievement data for Indigenous and non-Indigenous students (McGaw, 2006, MCEETYA, 2008). The current national discourse in education shows contest among a variety of stakeholders for methods by which this disadvantage can be ameliorated. Within this contest are voices advocating different approaches 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 privileged voice in this debate is John Hattie, whose meta-analyses of more than 800 studies compare a wide range of influences on educational achievement. Hattie (2003, 2009) concludes we need to focus attention nationally

on the specific actions of teachers that influence student learning outcomes.

Despite the significant contribution of his research on informing teaching practice, Hattie makes no mention of the benefit of culturally located teaching practices on learning for Indigenous students. Snook, Clark, Harker, O'Neill and O'Neill (2010) contend that Hattie's quantitative research on teacher effect is presented in isolation from students' cultural and social context, and their interaction with home and community backgrounds. Therefore, 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. For example, Craven, Bodkin-Andrews, and Yeung (2007, p4) state, "[t]here is a need to critically validate the generalisability of findings that identify and prioritise specific teacher practices to Aboriginal students to tease out facets of quality teaching that are salient to Aboriginal students". These authors call for quality teaching recommendations to be viewed critically when applied to Aboriginal and Torres Strait Islander students and their communities.

The purpose of this literature review is 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 Australian effective teaching discourse, but it does seek to ensure that these voices are, as Craven et al. (2007) assert, 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 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

The stages for conducting and reporting secondary research (that is, a literature review) parallel the process for conducting primary research (Randolph, 2009). Thus, the stages of (1) problem formulation; (2) data collection; (3) data evaluation; (4) analysis and interpretation and, finally, (5) presentation are used in this review process.

Problem Formulation

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. 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

Research on best practice teaching pedagogy for Aboriginal and Torres Strait Islander students was sourced primarily by searching three library online databases: Onesearch, which covers all books owned by our university 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). Further, journals commonly used by Australian educational researchers, such as *Asia-Pacific Journal of Teacher Education*, *Australian Educational Researcher*, *Journal of Australian Teacher Education*, *Australian Journal of Indigenous Education* and *Australian Association for Research in Education* were thoroughly examined for relevant publications.

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. The data collection process stopped when the authors came to a point where they collectively believed they had arrived at saturation.

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. 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 collectively 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 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 databases. The remaining 82 were collected from online journals, other internet sites in the case of theses and reports, or the university 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, dated, 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. A further 41 publications were sourced from references of publications, the non-journal online searches and the key educational journals identified above. 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.

