In this issue

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Early childhood service delivery: Reinforcing inequality?

Creative arts education: The neglected Key Learning Area

Tackling myths about mathematics education

and more …
The Australasian Journal of Early Childhood (AJEC) is published quarterly and is sponsored by Early Childhood Australia Inc. It features up-to-date articles designed to impart new information and encourage the critical exchange of ideas among practitioners in the early childhood field. The AJEC Committee invites contributions on all aspects of the education and care of young children. The journal is controlled by an editorial board and all submissions undergo a blind, peer-review process.

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AJEC

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Early Childhood Australia

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Editorial

THERE IS SIGNIFICANT INTEREST in Australasia in early childhood workforce development, with many countries making this a focus of current policy development. For example, the outcomes of the framework for the National Early Childhood Development Strategy for Australia (Council of Australian Governments, 2009) envisages an early childhood service system that will empower parents/families/communities, have high-quality programmes, community outreach, focus on promotion and prevention, and will be responsive to local needs. The Early Years Learning Framework is one of the strategies aimed at working towards this outcome. Sumison, Barnes, Cheeseman, Harrison, Kennedy and Stonehouse discuss their experiences in developing this framework and help us understand why it was developed the way it is. Another of the key factors influencing our ability to achieve this vision is the early childhood workforce—‘…their qualification levels and ongoing training, their motivation, and their interaction with families and children’ (Council of Australian Governments, 2006, p. 20).

In addressing workforce issues, the Singapore Workforce Development Agency in consultation with the Ministry of Manpower, National Trades Union congress and the Singapore National Employers Federation offer a financial support scheme for workers to upgrade their skills and resilience. A working party is currently attempting to establish fair work roles and appropriate salaries to match for early childhood staff (see www.seedinstitute.com.sg/). Training programmes for early childhood are now regulated in terms of course content, and the duration of training has increased.

New Zealand’s early childhood strategic plan, Pathways to the Future (Ministry of Education, 2002) identifies the need to increase the number of early childhood staff with qualifications in order to increase service quality for children and families, using the Diploma of Teaching (ECE) as the benchmark. By 2012 all regulated staff in every teacher-led service will be required to work towards this outcome. Sumison, Barnes, Cheeseman, Harrison, Kennedy and Stonehouse discuss their experiences in developing this framework and help us understand why it was developed the way it is. Another of the key factors influencing our ability to achieve this vision is the early childhood workforce—‘…their qualification levels and ongoing training, their motivation, and their interaction with families and children’ (Council of Australian Governments, 2006, p. 20).

In thinking about this complexity, I sometimes feel swamped: Where do we start given that all of these things are linked? For example how reasonable is it to expect Diploma staff with two years of training to undertake ongoing reflection of the translation of theory into their own practice? Particularly when they are often paid less than many garbage collectors? Is it reasonable and appropriate to expect a four year trained early childhood staff member to take on programming responsibilities for all the children across a centre, just because they have two more years of training than the Diploma staff actually working with the children every day? I don’t know the answers to these questions. I wish I did. But right now, what I can do is take one more step in the right direction: Offer another opportunity aimed at challenging our early childhood professionals to think about their practice in order to improve the quality of the service delivered.

Breen argues that the assumptions we make about family and ability/disability significantly impair our ability to offer services that address issues of social justice/social inclusion. Given that early years services are internationally positioned as having the potential to reduce disadvantage, this is something our workforce and our workforce educators need to address urgently. Alter, Hays and O’Hara made me reflect on the issue of specialist versus generic teachers. As an avowed generalist, I believe that a well-trained professional can offer programmes to meet the needs of the whole child: Addressing arts, mathematics, science, literacy, health, emotional and social development etc. And then I remember the difficulties I experienced when developing courses to fit all of that into a three or four year pre-service university course (let alone a two year Diploma). Alter, Hays and O’Hara reminded me that arts education includes music, visual arts, drama and dance—surely a broad range of skills—and as a person for whom stick figures were the crowning achievement in art classes—I begin to wonder again about the role of specialists.
Barr, Saltmarsh and Klopper add to the complexity. They discuss safety education and remind us of the importance of considering a range of issues in our safety education including road/traffic, fire, water, and farm safety. Again, I like to think of myself as being reasonably well educated but I know I do not feel competent to address all of these areas without support. Luckily, Barr and colleagues present some ideas that will help me here. And just when I am starting to feel barely competent again, along come Lee and Ginsburg, and Warren, deVries and Cole who both discuss mathematics. Now I figured I had a pretty good handle on this, but I found that I have a lot more to learn. Both of these articles offered some new and fresh ideas. And I learned a new word: Subitisation. Although I’ve been using this strategy for years, only now do I know what to call it. These two articles could help practitioners make conscious some of the work they are already doing, and help them develop ongoing supports to enhance children’s learning.

Finally, we have the article by Edwards, Blaise and Hammer. Now I love multiage grouping and did quite a bit of work in this area in the early 90s. When I read this article it felt like revisiting an old friend with a new twist. Edwards, Blaise and Hammer show us that practitioners using multiage grouping tend to conceptualise their work using a developmental framework. Given that we have been recently challenging the supremacy of the developmental perspective in early childhood, it is time we also challenged our understanding of multiage grouping. Perhaps a new way of thinking may help us to open up new ways of creating learning opportunities for children.

I present to you this latest edition of AJEC and hope that you will enjoy the challenges these authors have posed for us.

References

Margaret Sims
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**Insider perspectives on developing Belonging, Being & Becoming: The Early Years Learning Framework for Australia**

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**IN JULY 2009, THE COUNCIL of Australian Governments approved for immediate implementation, ‘Belonging, Being & Becoming: The Early Years Learning Framework for Australia’ (EYLF), Australia’s first national framework for guiding curriculum and pedagogy in all early childhood settings. In this article, several core members of the Charles Sturt University-led Consortium contracted to develop and trial the EYLF outline the political and policy context that has shaped its development; the intent and approach of the Consortium; and some of the many ‘decision points and dilemmas’ (Westbury, 2007) they encountered. The article concludes with reflections on lessons learned and implications for early childhood curriculum development.**

**Introduction**

**IN AUSTRALIA AND INTERNATIONALLY, the last 15 years has seen the proliferation of curriculum and learning frameworks for early childhood education and care (ECEC). According to the Organisation for Economic Cooperation and Development (OECD), such frameworks are most effective when underpinned by a vision; when there is widespread agreement on the values on which they are based; and when key goals are defined with a broad range of stakeholders (OECD, 2006). Yet visions, values and goals are inevitably contested as stakeholders endeavour to articulate and negotiate them (Nuttall, 2003). Consequently, curriculum development requires many complex conversations and collaborations (Pinar, Reynolds, Slattery, & Taubman, 1995).

In this article, we reflect on some of these conversations and collaborations with respect to the development of Belonging, Being & Becoming: The Early Years Learning Framework for Australia, Australia’s first national framework for guiding early childhood curriculum and pedagogy (Australian Government Department of Education, Employment and Workplace Relations (DEEWR), 2008). An explicit aim of the EYLF is to ‘extend and enrich children’s learning from birth to five years and through the transition to school’ (DEEWR, 2009, p. 5). A key component of the National Quality Framework for early childhood settings, the EYLF is a document of considerable significance for contemporary early childhood policy and practice. It also seems likely to become a historically significant marker of a particular point in time in Australian ECEC policy development, in part because of its status as Australia’s first national early childhood curriculum framework. Consequently, it warrants careful scrutiny, analysis and debate by early childhood practitioners, researchers and policy-makers, not least to identify refinements and changes in emphases for future iterations.

Detailed accounts of the EYLF’s development and implementation and, later, of its evaluation, are needed to inform scrutiny, analysis and debate. Documents available on the website of DEEWR’s Office of Early Childhood Education and Care provide a useful start. The purpose of this article is to provide a reading from the perspective of several core members of the Charles Sturt University-led Consortium (the Consortium) that won the contract to develop and trial the EYLF. Our intent is to offer insights into the contexts and constraints that shaped the EYLF’s development and its final form. We anticipate that an ‘insider’ perspective may be useful to those working with the EYLF, as well as those intending to undertake critical policy analyses of the EYLF and current Australian ECEC reforms.**
The article begins by outlining the political and policy context in which the EYLF was developed. The intent, understandings and approach of the Consortium are then explained, and some of the difficult ‘decision points and dilemmas’ (Westbury, 2008, p. 59) described. We conclude by reflecting on what we have learnt from our involvement in the development of the EYLF and how we and others might make productive use of this learning in future.

**Political and policy contexts**

Internationally, and in Australia, it has become commonplace for governments to see ECEC as a prescription for ameliorating social and educational problems (Swadener, Cannella, & Bloch, 2006). The Rudd Federal Labor government was elected in November 2007 with a ‘productivity agenda’ for strengthening Australia’s economy through increased investment in social and human capital. Central to its productivity agenda is the ‘education revolution’ (Australian Government, 2008). A key component of the ‘education revolution’ is a commitment to improving the quality of ECEC through a range of reforms, including a proposed National Quality Framework. The EYLF will be an integral part of the National Quality Framework (Productivity Agenda Working Group – Early Childhood Development Sub Group, 2008).

The Council of Australian Governments (COAG) has responsibility for implementing the productivity agenda and reforms, including those associated with ECEC. To this end, a complex structure of COAG working groups and parties comprising representatives from the federal government and all state and territory governments has been established (see Figure 1).

This structure reflects the emphasis in the productivity agenda on securing cooperation and collaboration between the federal, state and territory governments through linking funding to intergovernmental agreements on policy initiatives and directions (Australian Government, 2008). The emphasis on joint decision–making, responsibility and accountability represents an attempt to diffuse the ‘partisan rivalries’ that have long characterised ‘the vigorous set of political communities’ constituting the Australian federation (Moon & Sharman, 2003, p. 11).

Within the COAG structure, oversight of each initiative is delegated to a designated state or territory, which takes a leadership role in working collaboratively with other states and territories as well as the federal government. The ultimate aim is to obtain approval of the initiative (in this case, the EYLF, led by Victoria) by all relevant federal, state and territory Ministers, so that the initiative can be implemented nationally. If the approval of all Ministers is not obtained, the initiative is at risk of not proceeding. In some states, responsibilities for ECEC remain distributed across education, health and community services. Consequently, Ministerial approval for the EYLF was required from at least 12 jurisdictions.

To maximise the likelihood that all relevant Ministers would indeed approve the EYLF, the successful tenderer for the development of the EYLF was required to meet regularly with the Early Years Learning Framework Working Party (DEEWR, 2008). The EYLF Working Party comprised of representatives from all relevant federal, state and territory government departments. As illustrated in Figure 1, it reported in turn to the Early Childhood Development Sub Group of COAG’s Productivity Agenda Working Group. This structure meant that there were many layers of decision-makers between the successful tenderers for the development and trial of the EYLF and the dozen or so Ministers whose approval was required.

An additional complexity was the extremely ambitious timeline for the development of the EYLF, which was undertaken in four stages through a series of contracts awarded by competitive tender. *Stage one* (Wilks,
Nyland, Chancellor, & Elliot, 2008) involved a literature review of early childhood curriculum and learning frameworks. *Stage two* (Edwards, Fleer, & Nuttall, 2008) involved a commissioned background research paper outlining possible directions for the EYLF. Following *stage two*, a discussion paper produced by the Early Childhood Development Sub Group (Productivity Agenda Working Group - Early Childhood Development Sub Group, 2008) that focused in part on the EYLF was released for national consultation. Stages *three and four*, which are the focus of this article, involved the actual development and trial of the EYLF and support documents for early childhood professionals and families. A requirement of the tender was that *stage three* adhere to and build on the parameters outlined in the discussion paper developed by the Early Childhood Development Sub Group.

The timeline for the successful tenderer for the undertaking of stages *three and four* was compressed into less than nine months. Tenders were called for in August 2008. The successful tenderer was notified in September with a requirement that it submit its recommended version to DEEWR in early May 2009. Consultation took place from October 2008 to April 2009 and involved focus group discussions in most states and territories, a national symposium for invited key stakeholders, capital city consultations supplemented by regional consultations in Victoria, online submissions, and an online forum established and managed by DEEWR. From February to April 2009, 28 ECEC settings from around Australia took part in a six-week trial. The COAG-approved version was launched in early July 2009 for immediate national implementation.