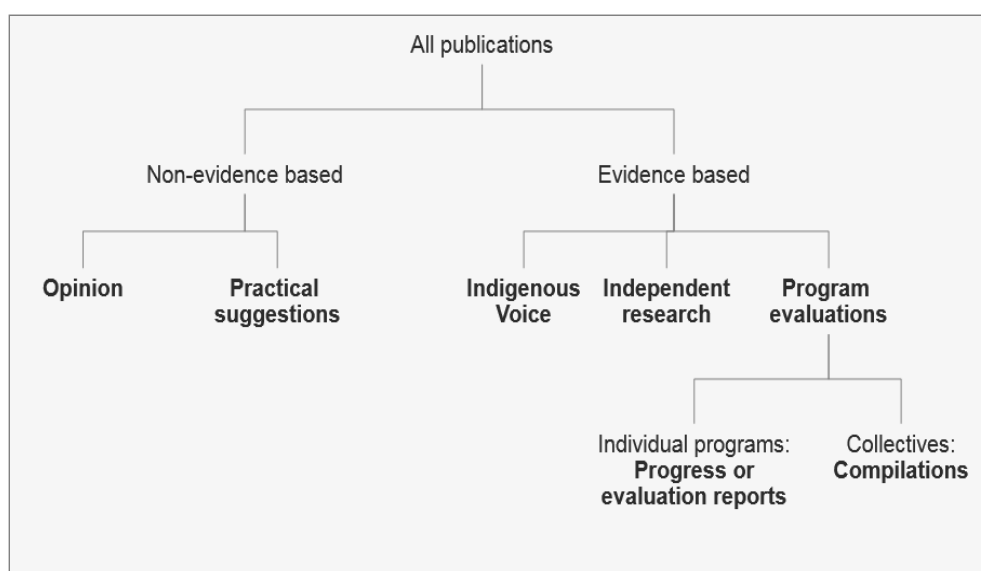


Figure 1: Classification of publications reviewed

The first category included non-evidence based publications that called for better practice in teaching either Aboriginal or Torres Strait Islander students or, more typically, both, with little mention of actual practice. 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 practice of either Aboriginal or Torres Strait Islander students or, more typically, both. Authors’ claims about teaching practice were again based on subjective experience rather than empirical research. We refer to this publication category as “Practical Suggestions”. The third category of publication included 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, yet un-tested, 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 drew attention to pedagogy and thus we refer to this category as “Independent Research”. It is noteworthy that this category is the only category that addresses the imperative identified earlier by Craven et al. (2007). 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 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 authors’ 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

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. Drawing from these assertions were stated imperatives for teacher education, both pre-service and in-service to facilitate changed dispositions in teachers as a foundation for improved educational experiences and outcomes for Aboriginal and Torres Strait Islander students. Some of the issues raised by authors included attention to pervasive and perceived to be perpetuating issues such as institutional racism (e.g. Dunn, 2001), colonialistic attitude and the hegemonic nature of schooling (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 at all levels, including the school and classroom level (Dunn, 2001; Garvis, 2006; Kerwin, 2011; Klenowski, 2009; Kostogriz, 2011; Osborne and Guenther, 2013; Rose, 2012). 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, including classroom practice. For example, Hewitson (2007) called for ‘a pedagogy of hope’, based on critical theory, to overcome these persisting issues asserting that without adjustment to beliefs, adjustments in practice are likely to be unachievable. Matthews (2012) called for teachers to recognise that mathematics is a social construct and argued that a pedagogy that uses students’ culture and creativity to formulate symbols to represent maths concepts will be more inclusive than current methods. Troy (2012) argued for Aboriginal and Torres Strait Islander language programs in school as agents of equity and reconciliation. Similarly, Craven (1998), Tripcony (1994) and (Harrison and Greenfield, 2010) advocate the genuine incorporation of current, local and specific Indigenous perspectives into the curriculum as a way to empower children to contribute to changing society, in addition to promoting equity and participation in education for Indigenous students. Acknowledging need for change in all aspects of educational practice

were seen as fundamental to changes in practice (Osborne and Guenther, 2013).

Authors drew attention to commonly held negative conceptions of Indigenous language, logic and cognition, attitude and behaviour, culture and parental apathy (Berry and Hudson, 1997; Clancy and Simpson, 2001; Howard 1997; Munns and Connelly, 1996; Simpson and Clancy, 2012; Trouw, 1997), all of which were perceived to be impediments to student learning. 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. (1999), and Cahill and Collard (2003), conversely, promoted the need for greater understanding of the utility of Aboriginal English in Australian classrooms in promoting learning. In addition, authors acknowledged the need for understanding of Aboriginal logical thinking, for example, “circular thinking” or “thinking the long way round”, as documented by Yunkaporta and McGinty (2009). Further, several authors identified the imperative for acknowledging Aboriginality as an identity (or indeed, as many distinct and specific identities) as a critical necessity for establishing the recognition and respect required as a foundation for effective teaching practice (Christie, 1995; Jolly, 1995; Kerwin, 2011; Tripcony, 1994, 1995).

In response to these identified issues, this category of literature called for change in teaching, especially through teacher education, recognising that addressing deficit beliefs were at the heart of such change (Martinez, 1994). Emphasised was the need for approaches that supported teachers in changing practice to reduce students’ discontinuity in school transition, especially through provoking experiential community-based cultural teacher training (Bond, 2010; Colman-Dimon, 2000; Harrison & Murray, 2012). 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 some publications, the authors contested that such an improvement required a fundamental change in mindset, at all levels of education from the macro-system 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 responsive teaching practice and learning outcome.