In comparison, New Zealand’s highly acclaimed Te Whāriki early childhood curriculum, was developed over a six year period from 1991 to 1996 (Carr & May, 2006) with a 14 month consultation period for the first draft. As Smith and May (2000, p. 101) note, the development of Te Whāriki was a process the New Zealand government ‘wisely did not rush’. The speed with which the Rudd government proceeded may have reflected its determination to deliver on election promises and to counter criticisms in some sections of the media that it focused more on symbolic gestures at the expense of setting and achieving policy priorities (Gittins, 2008; Shanahan, 2008).

The combination of the multi-jurisdictional context, with its embedded historical legacy of often strained state, territory and federal relations, the multilayered decision–making structure, and the compressed timeline characterising the development of the EYLF made it a far more complex undertaking than the earlier development of ECEC learning or curriculum frameworks by individual Australian states and territories. International comparisons (see, for example, the OECD, 2006; Wilks et al., 2008) indicate that the great majority of frameworks elsewhere have also been for single jurisdictions, and further attest to the complexities associated with the development of the EYLF.

### The Consortium: Intent, understandings, approach

A Charles Sturt University-led consortium (the ‘Consortium’) was contracted to undertake stages *three and four* of the development of the EYLF. The 29-member Consortium comprised academics from seven Australian universities, as well as service providers, representatives from peak early childhood organisations, practitioners and consultants, drawn from all states and the Northern Territory. According to one former senior bureaucrat, it was the largest, most diverse geographically dispersed consortium to undertake a project of national significance in the history of Australian ECEC (Wangmann, 2009).

#### Intent

The diversity and size of the Consortium was deliberate for several reasons. First and most significantly, it represented both a symbolic and pragmatic statement of confidence in the capacity of the early childhood sector to work collaboratively and constructively across state and territory borders and other divides. Second, the diversity of perspectives, professional backgrounds, expertise and insights of Consortium members mirrored the diversity of the early childhood sector generally. It provided a rich range of knowledge and experiential bases from which the Consortium could draw from and stimulated thought-provoking and often challenging discussions; the kind in which we hoped that practitioners working with the EYLF would themselves engage. Our diverse perspectives also provided an inbuilt mechanism for testing and refining our ideas and proposed directions and an invaluable ‘litmus’ test of likely responses from the early childhood sector. Third, in keeping with our commitment to the generational renewal of leadership in ECEC, the size of the Consortium enabled a rich generational mix of experienced and emerging leaders. Finally, the size and geographical reach of the Consortium enabled work tasks to be distributed, thus rendering the extremely tight time frame just manageable. It also enabled us to activate networks across Australia at short notice as the need arose. Effective communication mechanisms, as well as a great deal of professional trust, were crucial to the success of this model, given the size and diversity of the Consortium, a limited budget and time constraints.
Understandings of curriculum

Many Consortium members had prior experience in the development of state or territory curriculum frameworks and therefore needed some understanding of the challenges likely to be involved in the development of the EYLF. We knew, for example, that curriculum is always political, in part because it shapes what is seen as (im)possible (Popkewitz, 2009). We also understood that it reflects the political and social terrain in which it is developed, and as the terrain shifts, so will emphases in curriculum. We recognised that, in essence, curriculum is about ‘what matters’—to politicians, policy makers, the media, academics, educators, communities, families and children—and about how ‘what matters’ should be framed (Yates, 2009). ‘What matters’ is conveyed through multiple and competing discourses and narratives. Especially salient in the development of the EYLF, in our view, were narratives of hope, salvation and political risk. Because of their significance in shaping the EYLF, we briefly elaborate on them here.

Narratives of hope

Curriculum is not only a reflection of what a society values, but also of what it hopes to become (Reid, 2008). The early childhood sector’s hopes that the EYLF would build on Prime Minister Rudd’s formal apology to the Stolen Generation in February 2008 and actively contribute to reconciliation between Indigenous and non-Indigenous Australians were evident throughout the consultation process. So too, were hopes that the EYLF will lead to increased valuing by society of the important role of early childhood settings and enhanced professional status for early childhood practitioners through public recognition of the complexity of their work. For the most part, these hopes were embedded in a transformative vision for ECEC and for a more socially just society, as well as optimism about the contribution the EYLF sector and the EYLF could make to that transformation.

Narratives of salvation

Narratives of salvation emphasise the production of future citizens with ‘desirable’ qualities by addressing deficits (Popkewitz, 2009), whereas narratives of hope seek to address inequities through transforming social structures that perpetuate those inequities. In effect, they are frequently interwoven, as illustrated in the emphasis on ‘closing the gap’ between the educational outcomes of Aboriginal and Torres Strait Islander children and those of other children. Their respective weighting, however, has profound implications for ECEC curriculum and the roles of ECEC practitioners.

Narratives of political risk

The development of a curriculum or learning framework inevitably involves risks. During the development of Te Whāki, for example, the early childhood sector in New Zealand was acutely aware of the potential risk of the ‘schoolification’ effect of a national curriculum and worked hard to counter that risk (Carr & May, 2000). The EYLF consultation processes revealed similar concerns. The EYLF also posed risks, both internal and external, for politicians and bureaucrats with responsibilities for ensuring government initiatives are presented in a positive light. Internal political risks arose from the multi-jurisdictional nature of COAG processes and the potentially competing priorities, parochialism and gamesmanship that have traditionally constrained attempts at national collaboration in Australia (Moon & Sharman, 2003). External political risks were exemplified in media attention critical of the two publicly released drafts of the EYLF (e.g. Bita, 2008, 2009). As Althaus (2008) explains, managing political risks requires careful calculation of and attention to those risks. Government sensitivity to and management of the risks associated with the EYLF was evidenced in the substantial and cumulative ‘toning down’ of potentially controversial ideas in each of the two publicly released drafts and the final COAG-approved version. The toning down was arguably most noticeable with respect to children’s participatory rights as enshrined in the United Nations Convention on the Rights of the Child (United Nations, 1989) to which Australia is a signatory. For example, the November 2008 draft referred to children’s ‘civic participation and contribution to the future’ as a learning outcome. By February 2009, the wording had been softened to children ‘actively participate in relationships and communities’, while the final version merely stated rather vacuously that children are ‘connected with and contribute to their world’. For the Consortium, the challenges of balancing narratives of hope, (e.g. that the EYLF would explicitly position Australian ECEC settings as sites of democratic practice), salvation (e.g. consistent with the COAG’s perspectives on social inclusion) and political risk (given that the notion of children’s participatory can be politically unpalatable) were ongoing.

The agreed aspiration is that children are born healthy and have access, throughout early childhood, to the support, care and education that will equip them for life and learning ... This is critical to achieving long-term participation and productivity gains for Australia. Schooling and skills development must be improved now, and must start early as children are the nation’s future (Productivity Agenda Working Group – Early Childhood Development Sub Group, 2008, p. 2).
Approach

Consortium members brought to the development of the EYLF a longstanding commitment to working collaboratively, valuing diversity and difference, and foregrounding equity considerations. We were also committed to proceeding in ways that recognised children as capable and entitled to rights, and that conveyed respect for early childhood practitioners and an appreciation of the complexities of their work. We were keen to act on early feedback from the early childhood sector that the EYLF should be ‘bold and brave’. What constitutes ‘bold and brave’, however, is open to interpretation, and in a climate of sensitivity to political risk, the focus of considerable contestation.

To us, ‘bold and brave’ evoked transformational possibilities. While it was important that the EYLF affirm existing good practice, we also wanted it to open up new spaces for conversations about ECEC pedagogy, curriculum and the discourses that underpin them. More broadly, we argued, the EYLF should articulate a stance on what knowledge, values and ideas ‘matter’ and what constitutes good citizens and a good society (Yates, 2009).

Like the early childhood sector more broadly, we welcomed the COAG stipulation that the EYLF be sufficiently flexible to enable it to be interpreted in contextually and culturally relevant ways (Productivity Agenda Working Group – Early Childhood Development Sub Group, 2008). We considered it important that this flexibility extend to enabling practitioners the option of working with a diversity of ideas and theories, including those perceived by government to be politically risky if explicitly articulated in the EYLF. To that end, we endeavoured to deliberately weave in words that can cross borders and divides, resonate with diverse audiences, and be taken up differently within different discourses and narratives. Wherever possible, we used words that we thought would appear innocuous to political risk detectors, while speaking powerfully ‘in code’ to practitioners seeking legitimate ways to push boundaries of what might currently be considered possible.

The partial success of these strategies explains, in part, the hybrid-like nature of the EYLF. To our ‘insider’ eyes, it contains signs of the many negotiated settlements that characterised its development. Hybrids can lack the seemingly effortless coherence of a unified narrative. On the other hand, through their dissonance, and by implicitly acknowledging that true consensus is not readily achievable, they leave open spaces for ongoing conversations, destabilisation, and new articulations and narratives. The following section, framed around decision points and dilemmas, identifies what seem to us to be generative spaces for further development of the EYLF.

Decision points and dilemmas

Curriculum ‘brings together, assembles and connects different principles’ about who children, families and practitioners should be (Popkewitz, 2009, p. 304). Consequently, deliberations about curriculum inevitably involve difficult ‘decision points and dilemmas’ (Kirst & Bird, 1997, cited by Westbury, 2008, p. 59). In this section, we identify some of the many difficult decision points and dilemmas we encountered in developing the EYLF.

In our view, they provide a potentially useful frame for scrutinising emphases, silences, strengths and limitations of the EYLF, and a generative starting point for discussions about future refinements and new directions.

Audience

Given the diverse workforce in ECEC settings, who should be the primary intended audience for the EYLF? How should differences in understanding, nature and depth of professional knowledge be approached? Who should take leadership in making curriculum decisions and where does that leave often traditionally marginalised groups like family day carers?

It was resolved by the EYLF Working Party that the primary audience for EYLF would be all degree- and diploma-qualified ECEC practitioners and that all practitioners would be referred to as educators. Accordingly, we worked from the assumption that all educators are united in a shared goal of facilitating children’s learning and wellbeing and that they take seriously their professional and ethical responsibilities to children, families, colleagues and the communities in which they work. Conscious of educators’ diverse educational backgrounds, qualifications and English proficiency, we aimed to convey complex ideas clearly and in a straightforward manner, without shying away from words that we were told might be unfamiliar and unnecessarily challenging. These words included, among others, pedagogy, agency and civic participation.

We wanted the EYLF to retain sufficient depth to interest and ideally extend to, highly qualified educators with masters and doctoral degrees, while remaining inviting and accessible to educators with diploma-level qualifications and those without formal qualifications. This enormous span reinforced the importance of educators with early childhood qualifications, including coordination unit staff in family day care schemes, taking a pedagogical leadership role in working with colleagues to interpret and implement the EYLF in locally relevant ways. We took the view that with appropriate support, all educators could and should be entrusted to make wise professional judgements.

Children

Where is the focus on infants and toddlers? How to portray children with disabilities and special needs? What is the nature of genuine inclusion?
When is it best to identify the particular needs of individuals or groups and when is it best not to? How can we balance views of children as capable and vulnerable, and avoid over- or underestimating the support they might need? How can we counter the dominant but limited human capital policy focus on children primarily as learners in order that they become successful and productive workers and contributors to society?

Many equivalent frameworks distinguish between children aged from birth to three years and three- to five-year-olds. We deliberately avoided that distinction because of its potential to position infants and toddlers as ‘other’ in ways that focus on their vulnerabilities, not their capabilities. Similarly, except in specific circumstances, we referred to ‘all children’ to reflect our commitment to being inclusive and respectful of children and of their capabilities. This wording can convey universalist assumptions but assists in countering deficit, naïve, or romanticised views of children and childhood. At the same time, we recognised that some educators and families find it difficult to accept terms such as ‘successful’ and ‘active contributors’ in relation to infants and children with disabilities and additional needs. One of the attractions of the theme ‘belonging, being and becoming’ was that it focuses attention on the importance of valuing children as active citizens in the present. We hoped it would begin to redress the sometimes unrelenting focus in government discourses on children as investments in the future. Similarly, by focusing on children within the context of their families and communities, we hoped to avoid positioning the individual child as an object ‘of scrutiny and intervention’ (Bloch, Holmlund, Moqvist, & Popkewitz, 2003, p. 4).