Practical Suggestions

Strongly advocated in the literature in this category focusing on teaching practice suggestions but without empirical evidence to support such, was the imperative for teachers to establish positive affective relationships with students (Byrne and Munns, 2012, 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 the social codes of Aboriginal and Torres Strait Islander students (Harrison, 2011). In line with this accommodating of students’ social norms, it was suggested that teachers needed to act as a facilitators rather than autocrats (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. Commonly encouraged was the use of Aboriginal and Islander

Education Workers (AIEWs) as cultural intermediaries between students, community and non-Indigenous teachers (Cooper, 2008). Other recommendations included the use of Elders to teach culture at school (Wemyss, 2003) and advocacy for home visits to facilitate relationships with school families (Harrison and Murray, 2012). The celebration of cultural identity, experience, language and knowledge was also believed to enhance relationships with students and community (Gower and Byrne, 2012; Harrison, 2011; 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, Riley 2012). 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; Harrison, 2011; McRae et al., 2000; Milgate and Giles-Brown, 2013; Sarra, 2011, Sullivan, Jorgensen, Boaler, & Lerman, 2013) and life chances. 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; Hanlen, 2002; Hudsmith, 1992; Ladhams 2005; Malcolm et al. 1999; and Munns et al., 1999 for similar suggestions).

Concrete materials and experiential tasks, especially grounded in students' lived experience, 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, McRae et al., 2000; Matthews, Howard & Perry, 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 Warren, Young & deVries, 2007; Yunkaporta, 2010). Several authors recommended provision of time for trial and error, in particular, without criticism in early trial stages (Bissett, 2012; Brogden and Kelly, 2002; 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; Wemyss, 2003; Yunkaporta & McGinty, 2009). Suggestions were commonly made in the literature that students should negotiate task content, timelines, format, mode and classroom housekeeping (Bissett, 2012; Brogden and Kelly, 2002; Cahill, 1999; Colman-Dimon, 2000; Cresswell, Underwood, Withers & Adams, 2002; Hanlen, 2002). There was a consensus in the literature that explicit teaching is recommended over independent learning. Recommendations included explicit teaching, in general (Harrison, 2011; Trouw, 1997), of reading and writing (Hudspith, 1997), of reading strategies (Hale, Greene & Dries, 2012), of text structural types (Hudspith, 1997) of culture (Sarra, 2011) of metaphor, meaning and anthropocentrism in text (Beattie, 1999), of classroom behaviour and school culture (Gower and Byrne, 2012; Hudspith, 1997), of the roles of students and teacher (Hudspith, 1992) of justification and reasoning (Harrison, 2011;

Hughes et al., 2004) of students' progress (Hudspith, 1997) and of language (Trouw, 1997), including subject vocabulary and metalanguage (Dawson, 1991).

Because many Indigenous students were learning SAE as a second or additional language, speaking, reading and writing SAE posed significant additional cognitive load on students (Nichol & 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 (Gower and Byrne, 2012; 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 also be reduced by using oral or visual rather than written representations in learning and assessment tasks (Hughes, 1992; Nichol and Robinson, 2010), by placing tasks in familiar contexts (Harris, 1980) and by allowing students and teacher aides to use home language in the classroom (Broden and Kelly, 2000; Harkins, 1994).

Several scholars, both Indigenous and non-Indigenous, elaborated on teaching practice beyond the specific and espoused overarching pedagogical frameworks for supporting students in their learning. For example, Yunkaporta (2010) identified ‘eight ways of working’ for Aboriginal students, for teachers to use as a starting point for more inclusive teaching. Similarly, Osborne (1996) provided a pedagogical framework for culturally responsive pedagogy for Torres Strait Islander students, which is likely applicable to most Indigenous and minority contexts. He 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. Gower and Bryne (2012, p386) identified open minded willingness to “embrace differences in knowledge, experiences and understanding” as a key characteristic of culturally competent teachers.

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. It is noteworthy that many of the suggested adjustments in this category, such as explicit attention to learning goals and feedback, are commonly cited in the effective teaching literature today (Archer & 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.

Indigenous (or Aboriginal/Torres Strait Islander) 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 major instructional themes important to Aboriginal and Torres Strait Islander students and families in fostering learning. These included (1) cultural

environment, especially the celebration of cultural identity; (2) quality teachers and teaching, who collaborate with AEWs, are culturally aware, have high expectations, create personalised learning plans and develop good relationships with students and families; (3) community engagement, especially efforts that encourage the participation of Elders and families in school life, (4) health and well-being, predominantly the mitigation of racism; (5) curriculum, the inclusion of Indigenous perspectives and a negotiated curriculum at the local level; and (6) 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 Categories One and Two.

These themes are mirrored in Herbert's (1995) survey of 300 students and parents from ten school communities across Northern Territory, Queensland, New South Wales, and Western Australia. Bond (2010) reported similar themes from her research on Mornington Island. Similarly, Munns, Martin and Craven (2008) and Munns, O'Rourke and Bodkin-Andrews (2013) draw attention to the imperative of schools and teachers engaging with community in all educational matters. Likewise, Wray (2008) found that genuine collaboration with community with respect to the Aboriginal studies curriculum provided improved affective and achievement parameters. 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 to counteract the "imposition of inappropriate pedagogy, curriculum and lack of meaningful personal relationships" (Colman-Dimon, 2000, p43). The themes of quality teaching, cultural environment, curriculum and community engagement, were also reported by Burgess and Berwick (2009), Dockett, Mason and Perry (2006), Howard (1997), Mander-Ross (1995) and Rennie (2013).

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 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 believed to be persisting in education today that continue to influence the student teacher interface. While the references portraying the voices of Indigenous Australia are quite limited in number and scope, 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". It is noteworthy, that the empirical studies addressed a breadth and, what might be identified as, disparate topics of focus. For example, included in this category was Hudspeth's (1994) identification of the types of humour observed in classrooms and their influence in supporting a positive classroom environment. Further, 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 four identified quantitative intervention studies, research conducted by Frigo et al. (2004) determined 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 identified as influences on student success included school, region, attentiveness, attendance, language background and initial achievement. Gardner and Mushin (2013) recorded classroom talk in a remote 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., Young, and deVries (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 findings from this study are echoed by Ewing, Cooper, Baturu, 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, especially in drawing attention to any specific practices of consequence for Aboriginal and Torres Strait islander children. 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 enacted for supporting improved learning outcomes

Progress or Evaluation Reports

This group of 23 publications included both progress and evaluation reports of projects or programs most 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). 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 following programs.

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 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 and is described in detail by Rose et al. (1999) and Gray, Cowey and Axford (2003) and qualitatively evaluated by Cresswell et al. (2002). Cresswell et al. (2002) reported that schools credited massively improved literacy levels, including independent reading, writing, and vocabulary, as well as improved attendance, attentiveness in literacy lessons, community engagement and staff retention to the program.

Other programs evaluated, but with limited evidence to support claims, include Sullivan and van Riel's (2013) evaluation which compared the geometry understanding of Aboriginal students before and after a series of lessons. Similarly, Callingham and Griffin (2002) evaluated using quasi-experimental research design 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. Other efforts that have sought to develop locally specific curriculum in order to improve literacy outcomes for Aboriginal and Torres Strait Islander students include Zeegers and Beales (2010), Parkin (1998), and Hale, Greene and Dries (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.

A variety of teacher professional developments are also included in this section. These include Cahill and Collard's "Deadly Ways to Learn" report (2003), the FELIKS documents (Berry and Hudson, 1997; Brogden & Kelly, 2002), further literature from the Deadly Ways to Learn project (Cahill, 1999; Konigsberg & Collard 2002), the Getting it Right project (Ladhams, 2005) and professional development projects associated with the Maths in the Kimberley Project (Jorgensen et al., 2013). In all cases, the authors report that the professional development resulted in changes to pedagogy and positive student learning outcomes. As well, changes to pedagogy were measured using the Productive Pedagogies (Gore, Griffiths, and Ladwig, 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.