Distinctiveness

What constitutes a distinctively Australian framework? What does it mean to be an educator in a post–apology Australia? What are the roles and responsibilities of early childhood educators and early learning settings in contributing to reconciliation?

To make the EYLF distinctively Australian, we intended to highlight the cultural and linguistic diversity that has been a feature of Australian society for at least 40,000 years, and the strengths of diverse ways of knowing. We wanted to emphasise the richness that this diversity has brought, and continues to bring, to our society, and explicitly recognise, incorporate and build on Aboriginal and Torres Strait Islander people’s ways of knowing and being. To us, a ‘fair go’ for all Australian children meant taking seriously the challenges faced by many Aboriginal and Torres Strait Islander children and families and giving serious consideration to the values, knowledge, attitudes, beliefs and understandings essential for all children as citizens of a post–apology Australia.

We envisaged the EYLF an act of reconciliation; one that, through its vision, values and goals for children’s learning, could make a distinctive contribution to the development of a post–apology Australian society. To this end, we sought to emphasise respect for diversity and a commitment to equity as guiding principles for pedagogical practice.

Diversity

How can the EYLF make a constructive contribution that is not superficial or tokenistic?

We anticipated building on the anti-bias curriculum (Derman-Sparks & the ABC Task Force, 1989) and the influence it has had on educators’ understandings of diversity and difference over the past two decades. In other words, we wanted to emphasise that respecting diversity and difference involves recognising that there are many ways of living and being in the world; that some of these ways are normalised; and that discrimination can occur when some ways of being and living in the world do not match what is commonly perceived to be normal (Robinson & Diaz, 2006). We intended the EYLF to highlight children’s active role in constructing their own social identities and shaping the identities of others. We also intended it to emphasise that all children have a right to develop a positive understanding of difference, and that learning to respect diversity and difference means learning about the dilemmas that can arise from these differences, developing the capacity to think critically about bias, and taking action with others to challenge bias (Derman-Sparks & the ABC Task Force, 1989). The media focus on these ideas in the two publicly released drafts and a series of critical press releases by the Federal Shadow Minister with responsibilities for ECEC (e.g. Mirabella, 2009) was a sobering reminder, however, that they can be perceived as politically risky for governments, even though they have long been articulated in many Australian early childhood documents.

Equity

How to convey a commitment to equity, without entering into the risks of naming marginalised groups for whom social structures have produced far from equitable opportunities and outcomes?

That the EYLF should engender commitment to ensuring equal opportunities was uncontested. There is little acknowledgement in the EYLF, however, that inequities arising from the way that society responds to diversity and difference can make it more difficult for some children to achieve the same educational outcomes as others, even with equal access to and participation in early childhood settings (Cannella, 1997). We had hoped that the EYLF would convey more explicitly that a commitment to equity requires
educators to pay particular attention to the educational entitlements of those children whose circumstances have the potential to disadvantage them educationally. Similarly, we would have liked more emphasis on the need to consider ways in which some practices in early childhood education may inadvertently contribute to inequality and how those practices might be changed.

**Pedagogy**

Why use the term pedagogy, when many find it alienating and associate it with ‘academic pretentiousness’? (Yates, 2009, p. 19)

Although it caused considerable controversy, we used the term pedagogy to highlight that ‘there is something bigger and more complex’ to be understood than is typically conveyed through everyday terms like learning and teaching (Yates, 2009, p. 19). It recognises that teaching in ECEC requires professional artistry—a blend of practical knowledge; skilful performance characterised by intuition, improvisation, imagination and going beyond the known; and an ability to make judgements based on professional knowledge and an understanding of the context (Fish, 1998). While the term professional artistry is noticeably absent from the EYLF, many of the understandings of professional practice it conveys are evident. Pedagogy also conveys the centrality and complexities of relationships, and the importance of intentional teaching and of being critically reflective. The explanations of some of these terms in the EYLF understate their significance but, for the most part, we think the EYLF has managed to avoid a technicist conceptualisation of professional practice in ECEC.

**Play**

What can be said about play and what has to remain unspoken?

We did not want to underestimate the significance of play in children’s learning, nor did we want to convey a romantic image of play. Given that play is infused with power (MacNaughton, 2001) and a site where identities are continuously navigated and negotiated (Richardson, 2009), we aimed to emphasise the need for educators to identify frequently overlooked political dimensions of play. We also considered it important that the EYLF assist educators to recognise the opportunities that complex understandings of play present for helping children explore different ways of being, and to challenge injustice and bias.

It was clear from the outset, however, that challenging perceptions of play as ‘fun’ and ‘innocent’ would be difficult. Criticism of the first publicly released draft of the EYLF in The Australian national daily newspaper described childhood as an ‘age of innocence, imagination and curiosity’ and labelled critical descriptions of play as ‘gobbledygook’ and ‘political correctness’ (Bita, 2008). Similar claims of political correctness were made with regard to a later draft, particularly in relation to children’s awareness of difference. Attempting to challenge one of the most enduring myths of childhood—that of the innocent child—proved highly sensitive politically. It was no surprise, therefore, that the final version made no mention of play as a site of politics and power relations.

**Theoretical underpinnings**

What are the risks and opportunities of theoretical eclecticism?

Many curriculum frameworks promote one particular version of early childhood education and of early childhood curriculum. They seem to imply that the role of early childhood practitioners is to unquestioningly accept and work within the parameters of that sanctioned version. In contrast, our aim was to create a framework that provided a catalyst for reflection, dialogue, critique, debate and discussion without advocating or assuming adherence to any one theoretical stance. Inviting an eclectic mix of theoretical perspectives, rather than identifying one preferred theoretical position could result in a lack of conceptual coherence (Fleer, 2003). As early childhood educators around Australia are drawing variously and successfully on developmental, sociocultural, critical, poststructural and other perspectives, we considered it inappropriate that the EYLF impose a single preferred theoretical position. We welcomed COAG endorsement of our stance.

**Reflections**

The intent of those involved in developing curriculum and learning frameworks is not always evident in the final authorised versions. To some extent, this article was motivated by the desire to make public our aspirations for the EYLF. We were also motivated by our belief in the need for as much transparency as possible in policy decision–making and the value of cross sector policy co-production, in this case, of curriculum. More importantly, in sharing our insider perspectives, to the extent that contractual obligations permit, our aim has been to offer insights to those responsible for implementing the EYLF to assist in seeing beyond some of the constraints to what was intended, if not actually said. For the EYLF to achieve its full potential, we believe that it must be a dynamic document that is subject to ongoing refinement. We have identified some areas where we think a more critical focus is warranted. We hope this account will inform critical scrutiny, analysis and debate to identify directions for future development.
Inevitably, we are disappointed by some aspects of the EYLF. In our view, it does not fully achieve a cogently articulated stance on the knowledge, values and ideas that we think ‘matter’ most in contemporary Australian ECEC, and at times, for reasons we have alluded to throughout this article, it seems far from bold and brave. Overall though, we see it as a significant development in Australia’s ECEC policy and a respectable ‘temporary settlement’ (Woodrow & Brennan, 1999) from which to build. That the Federal Government and the relevant jurisdictions in states and territories have been able to agree on a national early years learning framework in many ways constitutes a remarkable achievement that augers well for the prospect of future national collaborations. We feel privileged to have been involved in co-producing the EYLF and have learned a great deal from the experience. As we reflect on what we have learned, several ‘lessons’, as well as broader implications for early childhood curriculum and policy development, stand out.

First, we recognise, in retrospect, that our expectations about the curriculum development process at a national level were possibly idealistic and in some ways left us open to criticisms, not necessarily warranted, that we were somewhat naive. Although we knew our ideas would be contested, we assumed that what was politically acceptable to say about diversity and equity diversity in state and territory curriculum and other policy documents such as the National Childcare Accreditation Council’s Quality Practices Guide (NCAC, 2005) would also be acceptable in a national framework. In doing so, we underestimated the political sensitivities involved in achieving multi-jurisdictional agreement and the power of a conservative national newspaper and its state–based subsidiaries. In hindsight, perhaps the EYLF would have been more ‘cutting edge’ had the language used in early drafts been more circumspect. On the other hand, taking a strong stance initially possibly provided more leeway in negotiating a reasonably progressive compromise, with a commitment to equity, respect for diversity, and to some extent, critically reflective practice, for example: remaining explicitly articulated principles of the EYLF.

Second, the early childhood research literature appears largely silent about how to negotiate these and other politically sensitive issues in curriculum and policy development. Some accounts of the development of Te Whāriki in New Zealand briefly mention advocacy strategies (e.g., Carr & May, 2000). In Australia, an investigation is underway into influences on politicians’ decisions about ECEC policy (Bown, Sumsion & Press, 2009). Yet there remains a need for more narrative accounts, and empirical and conceptual investigations. Luke’s (2006) insider narrative of policy making by bureaucrats in an Education Ministry in one Australian state paints a depressing picture of seemingly adhoc, arbitrary and ideologically grounded policy–making. Likewise, Althaus (2008) found many Australian politicians and policymakers were acutely concerned about political risks. Her findings enabled us to better understand the risk management context in which we found ourselves, but offered little specific guidance about how we might negotiate in that context more effectively.

Third, our most valuable lesson came from opportunities to discuss the vastly different expectations, imperatives, conventions, structures and constraints under which academics and bureaucrats work, and to experience a common sense of purpose and trust that can nevertheless develop across often deep divides. Future research could usefully explore how to foster generative working relationships more systematically among bureaucrats, academics and the early childhood sector to improve policy–making, preferably grounded in a commitment to policy co-production. A fruitful starting point could be to investigate the views and experiences of those who have ‘crossed over’ into the bureaucracy.

Finally, this article raises a number of questions that, in our opinion, need to be asked of early childhood curriculum and processes of curriculum development. Although the political constraints were substantial, they do not fully explain why the ‘decision points and dilemmas’ to which we have referred, appear to be reiterated so frequently in discussions of curriculum within the early childhood sector. Why does the early childhood field continue to struggle with the same issues and how might the field move beyond them? Would it be useful, for example, to develop a schema to enable systematic analysis of the issues that repeatedly emerge and to document positions taken on these issues and the reasons for taking these positions? Dillon (2009) contends that such a schema can serve a range of purposes. While many of the examples he gives seem somewhat instrumentalist, a mapping approach of the type he advocates could conceivably help to overcome continual re-visiting of the same issues and questions.

**Conclusion**

In this article, we have endeavoured to provide insights into the context in which the EYLF was developed, the intent and approach of the EYLF Consortium, and the decision points and dilemmas that arose. We hope this account will inform understandings of the EYLF, as well as critical analysis and debate about directions for its future development. Such accounts, we would like to think, can provide useful lessons about negotiating the politics of ECEC curriculum making.
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References


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APPROXIMATELY 317,900, OR 8.3 per cent, of Australian children are classified as having a disability (Australian Institute of Health and Welfare [AIHW], 2006), and while impairment(s) vary greatly across a continuum, having a ‘severe or profound core activity restriction’ (AIHW, 2004, p. xii). Almost all children with disability are cared for by their families within the family home. Although biomedical and economic explanations of disability remain paramount in some domains, increasingly the role of social, cultural, economic, environmental and political factors that act to ‘disable’ persons with impairment is emphasised within Australia and elsewhere (Goggin & Newell, 2005; Schalock, 2004; World Health Organization, 2001). Thus, while ‘impairments’ might restrict participation in activity, they are not necessarily the cause of disability. Disability activists within Australia prefer the term ‘person with disability’ (Goggin & Newell, 2005) but my use of this term is done with critical acknowledgement of the structural barriers that ultimately determine the health and wellbeing of families living with childhood disability.

In this paper I reflect upon the implicit ideology underlying early childhood service delivery for families living with childhood disability. I first consider the notion that the provision of care in the home by the family is ideal. Second, I discuss how parental involvement in professionalised care and therapy is often confused with the responsibility for it, especially for mothers. Third, I review the impact of childhood disability on the family, and in particular focus on the economic hardship, the potential for relationship difficulties with spouses and other children, restrictions in the ability to participate in leisure activities, loss of friendship networks, and the negotiation of complex and dense support services and systems of care. Fourth, I review the notion of chronic sorrow for families living with childhood disability and discuss the utility of the concept. Finally, I demonstrate that childhood disability services may replicate and exacerbate existing social, cultural and economic inequalities.