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 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. McRae et al. (2000) report on the 83 Strategic Results Projects from the Indigenous Education Strategic Initiatives program. Forty-three of these projects were aimed at primary and secondary school students. Outcomes were expressed as the degree to which the project met its targets, and varied for the different projects. The report concludes by echoing the assertions of the category 1 and 2 authors who state that "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). Further, five mathematics programs designed to improve the teaching of mathematics to Indigenous students have been reviewed by Matthews et al (2003). 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.

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 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 knowledge systems 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. Furthermore, consistent with the obvious trend emerging from this review, they argue that much of the research they reviewed is limited in size, isolated from general education research and non-quantitative.

Tracey Frigo collated the literature on teaching mathematics to Indigenous primary students available, and the maths programs in use in Australia (Frigo, 1999). Her summary emphasises the importance of developing affective relationships within the classroom, making meaning in maths through the placement of mathematics in culturally appropriate contexts and the central importance of language use in mathematics learning. In an extension of the previous review, Frigo and Simpson (2001) highlighted the importance of relationships between school and home and the concept of a 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 their discussion of the factors affecting the relationship between schools and families, Gollan and Malin (2012) draw upon both published studies and their own professional experience. They discuss the importance of Aboriginal peoples' history with education, the ongoing racism experienced by Aboriginal students and their families, the disregard by teachers of Aboriginal students' abilities in early schooling and make suggestions for improving relationships between schools and Aboriginal families.

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', giving little attention to culturally responsive teaching, assuming a uniform pedagogy for all Australians. She summarised the theory and practice of teaching culturally, both internationally and in Australia. She presented several sets of characteristics of culturally competent teachers which, 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 and 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, situate learning in cultural contexts, teach to a variety of learning styles, use low risk questioning techniques and maintain high expectations of students. She suggests that culturally aware teachers address the problematic nature of the hegemonic practice of education and how they can operate within it for their students, not just academically but also 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 assist in identifying both systemic issues and teaching practices that may influence educational outcomes for Aboriginal and/or Torres Strait Islander students. First, the literature review draws immediate attention to, as Rowe (2003) laments, the paradox that is evident in the [significant amount of attention through published literature] in this area and, yet, the underdeveloped research related to how little is known about the influence of such assertions on learning.

Second, the literature draws attention to the imperative that adjusting teaching practice is likely problematic if systemic issues influencing education are not similarly considered and adjusted. As Barnhardt and Kawagley (2010) assert, what is required for improved practice is more than simply substituting one practice or body of knowledge or practice for another; 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.

Third, 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 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). The authors in this review challenge a premise that a uniform pedagogical approach can be applied to *all* students, both Aboriginal and non-Aboriginal. 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).

Fourth, and despite this premise, the Australian literature provides little evidence of empirically based research projects that might draw attention to practices that might augment or possibly challenge the effective teaching discourse today. 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), 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 practices actually make a difference to student outcomes, nor can they gauge the relative importance of different practices. Quantitative analysis is necessary for this level of understanding. Empirical results were presented for only a few projects (Gray et al., 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. 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 no significant regard is given nationally to consideration of practices that may be uniquely consequential. 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." This literature validates the need for such research. Considering the influence of Hattie's imperative for responding to evidence-informed teaching, what is particularly absent in the national effective teaching discourse is any attention to the need for empirically-based research that responds to what Indigenous students and their communities are saying about the teaching practices that influence their learning.

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, a well-developed focus of research in other countries where Indigenous peoples have increased influence on educational practice (Lewthwaite & McMillan, 2007, 2009; Lewthwaite et al., 2013, 2014; Lewthwaite & Renaud, 2009). 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; (2) implement and evaluate the success of these classroom pedagogies on student learning. As asserted by Lingard and Keddie (2013), likely representative of the authors highlighted in this review, we seek a pedagogical theory of the middle ground, a hybrid approach, one that eschews the theory/empiricism and politics/pedagogies binaries and instead seeks to draw teachers into dialogic space where they interrogate assumption, theory, data, politics and pedagogies. By so doing we provide a response to the long called for claims for research that addresses the uneasiness that exists within Australia for evidence-based understanding of the influence of practices through making visible the experiences and aspirations of the Aboriginal and Torres Strait Islander community.

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