Assumption 1: Care in the home by the family is ideal

Welfare reform within Australia since the 1970s has shifted the responsibility for care from the state to the home. The policies and practices of de-institutionalisation and non-institutionalisation within Australia (and elsewhere), combined with neo-liberalist ideology which assumes that care in the home by the family is
ideal (O’Connor, Orloff & Shaver, 1999; Peter, Spalding, Kenny, Conrad, McKeever & Macfarlane, 2007), has resulted in families undertaking the care of their children with disability, and this care is expected to be largely self-reliant, autonomous and unpaid. The notion of the traditional or nuclear family as ‘ideal’ providers of care pervades Australian welfare policy (Hill, 2007) and service delivery models of childhood health and disability services across Australia and elsewhere.

Paralleling this construction of an ‘ideal’ family is the problematic notion that families are functional, cohesive, supportive, able to meet the needs of all members, and capable of managing various predicaments. These assumptions permeate service provision for childhood disability (Dodd, Saggars & Wildy, 2009; Peter et al., 2007; Shogren & Turnbull, 2006). The family as the unit of care is central to the philosophy and practice of contemporary early childhood settings (Ashton et al., 2008), and is enacted through models of care such as family-centred care, which recognises the central role the family occupies in the life of a child (Shields, Pratt & Hunter, 2006) and acknowledges that the families are the ‘experts’ when it comes to recognising and meeting their child’s needs (Breen & Saggars, 2009; Raghavendra, Murchland, Bentley, Wake-Oyster & Lyons, 2007). A fundamental feature of family-centred care is the inclusion of the family in the decision-making processes concerning the child (Blue-Banning, Summers, Frankland, Nelson & Beegle, 2004; Corlett & Twycross 2006; King, Kertoy, King, Law, Rosenbaum & Hurley, 2003) and it is assumed that this collaboration results in optimal outcomes for the child (King, Teplicky, King & Rosenbaum, 2004; MacKean, Thurston & Scott, 2005; Shields et al., 2006). Consequently, the assumption concerning the ideal context of care leads to the next assumption concerning the responsibility for care, which is explored in the next section.

Assumption 2: Parents (especially mothers) are responsible for care

The application of family-centred care can be challenging. Significantly, there is a tendency for professionals to confuse parents’ involvement in care with responsibility for it. A recent Australian study demonstrated that allied health practitioners within childhood disability services regularly conflated parental involvement in the decision-making processes relating to the care of their child with responsibility for the provision of treatment (Dodd et al., 2009). Similarly, occupational therapists working with children with developmental disability in the United States revealed that they reported spending two-thirds of their time directing parents in the therapeutic care of their child (Hinojosa, Sproat, Mankhetwit & Anderson, 2002). A Canadian study revealed that parents of children with autism, Down syndrome, and developmental delays expressed feeling overwhelmed by the degree of responsibility for designing and implementing therapy expected of them by service providers (MacKean et al., 2005). Leiter (2004) termed this expectation that parents (usually mothers) will provide the therapy for their children as the ‘therapeutic imperative’ (p. 837). It is perhaps unsurprising, then, that a recent review of several studies revealed that family-centred care often resulted in families caring for their children with disability with limited professional supports (Shields et al., 2006).

The transfer of caring responsibility to the family is complicated further by the gendered nature of care. An idealised family tends to consist of a heterosexual couple with a (usually male) breadwinner and a (usually female) carer of children (Saggars & Sims, 2005), and this pattern is typically reproduced within families faced with childhood disability (Gray, 2003; Lewis, Kagan & Heaton, 2000). Indeed, recent Australian figures on childhood disability establish that 85 per cent of primary carers of children with disability are the children’s mothers, and nearly another five per cent are women relatives and family friends (AIHW, 2004). Various studies demonstrate mothers of children with disability report being judged by service providers and employers (and themselves) for pursuing paid work outside the home and felt pressure from service providers to resign from paid employment in order to engage fully in the therapy regime (Gray, 2003; McKean et al., 2005; Shearn & Todd, 2000).

The requirement of intensive motherhood (Caputo, 2007) necessitates self-sacrifice, and empirical research demonstrates that the health of mothers of children with disability is likely to be compromised. For example, one Australian study indicated that the self-reported health status of mothers of school-aged children with high support needs was significantly worse than that of mothers who did not have children with disability (McConnell & Llewellyn, 2006). A study of primary caregivers (mostly mothers) of two-year-old children in Canada at risk of developmental delay reported that 20 per cent were clinically depressed, which was more than three times the community prevalence of depression for married mothers (Feldman, McDonald, Serbin, Stack, Secco & Yu, 2007). This assumption concerning the responsibility for care may underestimate the potentially profound impacts on families living with childhood disability, which is explored in the next section.

Assumption 3: The transfer of care impacts minimally on the family system

Childhood disability can profoundly affect the family or household unit. Notwithstanding the wide variation of impairments described as a childhood disability, it is generally recognised that families raising children with
disability bear a larger financial burden than do families with 'typical' children. This includes the costs of goods and services such as continence products, additional heating, medication, and specialised equipment and transport (Murray, 2007). Studies in the United Kingdom and the United States demonstrate that the economic cost of raising a child with disability is significantly greater than raising a child without disability (Dobson & Middleton, 1998; Parish, Rose, Grinstein-Weiss, Richman & Andrews, 2008).

In Australia, formal financial support is available from the Commonwealth Government through a Carer Allowance, Carer Payment, and other types of assistance such as concession cards, rent assistance, and pharmaceutical subsidies (often described as 'benefits'). The eligibility criteria for Carer Allowance and Payment are strict—the majority of carers do not receive them—and parents caring for their children considered that the payments fail to recognise their considerable efforts (Murray, 2007). For example, when combined, the full Carer Payment and Allowance is still $200 less per week than the Australian minimum wage (Hughes, 2007). Sixty-one per cent of primary carers of children with disability report difficulties in meeting living expenses and 62 per cent rely on government allowances as their main source of income (AIHW, 2004).

Despite the limited financial support, paid work is often incompatible with the circumstances and complex needs of families living with childhood disability. More than half of all primary carers of 0- to 14-year-old children with disability report spending more than 40 hours a week engaged in care work (AIHW, 2004). In Australia, mothers of children with disability are significantly less likely to be in paid work than are other mothers, and, if they are employed, it is considerably more likely to be on a part-time basis (AIHW, 2004). Additionally, children with disability are twice as likely to live in one-parent households (usually headed by mothers) than are other children (AIHW, 2004), and this intensifies the financial strain. Studies of Welsh and American mothers of school-aged children with disability revealed that the time-intensive demands of care work, the lack of workplace flexibility, and the dearth of appropriate alternative care left little room for paid work (Green, 2007; Litt, 2004; Shearn & Todd, 2000). Indeed, single mothers of children with disability in the United States are significantly more likely to remain dependent on welfare than are other mothers (Brandon & Hogan, 2004). The combined effect of increased costs relating to care and limited income leads to financial disadvantage, so it is perhaps unsurprising that childhood disability is associated substantially with poverty (AIHW, 2004).

In addition to the economic hardship, the potential for relationship difficulties is exacerbated for families living with childhood disability. The parental relationship is often affected because the different (gendered) and time-consuming roles of care (i.e. the mother engaging in the day-to-day care work and the father working long hours in paid employment to cover the costs of that care) leave the couple with little time to focus on that relationship (Gray, 2003; Green, 2007; Murray, 2007). Recent Australian figures reveal that 26 per cent of primary carers of children with disability described their marital/spousal relationship as strained and 20 per cent reported a lack of time to be together as a couple (AIHW, 2004). Additionally, siblings of children with disability often report feelings of loneliness, resentment and responsibility (Strohm, 2002).

Further, changes in social networks often follow the birth or diagnosis of a child with disability. Half of Australian parent-carers report either a change in or end to their relationships with friends (AIHW, 2004). The parents in Murray’s (2007) study reported that while some friendships continued, others did not. In addition, the parents cited the limited time they had to cultivate existing or new friendships. In other studies, Welsh mothers of school-aged children with intellectual disability reported difficulties in maintaining social contacts because of feeling different or marginalised from others (Shearn & Todd, 2000), while American mothers of children with disability reported several examples of feeling distressed by the reactions from others (Fox, Vaughn, Wyatte & Dunlap, 2002; Green, 2007).

Families living with childhood disability also tend to experience significant restrictions in their ability to participate in leisure activities. The demands of care, which have been described as ‘24-hour, 7-day involvement’ (Fox et al., 2002, p. 444) leave little time and money for families to engage in recreation activities, and this is further complicated by physical inaccessibility to recreation facilities and public toilets, intolerance and bigotry, and the child’s persistent care needs (Murray, 2007). As such, the families in Murray’s study rarely or never holidayed or ate out together. Importantly, even when families access respite services (Murray, 2007), or do attempt holidays (Mactavish, MacKay, Iwasaki & Betteridge, 2007), their limited money and time, diminished social networks; and experiences of social stigma, combined with accessibility problems and ongoing care requirements, provided limited choice for leisure pursuits.

Families are also faced with negotiating the often complicated and confusing structured support services and systems of care for their children with disability. Community service supports are often inadequate, fractured, difficult to access, and under-resourced; they tend to compete rather than collaborate with one another, and are beleaguered with issues of staff
inexperience and attrition (McDonald & Zetlin, 2004). In one study, the negotiation of numerous services and stakeholders was described by one mother as ‘a bit like running a small business’ (Kingdom & Mayfield, 2001, p. 38) while parents in other studies conducted in Canada, the United States and the United Kingdom reported ‘fighting’ for resources and feeling frustrated and fatigued (Darrah, Magil-Evans & Adkins, 2002; Green, 2007; Litt, 2004; MacKean et al., 2005; Swain & Walker, 2003). As a result, some parents/families attempt to advocate for additional resources such as accessible local parks, increased access to transport and specialised equipment, and the establishment of a mutual help group (Murray, 2007). However, such attempts are limited by the diminished time and resources available (Darrah et al., 2002; Litt, 2004) and may also be constrained by their internalisation of their exclusion (Goggin & Newell, 2005).

**Assumption 4: Parents may experience grief as a result of the ‘tragedy’**

It is important to state the positive outcomes of having a child or sibling with disability, and these include empathy, joy, optimism, courage, resourcefulness, tolerance, and a heightened appreciation for life (Green, 2007; Kearney & Griffin, 2001; Trute, Hiebert-Murphy & Levine, 2007). At the same time, however, parents and siblings of children with disability do report feelings of sadness, loss, and grief. While most of the theories and empirical research studies of grief are based upon bereavement through physical death (Center for the Advancement of Health, 2004), it is generally recognised that any loss may precipitate a grief response. For a family, childhood disability encompasses many losses, some tangible and some intangible. Parents might worry about the long-term care of their child(ren) (Murray, 2007), tend to lose their independence and/or careers (Gray, 2003; MacKean et al., 2005; Murray, 2007; Shearn & Todd, 2000), experience significant financial stressors (AIHW, 2004; Green, 2007; Litt, 2004; Murray, 2007; Shearn & Todd, 2000), and report a shattered sense of normalcy, hopes, dreams, and the ‘metaphorical ‘death’ of the expected healthy child’ (Wood & Milo, 2001, p. 644). One study reported that the initial grief following the loss of the imagined child lasted an average of five years (Green, 2007). Parallel to these losses, siblings of children with disability often report the loss of a ‘normal’ childhood (Strohm, 2002). Of course, given the higher risk of death for children with disability, some families report experiencing the ‘double loss’ (Wood & Milo, 2001, p. 643) of the death of their child.

Parents of children with disability may also reveal their grief when talking about their experiences (Gray, 2003; Murray, 2007) and often the grief process is referred to as a long-term phenomenon. In one study, a mother of a child with disability referred to her experiences as characterised by ‘constant grief’ (Gray, 2003, p. 636), while Strohm (2002) dedicated a chapter to a discussion of ‘ongoing grief’. The notion of chronic sorrow was proposed more than four decades ago to describe the experiences of recurrent losses over the long term brought about by raising a child with disability (Olshansky, 1962). The concept of chronic sorrow has since been developed further, particularly in the nursing literature (e.g. Lindgren, Burke, Hainsworth & Eakes, 1992), and has been embraced by nurses and many health professionals working with families living with childhood disability (Ferguson, Gartner & Lipsky, 2000; Foley, 2006; Landsman, 2003; Perryman, 2005).

However, the notion of chronic sorrow or grief and its application to families living with chronic disability is largely problematic. It borrows from medicalised and psychologised discourses which construct the ‘deficit’ on the part of the individual or family while the social environments remain unchallenged and unchanged (Oliver, 1983; Prilleltensky & Nelson, 2000). For example, it has been argued by several researchers and commentators that parental experiences of chronic sorrow should be ‘normalised’ by empathetic health professionals and ‘treated’ by the fostering of appropriate cognitive, affective and behavioural coping skills (Barlow, Swaby & Turner, 2008; Barnett, Clements, Kaplan-Estrin & Fialka, 2003; Eakes, Burke & Hainsworth, 1998; Hobdell, 2004). I argue that the notion of chronic grief or sorrow draws upon a ‘disability as tragedy’ discourse and therefore may be applied in order to describe parents and/or families as either ‘denying’ their grief or being unable to ‘accept’ their reality of caring for a child or children with disability (Ferguson, 2001; Ferguson et al., 2000; Hobdell et al., 2007; Kearney & Griffin, 2001; McKeever & Miller, 2004), with little or no attention to the social, cultural and economic milieu. In an analysis of grief and coping following diagnosis of hearing loss in a child, Kurtzer-White and Luterman (2003) stated, ‘it appears that we have not put in place the necessary management programs to complement the screening program and the majority of parents are being left on their own to cope with the myriad of feelings engendered by the diagnosis’ (p. 235). Similarly, Green (2007) asserted, ‘the majority of research on caring for children with disabilities has emphasised the emotional distress of having a child with a disability and de-emphasised both the benefits of caring and the negative consequences of stigma and socio-structural constraints’ (p. 161). Thus, the underlying aim of the construct of chronic sorrow, and the resulting ‘treatments’ (where offered), is to ensure that that families (especially mothers) better enact their therapeutic imperative without increased assistance from the state.
Assumption 5: Service delivery reduces social, cultural and economic injustices

Childhood disability services tend to reinforce and exacerbate existing social, cultural, and economic injustices. First, gender disadvantage is often exaggerated by the requirement of intensive motherhood (Caputo, 2007) which shifts the costs and responsibilities of care to parents (usually mothers) (King et al., 2003; Leiter, 2004; MacKean et al., 2005). For example, one Australian study of mothers and fathers of children with disability reported that time for personal care and leisure was reduced for mothers while fathers remained unaffected (Brandon, 2007). Additionally, a Canadian study revealed that the self-reported health of mothers of children with disability was affected more negatively than was their husband’s health, particularly over longer periods (Burton, Lethbridge & Phipps, 2008).

Second, ethnic and cultural disadvantage is often exacerbated. There is little research on childhood disability in families of culturally and linguistically diverse backgrounds, despite its obvious importance to service provision in Australia and elsewhere. However, concepts of care might not translate cross-culturally (Goldbart & Mukherjee, 1999; Harrison & Kahn, 2004; Harry, 2008), and parents with no or limited English competency are often excluded from studies because measures are not translated. Further, the perception by service providers of disability as ‘deficit’ may be exacerbated in families from non-dominant ethnic and cultural backgrounds (Harry, 2008). A study of Pakistani and Bangladeshi parents of children with disability in the United Kingdom demonstrated that their immense difficulties in accessing services was a result of discrimination and institutionalised racism (Fazil, Bywaters, Ali, Wallace & Singh, 2002).

Third, financial disadvantage may be exacerbated. Childhood disability is almost inexorably linked with poverty (AIHW, 2004; Brandon & Hogan, 2004; Litt, 2004; Murray, 2007), which in turn impacts significantly on each family’s stress, nutrition, home sanitation, access to health care, opportunities for leisure, and overall quality of life, which then has a negative influence on child development (Park, Turnbull & Turnbull, 2002). The financially-advantaged family wherein the mother can forgo paid work is likely to be more readily able to fulfil the roles and responsibilities expected of them by service providers than are families with fewer social and economic resources. Additionally, low-income families differ greatly from privileged families in terms of their ability to afford services, negotiate bureaucracies, advocate for resources, and access and maintain flexible and well-paid employment, and these factors combine to influence their financial status over the long term (Brandon & Hogan, 2004; Litt, 2004).

Of course, it is very common for several of these forms of disadvantage to occur simultaneously (Dowling & Dolan, 2001), reinforcing the ‘tragedy’ discourse of childhood disability. Indeed, some authors have argued that disablement goes beyond the individual child. For example, Fazil et al. (2002) asserted, ‘It is the family as a whole that is disabled by the unjust society’ (p. 238), while Brett (2002) referred to the impact of the injustices on the family as ‘disablement by proxy’ (p. 832).

Families in crisis or hardship usually believe that structured service settings will assist them, but this is not often the case. By no means am I criticising individual service providers and therapists. However, what they are able to achieve is severely restricted by the application of economic rationalism and market models to their work, which has led to reductions in organisational stability, increased competition rather than cooperation between services, high staff turnover, and reduced funding (Breen, Green, Roarty & Saggers, 2008). Given the economic hardships and social isolation encountered by families living with childhood disability, their ‘fight’ for assistance and resources, their negotiation of dense and confusing service systems, and the transfer of therapy roles to families (particularly mothers), the social, economic, and systemic injustices in and of themselves are likely to be, at the very least, a fundamental component of any sorrow or grief experienced by such families. It is these factors, and not the ‘tragedy of disability’ that are likely to be the cause of any ‘sorrow’.

Conclusion

This commentary has highlighted several assumptions that have been challenged but continue to pervade childhood services: The assumption of ‘idealised’ families, the assumption that parents’, especially mothers’, involvement in care equates to responsibility for it, the assumption that the intensive involvement does not impact greatly on the family system, the assumption that parents and/or families might experience grief responses, and the assumption that intervention reduces social, cultural, and economic inequalities. These neo-liberal, individualised and economic rationalist notions are powerful and have the potential to conceal the daily lived experiences of families living with childhood disability behind the discourse of individual or familial ‘tragedy’.

The everyday experience of families living with childhood disability and faced with negotiating the complexities of care do not easily correspond with the discourses of service delivery. It is clear that the implicit ideology and practices of early childhood service delivery has the potential to reinforce, rather than reduce, social, cultural, and economic injustices. Clearly then, childhood disability remains institutionalised, but just within the institution of the family, rendering
the family as ‘disabled’. The complex issues faced by families coloured by childhood disability remains critically under-explored and underdeveloped within early childhood research and practice. These issues require urgent attention given the increased roles and responsibilities expected of families as a result of non-institutionalisation and the expectation that care ‘best’ occurs within the home and by the family. However, thoughtful and comprehensive attention to the largely silenced, yet multiple, shifting, and complex injustices faced by families living with childhood disability is required and will likely have significant implications for early childhood service delivery.

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References


The challenges of implementing primary arts education: What our teachers say

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QUALITY ARTS EDUCATION CAN produce positive learning outcomes, such as creating positive attitudes to learning, developing a greater sense of personal and cultural identity, and fostering more creative and imaginative ways of thinking in young children (Bamford, 2006; Eisner, 2002; Robinson, 2001). Arts-based processes allow children the opportunity to express their knowledge, ideas and feelings in ways that do not necessarily involve words (Livermore, 2003; Robinson, 2001). Unfortunately, the value of arts-based learning can often be overlooked because of the social and cultural dominance of literal language and written modes of expression (Eisner, 2002; Kress, 2000). Forming models of quality arts education in the early years of primary school can also be a highly problematic task. This has been highlighted in a series of recent national reviews that have investigated the current state of arts education in Australian schools. This national attention has in part focused on the level of preparedness of non-specialist teachers, in teaching the creative arts; music, dance, art and drama.

Introduction

The creative arts as a key learning area within the primary curriculum is an essential component of every Australian primary school. Though uniquely different in appearance and method from each other, creative arts disciplines employ similar cognitive processes, ultimately allowing language and thought to be expressed through a variety of representations. The creative arts are represented not in the ordinary sense of language, as writing on a page, but in either a visual, kinaesthetic, aural or tactile form. Engaging children in the creative arts can allow them to communicate in potentially profound ways (Eisner, 2002). As Russell-Bowie (2009, p.5) points out:

Because the arts can embody and communicate emotions, ideas, beliefs and values, they can convey meaning through aesthetic forms and symbols and evoke emotive responses to life with or without words.

There is also evidence to suggest that school arts programs can enhance students’ potential to engage with school and learning more broadly (Australian Council for Educational Research, 2004; Bamford, 2006; Catterall, Chapleau & Iwanaga, 1999; Fiske, 1999). Unfortunately, there are gaps in our knowledge in regards to the cognitive processes and social capabilities that can be effectively fostered through the arts. While substantial studies into the academic impact of arts education programs in schools have been conducted in the UK and US, Gibson and Anderson (2008) argue that within the context of Australian schools there is an urgent need...
for a detailed study of the impact of arts programs. This individual small-scale study provides further insights into the impact and status of the arts in Australian primary schools. It has the advantage of looking across the full range of creative arts disciplines and is grounded in the field of professional practice.

Breaking the cycle of neglect

Internationally, there is a growing body of evidence that creative arts learning and engagement has a range of positive outcomes in terms of the lives of young people both in and out of school settings (Bamford, 2006; Catterall, Chapleau & Iwanaga, 1999; Deasy, 2002; Fiske, 1999). Sadly, despite a renewed interest in the unique benefits of creative arts learning, it appears that the subject matter remains marginalised in Australian primary schools (Gibson & Anderson, 2008). This marginalisation has been highlighted in a series of Australian research reports over the past two decades. One of the earliest was the 1985 Taskforce, action: Education and the arts (Commonwealth Department of Education, 1985). The taskforce’s report noted a number of inadequacies in creative arts education practices. In 1995, a major national government–funded investigation into the state of creative arts education in Australia was conducted by the Senate Environment, Recreation, Communications and the Arts References Committee (1995). The Senate Committee concluded that creative arts as a subject remained marginalised in Australian schools, and this had resulted from a lack of teacher’s confidence, skills, adequate training and resources (Gibson & Anderson, 2008).

More recent reviews of arts education in Australia, such as the National Review of School Music Education (Pascoe et al., 2005) and the National Review of Education in Visual Arts, Craft, Design and Visual Communication (Davis, 2008) have shown a continued serious deficit in these areas in primary education over the past decade. According to the authors of the music education review (Pascoe et al., 2005, p. 11):

The perennial challenge of music education lies in developing, implementing and sustaining a music curriculum that effectively engages students with the full range of benefits which could be derived from being involved in music.

The report recognised the difficulties of delivering quality programs, and recommended improving the equity of access, participation and engagement in school music for all students, and teacher pre-service and in-service education. The National Review of Visual Education (NRVE): Visual Arts, Craft, Design and Visual Communication (Davis, 2008) considered a number of key questions, many of which are pertinent to this study. For example, one of the key questions was, ‘What are the characteristics of high–quality visual education?’ A critical factor identified in the NRVE (Davis, 2008) report was the role of the teacher in effective visual education. The report suggests that the place and value of visual education in Australian primary schools needs to be reformed because the generalist primary teacher is ill-equipped to teach the visual arts. While there is yet to be a national review of drama or dance education, it is possible to see a characteristic pattern in creative arts education practices emerging through the visual arts and music education reviews.

Teacher experience, training and perceptions of the creative arts: A brief overview of the literature

An issue often raised among creative arts education professionals and researchers at an international level is whether generalist primary teachers (with no specialist arts knowledge) are capable of realising the learning potential of the creative arts in schools (Hargreaves, Lamont, Marshal & Tarrant, 2003; La Pierre & Zimmerman, 1997; Russell-Bowie & Dowson, 2005). One of the most substantial hindrances to effective teaching and learning of the creative arts in primary schools appears to be a lack of confidence in teachers. For example, a study conducted in the UK (Hargreaves, Lamont, Marshall & Tarrant, 2003) showed that primary school teachers lacked confidence in teaching music, and that it was a subject which caused them the most stress in their teaching. Some studies have shown that the way that teachers’ perceive themselves in regard to their own artistic abilities connects directly to the level of effectiveness they demonstrate as arts teachers (Welch, 1995). Within a study conducted by Housego (cited in Welch, 1995) it was asserted that there are two significant, yet corresponding, factors attributed to a teacher’s self-perception. These include teaching self-efficacy (or the individual’s sense of whether they have the skills and abilities to assist student learning), and one’s beliefs about one’s own preparedness to teach. Russell-Bowie and Dowson’s (2005, p.7) study of 936 generalist primary teachers across five countries found (a) that most ‘… had very little formal background in any of the art forms’ and (b) that ‘… in every creative arts area, background is very strongly, and positively, predictive of confidence and enjoyment in teaching’ regardless of gender.

Research in North America and England has also shown that something closely linked to the issue of the preparedness of generalist primary teachers to teach the creative arts is the value and status teachers attribute to arts subjects. Eisner (1994, 2002) in the US and Holt (1997) in the UK argue that values and attitudes are fundamental to the role and purpose of the creative arts in education. Eisner (1994, p.17) claims
that: ‘We are expecting [generalist primary] teachers to teach what they do not know and often do not love.’ A lack of value and support for the creative arts in learning at a systemic level can perpetuate already low levels of esteem for the creative arts among teachers.

**Methodology**

A total of 19 teachers participated in this study and were drawn from 12 different schools across rural and regional northern NSW. Teachers were recruited using the technique of ‘snowball sampling’ (Minichiello, Aroni & Hays, 2008, p.333) and drew upon people who were either referred to the researcher by other people, or in turn, were referred by participants as the research progressed.

The teachers represented a variety of backgrounds and ages (between 20 and 60 years) and their level of expertise in the creative arts was not a factor in determining who was targeted to participate in the study. The participants taught at a range of levels in primary schools, from Transition/Kindergarten through to Year 6. This cross-section also included teachers who held different executive positions, such as teaching principals, as well as teachers who taught classes with particular needs, such as mainstream special-needs classes. The participants were also drawn from a cross-section of schools. The sample included:

- schools with different-sized student populations—from one-teacher schools to very large multi-class per grade schools with a high proportion of Indigenous students
- schools from both the public and independent sectors of the education system
- schools located in regional centres
- schools that were remote and isolated in rural and regional settings.

The varied backgrounds and characteristics of both the participants and schools provided a typical cross-section of school and teacher profiles in Australia.

During the first stage of data collection, a focus group lasting 70 minutes and consisting of one male and five female teachers was used to explore the critical aspects of teaching creative arts in primary education. The teachers who participated in the focus group discussions also took part in the follow-up in-depth interviews. The purpose of these in-depth interviews was to clarify specific meanings and understandings that participants had presented within the focus group. An outline of the backgrounds of the six focus group participants is provided in Table 1. The backgrounds of a further 13 participants are included in Table 2. Aliases were used to identify and distinguish between the participants. These tables detail the teachers’ gender, the grade/s they teach, as well as a brief outline of the school’s context and location, their age bracket, and an overview of their teaching experience.

**The in-depth interviews**

All of the interviews were spaced and conducted over a period of six months. They commenced in March 2004 and concluded in August of the same year. The interview data collected was analysed using the methods of grounded theory. The use of this approach allowed concepts and categories to emerge, as key components were not pre-imposed before collection and analyses occurred (Wildy, 2003; Denzin & Lincoln, 2003; Strauss & Corbin, 1998). Propositions and interpretations of the data were verified by employing deductive mechanisms that compared concepts, categories and links. Coding enabled the formation of concept and category groups that remained ‘provisional’ until they were found repeated in other interviews with other participants. For example, some of the concepts that were repeated in the interviews were:

1. the practice of utilising others and working together to implement lessons
2. the availability of galleries and resources to support teaching
3. the influence of families and communities in developing creative arts skills and interest.

The data was analysed according to Strauss and Corbin’s (1998) methodology for grounded theory. Upon transcribing the taped in-depth interviews, open coding was applied to the transcribed texts, singling out key words and then comparing them in a variety of ways and searching for links. Through axial coding the data was then re-organised, highlighting central associations. This resulted in the establishment of categories and subcategories for grouping data, followed by the proposing and testing stage of the analysis process. Relationships between the categorical groups were tested and patterns within the data were discovered.

Member checking was used as a way of verifying the accuracy of the data and the final findings. Member checking involved reporting the research findings back to the focus group participants to verify that their understandings were accurately reflected by the data. These participants agreed that the study’s findings exposed the core and character of creative arts pedagogy in their primary schools.

**Findings**

The findings of the study revealed that the participants were concerned with the teaching expectations of the primary school curriculum, specifically the learning standards and outcomes set out for the creative arts.
## Table 1. Focus group participant backgrounds

<table>
<thead>
<tr>
<th>Participants</th>
<th>M/F</th>
<th>Context</th>
<th>Age</th>
<th>Teaching experience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOCUS GROUP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jules</td>
<td>F</td>
<td>K–1 teacher</td>
<td>30-40</td>
<td>10+ years experience.</td>
</tr>
<tr>
<td>Susanna</td>
<td>F</td>
<td>Yr 1–2 teacher.</td>
<td>50-60</td>
<td>25+ years experience.</td>
</tr>
<tr>
<td>Gai</td>
<td>F</td>
<td>Yr 2 teacher.</td>
<td>40-50</td>
<td>15+ years experience.</td>
</tr>
<tr>
<td>Ross</td>
<td>M</td>
<td>Yr 3–4 teacher.</td>
<td>50-60</td>
<td>&lt;10 years experience. Trained as a mature-aged student teacher.</td>
</tr>
<tr>
<td>Lindi</td>
<td>F</td>
<td>Yr 5–6 teacher.</td>
<td>30-40</td>
<td>10 years experience.</td>
</tr>
<tr>
<td>Jane</td>
<td>F</td>
<td>Reading Recovery teacher, also does some Release from Face-to-Face.</td>
<td>30-40</td>
<td>15+ years experience.</td>
</tr>
</tbody>
</table>

## Table 2: Teacher participants (not part of focus group)

<table>
<thead>
<tr>
<th>Participants</th>
<th>M/F</th>
<th>Context</th>
<th>Age</th>
<th>Teaching experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alice</td>
<td>F</td>
<td>Infants (T–2) teacher at a two-teacher rural primary school with a high proportion of Indigenous students.</td>
<td>50-60</td>
<td>15+ years experience. Trained in Australia but taught overseas. Re-trained in Australia after having children.</td>
</tr>
<tr>
<td>Dani</td>
<td>F</td>
<td>Yr 4 teacher at a large centrally-located primary school.</td>
<td>40-50</td>
<td>20+ years experience.</td>
</tr>
<tr>
<td>Gabrielle</td>
<td>F</td>
<td>Yr 4 teacher at an independent junior school, as a part of a T-12 school.</td>
<td>25-30</td>
<td>&lt;10 years experience.</td>
</tr>
<tr>
<td>Marie</td>
<td>F</td>
<td>Primary (3–6) teaching. Principal at a two-teacher isolated school.</td>
<td>50-60</td>
<td>25+ years experience. Trained and taught secondary PE overseas. Re-trained in Australia for primary.</td>
</tr>
<tr>
<td>Wade</td>
<td>M</td>
<td>Yr 2 teacher at an independent junior school as a part of a T-12 school.</td>
<td>20-25</td>
<td>&lt;5 years experience. Recently completed teacher training.</td>
</tr>
<tr>
<td>Darcy</td>
<td>F</td>
<td>Primary (3–6) teacher. Principal at a two-teacher isolated school.</td>
<td>40-50</td>
<td>20+ years experience. Has been a teaching principal for 11 years.</td>
</tr>
<tr>
<td>Gary</td>
<td>M</td>
<td>Primary (K–6) teaching. Principal at a one-teacher rural school.</td>
<td>40-50</td>
<td>20+ years experience. Has taught in a large number of schools.</td>
</tr>
<tr>
<td>Tony</td>
<td>M</td>
<td>Primary (K–6) teacher. Principal at a one-teacher isolated school.</td>
<td>30-40</td>
<td>15 years experience. Has been a teaching principal for 5 years.</td>
</tr>
<tr>
<td>Paula</td>
<td>F</td>
<td>Yr 3–4 teacher of a class of students with special needs at a large centrally-located school.</td>
<td>20-25</td>
<td>&lt;5 years experience. Recently completed teacher training.</td>
</tr>
<tr>
<td>Kevin</td>
<td>M</td>
<td>Primary (3–6) teaching. Principal at a two-teacher rural school.</td>
<td>50-60</td>
<td>30+ years experience.</td>
</tr>
<tr>
<td>Jean</td>
<td>F</td>
<td>Yr 2–3 teacher of a class of students with a high proportion of mainstream special needs.</td>
<td>40-50</td>
<td>25+ years experience. Experienced teaching children with variety of special needs.</td>
</tr>
<tr>
<td>Jackie</td>
<td>F</td>
<td>Yr 5 teacher at a large centrally-located primary school.</td>
<td>40-50</td>
<td>20+ years experience.</td>
</tr>
<tr>
<td>Patrick</td>
<td>M</td>
<td>Primary (3–6) teacher. Principal at a two-teacher isolated rural primary school.</td>
<td>40-50</td>
<td>20+ years experience. Trained as a secondary PE teacher. Re-trained in primary.</td>
</tr>
</tbody>
</table>
A number of factors contributed to them believing they could not fulfil all of these teaching expectations. Some of the key issues teachers frequently referred to in their interviews were:

- inter-related issues of time and the quantity of curriculum material requiring coverage
- the accountability to which teachers were held in other Key Learning Areas
- the broad scope of subject content within the creative arts
- teachers’ evaluation of their own creative arts knowledge and skills; the level of confidence expressed by individual teachers to teach arts disciplines
- perceptions of the value and status given to the creative arts.

These factors are discussed briefly in the following passages.

**Issues of time**

The issue of time and quantity of subject matter in primary learning and development was a concern of all the participants. Many participants used the terms like ‘over-crowded’ or ‘crowded’ when describing the state of the curriculum.

The teachers expressed feelings of being overwhelmed with the needs of all of the curriculum areas, and said this resulted in a reduction in the time they devoted to creative arts education. Some teachers felt that the time devoted to the creative arts was also pressured by the preparation necessary to facilitate activities—such as provision of art materials, preparation and clean-up, as well as finding resources. Additionally, the majority of teachers believed their teaching time was dominated by an attention to English and mathematics because of teachers believed their teaching time was dominated by an attention to English and mathematics because the demands of departmental directives necessitated that students achieve benchmark standards in literacy and numeracy. In the following reflection, Tony stated:

> In the last four or five years the government’s seen how easy it has been to make schools accountable for maths and English, and schools often teach up to 60 per cent of their time in those two areas. That’s two KLA [Key Learning Areas] out of six! Where’s the other four? And, by the way, the other four sometimes seem more difficult because we’re trying to divide them up into these little boxes.

At least eight of the teachers similarly felt the precedence of specific subjects necessitated a negotiation between whether more or less time could be afforded to teaching the creative arts.

**Scope of the subject area**

In general, the expectation of creative arts teaching and learning was considered a rather unrealistic expectation, demanding a breadth of knowledge and skills that most of the 19 teachers felt that they did not possess. The view that too much was expected of teachers in regard to teaching all of the creative arts subjects was clearly expressed by the participants, particularly Jackie, Jules and Gary. Jackie objected to the assumption that primary teachers were capable of teaching anything. She asserted that ‘No teacher can do all areas perfectly’. Jules said, ‘I just think that the Education Department thinks that primary school teachers are supposed to be good at everything, and people aren’t like that’. Gary also considered this a huge demand on their individual skills and knowledge. He stated:

> I mean it is asking a bit too much to suggest that a person can actually adequately clench the six KLA, but the bits of the six KLA. When you look at drama, music, art and craft, you get only a very few performance people in the big world (laugh) who are good at all those.

Gary, like a number of other teachers in the study, considered it impossible even for people specifically trained in the arts to know and be competent in all teaching facets of the field. The fact that the educational system requires primary teachers to be skilled enough to teach ‘everything’ was felt by Jules to be an unrealistic expectation of them in relation to their individual skills and knowledge.

**Skills, knowledge and confidence**

Overall, the participants considered that their individual skills and knowledge in each of the creative arts influenced their ability to adequately deliver effective practices. In the following statement, Ross raised a point about the quality of arts teaching being highly variable among teachers:

> I think everybody realises that it depends on the individual, how talented they are in an arts area is how good they are going to be teaching it (laugh) unfortunately.

It was found that most participants had similar understandings. It was also noted that each of the teachers tended to avoid speaking about areas within the creative arts where they believed they did not have adequate skills and knowledge.

The data analysis revealed varying levels of teacher confidence in relation to teaching in the four arts disciplines. The words and phrases teachers used to describe their degree of confidence were used to group them into one of three levels, expressed as: lack of confidence, limited confidence and confidence. These are presented in Figure 1, where the levels of confidence for each subject area are compared. The figure shows how the participants felt more confident in teaching visual arts, and least confident in teaching music.
All of the participants stated that they utilised the skills of other people to assist learning in different aspects of the creative arts. These people were often referred to as ‘consultants’, ‘artists’, ‘colleagues’, ‘specialists’, ‘the parent body’ and ‘highly qualified or trained people’. The delegation of teaching ranged from total delegation to partial delegation, and included working together in a partnership with others. At least half the participants said they delegated the responsibility for teaching music and choral activities to other people. The rationale for this delegation was that they felt very uncomfortable teaching in this specific subject area. Many participants expressed the view that their arts experiences in the tertiary education environment had been limited. For example, when asked to describe her training, Lindi stated, ‘At Teachers College I had to do recorder, and then for art I can remember making a kite. It was just your very, very basic training.’ Lindi, like many others, felt she could have gained a lot more from these professional experiences if there had been a greater focus on pedagogy as well as skill development.

There were some differences in the ways both the early carer and senior teachers viewed their initial pre-service arts education training. Teachers with 10 to 20 or more years of teaching experience indicated that they were exposed in limited ways to the visual arts, music and craft activities in their teacher training encounters. Other participants with between five and 10 years teaching experience showed that they had been exposed to a greater variety of art forms. However, it was interesting to note that, although their experiences were broader, they also presented their teacher training as limited.

Personal perspectives: Valuing of the arts

Collectively, the participants indicated that the creative arts have value in learning and society. The teachers not only focused on their own values associated with the Key Learning Area, but also on their perception of the values and attitudes held by society in general, students, and students’ family members.

Participants described how they valued the creative arts for the foundational skills they provided for learning and development. They related how they used the creative arts to:

■ develop fine motor skills
■ assist in the development of social skills
■ develop student confidence
■ enrich learning throughout the curriculum as cross-curricular programming.

Despite revealing that they valued the creative arts for the way they assisted in the promotion of these outcomes, it was noted that there was little attention given to cognitive aspects of learning in the arts. Many of the teachers related how the creative arts were ‘not as academic’ as other curriculum areas. Many also admitted that creative arts subjects were practised irregularly, and that the priority they give to the collective area was often lower than other areas within the primary curriculum.

Participants often stated that they had particular interest in one area or another of the creative arts, although they had some difficulty in describing where their interest originated. Family support emerged as a factor in six of the participants’ interviews. According to these individuals, their families were influential in both positive and negative ways in developing interests and skills. Some, like Jules, Jean and Paula, stated that their family had a negative influence. For example, Paula said, ‘I don’t think I was encouraged at home to do, or to be involved in, the arts.’ Alternatively, Gabrielle, Marie and Jane indicated that their families provided some positive influence in dance and drama, and the visual arts and music respectively, and linked them with outside school activities as children. These were described as a casual development of interests.

When reflecting upon the educational status of the creative arts, 15 participants thought that people in the community continued to believe that the creative arts are without functional or economic purpose. Despite their view that the creative arts did not have educational status in the school and community, many of the teachers emphasised that they believed attitudes and opinions were shifting. They indicated that the creative arts were continuing to grow in importance within education and in other aspects of life. This was attributed to a greater valuing of the
subject area. For instance, Dani stated that:

*I think we’re more aware of the values [the creative arts] has than we were a long, long time ago and I think we value, in our schools, kids who are musical—they’re artistic or they’ve got excellent drama skills. I think we value that more.*

In comparing past with current values, Dani appeared to believe that the creative arts have not yet reached their full educational potential.

**Discussion**

The study shows how teachers’ life experiences shape the way they approach the creative arts within the curriculum program of their primary classrooms. There was a direct relationship between the participants’ skills, knowledge and their confidence to teach each subject area—and these factors were dynamically related to their prior experiences within the individual areas of the creative arts. All of the participants believed that the lack of quality arts education, and the time devoted to teaching in this Key Learning Area at primary, secondary and tertiary levels, did not adequately prepare them for their responsibilities in the primary classroom. They felt overwhelmed by the demands of content knowledge and skills required to teach in all of the creative arts subjects. Many considered that it was impossible (including those specifically trained in arts disciplines) to be skilled and competent in teaching all facets of the field. Those with limited arts experiences, knowledge and skills in one or more of the creative arts subjects also found that they struggled to develop student learning in these areas. They said they either taught to their strengths or delegated responsibility for teaching to others with greater expertise.

The findings show that overall the teachers felt more confident in teaching the visual arts and least confident with music. This was attributed to insufficient music training, the complexity of music as a subject, and their own perceived lack of talent in the subject. The data showed these teachers used fairly simple approaches to introduce students to music, but with little understanding of pedagogy or developmental programs to build foundational knowledge. In contrast, the approach taken to the visual arts showed that the teachers not only provided students with structured learning tasks but also allowed them to be creative. They described how they provided students with the opportunity to explore an array of visual arts media and activities in the classroom.

**Recommendations**

A number of recommendations for future directions in educational policy and practice stem from the study. These include:

- a significant increase in the amount of pre-service teacher training in the creative arts
- further in-service teacher support in the area of creative arts for generalist primary teachers
- appointment of more creative arts specialist teachers in primary schools
- a greater allocation of time to creative arts learning within the general primary curriculum
- further research that examines Creative Arts education practices in Australian schools.

Further discussion of these five recommendations is included below.

Providing more arts training in pre-service teacher courses would go some way to redressing a lack of prior arts background. The regularity of comments about a lack of depth and relevance in these courses by the participants of this study suggests there is an urgent need for reforms to arts education curricula at this level. The findings of the study also show that it is difficult to compensate for an individual’s lack of arts background given the limited amount of time available for arts pedagogy in undergraduate pre-service training programs. Within NSW universities, creative arts education components in undergraduate teaching degrees have been systematically reduced in recent years (Gibson & Anderson, 2008).

Further levels of in-service teacher support in the area of the creative arts for generalist primary teachers would provide professional teachers with the opportunity to improve their knowledge and skills in each of the arts disciplines, and develop a valuable range of teaching resources. The findings of this study show there is an urgent need for greater support of qualified teachers in the classroom. In most cases the participants described a situation in which they had little or no in-service training and support.

The participants of this study often described how they actively sought out expert help from others when they felt their skills and knowledge were insufficient to the task of teaching any one of the arts strands. Appointment of specialist creative arts teachers in most Australian primary schools should provide mentorship, leadership and expertise within the whole school program. The number of arts specialists employed in primary schools varies between Australian states but there is an opportunity to break the cycle of neglect through active teacher recruitment. This study illustrates that the cycle of neglect begins in the early years of schooling, and that laying the foundations for future development in the creative arts is essential at this stage. Russell-Bowie (2009, p. 16) comments that, with recent structural changes in some state school systems, there is greater flexibility for school
principals to advertise for teachers with specialist skills in the creative arts area. These teachers could act in an advisory role to assist and support other teachers who are less confident and skilled in the arts.

Reforms to the national curriculum in Australia could include a greater allocation of time to creative arts learning within the general primary curriculum. The teachers in the study consistently raised the pressures on time as a factor in maintaining the quality of their creative arts education programs. It appeared that the creative arts suffered the most of all curriculum areas in terms of regular and consistent time allocation. Currently the New South Wales Board of Studies (2009) recommends that teachers allocate between six and 10 per cent of their total teaching hours to the creative arts. The subject area, however, comprises four separate strands, and this can mean students may only spend 20 and 30 minutes per arts strand each week (Gibson & Anderson, 2008, p. 108). In contrast, English learning occupies more than a quarter and mathematics a fifth of the recommended allocation of total teaching hours (New South Wales Board of Studies, 2009).

Further research that examines creative arts education practices in the context of Australian schools would inform future strategic educational plans and policies aimed at improving the quality of education in primary schools. As some Australian arts education researchers have pointed out, research in this area is often small-scale and ad-hoc (Bamford, 2006; Gibson & Anderson, 2008). Unfortunately, there is a dearth of research in Australia that explores what might be considered as ‘best practice’ in creative arts teaching and learning (Gibson & Anderson, 2008). If this kind of research were to be conducted on a large scale and incorporate all the creative arts disciplines, it would create an opportunity to evaluate student learning outcomes and academic progress associated with quality education programs. It might also foreground positive teaching models that could act as a guide for both professional and trainee teachers in future years.

Conclusion

A number of valuable outcomes emerged from this study. Importantly, the study helped to establish a better understanding of the values and attitudes influencing approaches to creative arts education in the primary school milieu. The findings raise some of the core and contentious issues in regard to primary education in Australia, focusing on the central question of whether it is realistic to expect primary teachers to teach effectively in all areas of the primary curriculum. In this respect the study supports Alexander et al. (1992) in the proposition that the primary education system curriculum is a far too demanding expectation of a generalist teacher’s subject knowledge. Under such an arrangement it appears that creative arts suffer the most out of all the Key Learning Areas. Specifically, the breadth of knowledge and experience needed in order to teach all the creative arts subjects well was viewed by many of the participants in this study as beyond the skills of most generalist primary teachers. Furthermore, many of the participant teachers implied that because departmental directives in more recent years have demanded more time be spent on literacy and numeracy, this had direct consequences for the creative arts Key Learning Area. They also admitted it was difficult to have consistency and regularity in the arts curriculum, because of the time constraints and the lower educational priority given to the subject area in the curriculum. There are, however, promising signs that in future teachers will receive greater support at a systemic level. In late 2007 the Federal and state governments in Australia released a momentous joint National Statement on Education and the Arts that promises an unequivocal commitment to fostering arts education in schools. This arises because these government bodies understand the potential of the creative arts in fostering a culture of creativity and innovation in Australia’s school systems. In December 2008 the Federal Government passed a Bill to go ahead with a National Curriculum to be in place by 2012. The creative arts have been included in this new National Curriculum (Garrett, 2009).

This research study has shown that within the context of Australian education, the issues of teacher preparedness and value for the creative arts are highly relevant in regards to the quality of primary students’ artistic learning and development. It confirms the claims of a number of other Australian studies—that there is an undeniable gap that exists between the expectations of our curriculum frameworks and the preparation in arts areas that can be provided by initial teacher education courses, particularly at primary school level. Despite the fact that this study is particular to the Australian education context, the findings from this study are germane to the field as a whole. The information should assist individuals who are interested in promoting creative arts in learning and advocating for creative arts as core components in education programs or curricula.

References


Background

Childhood safety is an important concern, and learning to recognise and avoid potential hazards is broadly considered a necessary dimension of young children’s formal and informal learning. This article reports on research conducted in early childhood education and care (ECEC) services located in regional and rural districts of south central New South Wales (NSW). The rationale for the study was based on a preliminary review of the literature showing that existing safety education research is primarily focused on risk factors for specific types of accident/injury (fire, road, etc), often with emphasis on vulnerable groups (Dowswell & Towner, 2002; Hendrickson, 2005; Mulvaney & Kendrick, 2006); strategies for accident/injury prevention, including issues pertaining to teaching various aspects of safety (American Academy of Pediatrics, 2001; Cullen, 1995; Price, Murnan, Thompson, Dake & Teljohann, 2005; Tomlinson & Sainsbury, 2004); and program or curriculum analyses or evaluations (Bruce & McGrath, 2005; Cullen, 1995, 1998; Gatheridge et al., 2004; Utley et al., 2001). Less is known, however, about how pedagogic approaches, modes of delivery, social contexts and existing cultural practices impact on the effectiveness of safety education programs across different cohorts. While the area of road safety has, to date, received the most consistent attention by education researchers, areas such as fire safety, water safety, home safety, farm safety, and community safety are as yet under-represented in the Australian educational research literature.

This research was conducted in early-mid 2008 as part of a larger project concerned with the development of safety education pedagogies and curricula across key domains of enquiry including fire safety, community safety, water safety, farm safety and home safety. The research is a scoping study that aims to map the range of safety education programs and resources currently in use in early childhood settings regionally, and to identify early childhood educators’ perceptions of aspects of safety education that might be usefully developed for trial and implementation in the region. Here we report key findings pertaining to safety education themes that inform curriculum and pedagogies in participating ECEC centres.

Methodology

The mixed-method study utilised survey and informal interview methods, generating quantitative and qualitative data that maps current safety education practices, as well as areas of practitioners’ perceived needs with regard to safety education resources. A sample of 27 directors of early childhood and preschool centres participated in a telephone survey and interview, with regional representations as depicted in Table 1.
Key findings from the study can be summarised under four main themes, as illustrated in Table 2.

### Perceptions of safety in regulated contexts

Safety education is a broad term that potentially encompasses a considerable range of topics. The participants in our study perceived safety as referring primarily to physical safety, which was in turn understood within the terms of adult responsibilities for providing physically safe environments for children. Safety information supplied to parents via newsletters and brochures was seen as extending the provision of safe environments, for which educators and parents were seen as having shared responsibilities. While our study focused primarily on topic-based safety programs, a key finding of the research is that the intensively regulated nature of ECEC services frames, to a considerable extent, participants’ conceptualisation of and pedagogic approaches to safety education.

While the research did not seek to engage with issues pertaining to the regulatory environment, what stands out in our discussions with ECEC directors and educators was the emphasis on adult responsibilities for site-based practices that ensure children’s safety while in care. While we agree with the importance of ensuring the safety of children in ECEC settings, we concur with policy critiques that raise concerns about the potential negative effects of over-regulation and the audit cultures it gives rise to (Fenech, Sumsion & Goodfellow, 2008). As demonstrated in the principles listed above, and supported by the interview data from this study, the privileging of institutional safety over child safety results in prioritising compliance with safety regulations within the ECEC centre, or educating staff and children about safety issues.

Under current National Childcare Accreditation Council (NCAC) policy, for example, there is an expectation that ECEC centres will ‘develop a culture of safety in the service’ by staying ‘up to date and aware of safety issues’ which include providing ‘advice and support to families for providing safe home environments for children’ (NCAC Quality Improvement and Accreditation System Factsheet #2). Quality procedures in centres are monitored through a process of self-evaluation and external validation every two-and-a-half years, supplemented since July 2006 with additional random spot checks by appointed NCAC validators. Accreditation requires evidence that ongoing safety education is integrated into the curriculum, such as in the form of curriculum records, day book entries, photographs, records/displays of children’s work, and evaluative materials. While this expectation ensures the inclusion of safety education in some forms, participants in the study repeatedly emphasised the influence of the policy and regulatory environment on a climate in which safety in situ is typically prioritised over safety issues with broader applicability.

### Financial constraints

Budgetary considerations pose a major concern in the selection and use of resources. Many centres drew attention to the scarcity of resources for educating children compared with the amount of information directed towards parents. Also, commercially-available materials were generally considered problematic. In the first instance, participants regarded most commercially-produced resources as being too expensive for centres’ limited budgets. For example, one centre reported that the cost of a resource package they enquired about was $300. Consequently, they developed their own materials drawing on information available on the program website. A second expressed concern was that commercial resources were sometimes not relevant or appropriate for the centre’s needs. As one director observed:

*Mass produced things often don’t hit the mark. You pay a lot of money, but you end up making materials yourself from downloads from websites because you know exactly what you want.*

<table>
<thead>
<tr>
<th>Region</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Highlands</td>
<td>3</td>
</tr>
<tr>
<td>Central West</td>
<td>8</td>
</tr>
<tr>
<td>Riverina</td>
<td>6</td>
</tr>
<tr>
<td>Western Sydney</td>
<td>7</td>
</tr>
<tr>
<td>Blue Mountains</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 1. Overview of participants
This comment raises the important issue of staff time, given the widespread agreement across all the research sites concerning the considerable amounts of time ECEC centre staff spend in devising their own materials from the internet, from posters and pamphlets received, and from local sources including hospitals, council offices and community centres. The widespread reliance on web-based resources merits particular consideration here. Recent research evaluating the quality of online safety education resources (Isaac, Cusimano, Sherman & Chipman, 2004) contends there is considerable variation in the suitability of safety-related information available online. Using independent reviewers to rate the content and quality of resources for teachers, parents and children, Isaac et al. found that 74.5 per cent of the 55 internet safety education resources did not meet sufficient criteria to merit being recommended for use.

Approximately 50 per cent of the directors interviewed noted that their centre had over time developed folders of resources for safety education. However, an additional cost consideration affecting the quality and availability of safety education resources in ECEC settings pertains to questions of intellectual property and resource ownership. For example, one centre drew attention to the problem of intellectual property and high staff turnover, noting that staff who make up their own resources in their own time may take the resources with them when they leave the centre. This raises questions about continuity of resource availability.

Table 2: Themes and key findings

<table>
<thead>
<tr>
<th>Themes</th>
<th>Key findings</th>
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<tbody>
<tr>
<td>Regulatory environments</td>
<td>• Regulatory and accreditation requirements lead to privileging of institutional safety over children’s safety education&lt;br&gt;• Emphasis placed on evidence and audit procedures&lt;br&gt;• Potentially litigious environment leads to emphasis on provision of information and advice to parents</td>
</tr>
<tr>
<td>Financial constraints</td>
<td>• Because of budgetary constraints, most centres produce their own safety education resources using freely available online resources&lt;br&gt;• Staff time spent in locating and developing safety resources represents additional human resource costs&lt;br&gt;• High staff turnover represents additional costs when resources developed by individual staff members do not remain centre property</td>
</tr>
<tr>
<td>Curriculum &amp; pedagogy</td>
<td>• Uneven availability and quality of safety education resources suitable for use in ECEC settings&lt;br&gt;• Strong interest from directors in knowing more about what resources are available and how they are utilised elsewhere&lt;br&gt;• ECEC settings were best resourced in road, traffic and/or vehicle safety, most notably through the TRA/Macquarie University Kids and Traffic program; these resources, in-services and communications were generally held as an optimal standard for government-industry partnerships in safety education&lt;br&gt;• Centres were most poorly resourced in the areas of farm safety and water safety, which had not been considered a high priority in safety education&lt;br&gt;• Online resources are frequently utilised to make posters and devise hands-on activities; commonly-used sites include the Google search engine and <a href="http://www.Kidsafensw.org">www.Kidsafensw.org</a>&lt;br&gt;• There is a perceived need by directors for a greater range of effective, hands-on activities for children, particularly in the areas of home, fire, farm and water safety&lt;br&gt;• Preferences were expressed for taking a child-centred, integrated approach to teaching about safety, as opposed to regularly structured or formalised programs</td>
</tr>
<tr>
<td>School–family connections</td>
<td>• Centres reported having significantly more materials relating to safety information and advice for parents than practical resources for educating children about safety&lt;br&gt;• Some centres reported an active relationship with parents through parent committees and regular information sessions; however, most centres drew attention to the lack of parent interest and participation in centre activities in what was described as a one-way relationship of information dissemination&lt;br&gt;• Parents working in safety-related professions, such as police, fire or ambulance services, make valued contributions to safety education through formal visits and information sessions</td>
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</table>
not in supervised use, while five centres reported that procedures such as water tubs being emptied while safe water play in the playground, and adhering to safety centres referred to policies of educating children about no centre participating in the study reported a
under five years (Fragar et al., 2005; Owens, 2002),

Notable areas of safety education receiving insufficient
and holding children’s hands).

children) did not always understand the rules relating to
often responsible for dropping off and collecting the
parents (or grandparents, who are
children’s particular interests, issues and local
safety education was structured around scheduled visits (such as from the fire brigade, police, ambulance officers and health professionals), with associated activities or incorporated into excursions (such as road safety on the walk to the local museum). Apart from scheduled visits and excursions, however, the nature and the degree of safety education being conducted at different centres is highly variable.

Almost all centres reported that their most comprehensive, practical and useful resources were in the field of fire services, road traffic and/or vehicle safety. All but two centres routinely obtain resources through the Road Traffic Authority (RTA)/Macquarie University (www.kidsandtraffic.mq.edu.au) program, whose in-services provide resource packs (some free of charge and some for purchase) including puzzles, posters, Lotto games and story books/ tapes, as well as brochures for distribution to parents. These resources were highly praised by centres as meeting the desired standard for safety education. One centre in the outer west region of Sydney, with a high number of children from culturally- and linguistically-diverse backgrounds—predominantly Indian, Chinese and Arabic—highlighted the need for road safety materials in home languages as it was felt that parents (or grandparents, who are often responsible for dropping off and collecting the children) did not always understand the rules relating to safety in the centre and its carpark (e.g. closing the gate and holding children’s hands).

Notable areas of safety education receiving insufficient attention include farm and water safety. Despite drowning posing the single biggest risk to children under five years (Fragar et al., 2005; Owens, 2002), no centre participating in the study reported a comprehensive water safety program. The majority of centres referred to policies of educating children about safe water play in the playground, and adhering to safety procedures such as water tubs being emptied while not in supervised use, while five centres reported that they discuss safety concerning swimming pools with the children during the summer months. Farm safety is similarly under-represented in the curriculum, despite the fact that ‘there is one death every three days on an Australian farm and 20% of these are children aged 0-14 years’ (Kingwill & Dalton, 2005 p. 23). No regional or rural centres reported an active program of farm safety in their curriculum, although a need for such resources was commonly acknowledged by directors. Centres serving children from farming families reported that farm safety issues were mostly addressed on an impromptu basis. For example, one director from a regional centre had initiated a discussion on snake safety after one child sighted a brown snake on the family property.

The very low priority given to the inclusion of farm safety education in centres was commonly related to the perceived under-representation of farm children at the centre, thus failing to acknowledge that ‘one third of children fatally injured are visitors to the farm’ (Kingwill & Dalton, 2005 p. 25), and thus ‘the development of any child safety program must include visitors’ (Fragar et al., 2005). Further, the paucity of farm safety education in centres is exacerbated by the tendency to place important safety topics, including water safety and road safety, primarily in an urban context. Crucially, water safety on farms has been identified as a priority issue for action by Farmsafe Australia, with drowning (chiefly in dams) identified as the most common cause of farm deaths (Fragar & Franklin, 2000; Franklin et al., 2000), with children in the 0-14 age group at greatest risk (Owens, 2002). Similarly, the current focus of vehicle and road safety education on cars and urban thoroughfares fails to acknowledge the farm context, where the second greatest agent in farm-related fatalities for children is farm machinery, chiefly tractors and motorcycles (Fragar et al., 2003; Franklin et al., 2000). One centre’s director voiced a concern about the extent to which children would be able to relate the centre’s safety discussions to their own safety on the farm.

School–family connections

Connections between parents and ECEC centres have a number of implications for safety education. ECEC centres often play an important role in the dissemination of safety-related information and advice among parents and carers. Overall, centres participating in this study reported having considerably more information and resources for parents than practical resources for educating children about safety. Respondents were asked whether they or other staff received requests from parents for information or learning resources regarding particular areas of safety education. Participants largely responded in the negative, with one respondent replying ‘quite the opposite!’, reflecting the general consensus that safety education was a one-way
A number of participants voiced deficit views of parents’ interest in practices relating to their children’s safety. Approximately 25 per cent of directors expressed concern that the degree of attention to safety within the centre was not shared by parents and carers. Examples ranged from parents forgetting to close the gates, allowing children to sit in the front seat of cars, smoking in cars with passenger children, and not being strict about holding hands with an adult. While a detailed analysis of this dimension of school–family connections is not possible here, it is worth noting their significance to how safety information is communicated and acted upon. These views notwithstanding, there were examples of parents requesting the support of centre staff in reinforcing safety principles they were endeavouring to teach their children. For example, one outer metropolitan centre noted a request from a parent that the staff reinforce the need to wear a seatbelt and hold hands with a parent/carer in public places. Another regional centre reported a parental request for a safety session on matches after their child was found at home with a box of matches, while another regional centre reported a request regarding teaching children about the dangers of running onto roads.

Under QIAS regulations, centres are required to provide child safety information and advice to families that is up-to-date and recognised by health and safety authorities (QIAS Factsheet #2). Directors drew attention to the extensive amount of health and safety information provided to parents in the form of pamphlets put in children’s bags and/or parents’ pigeonholes; information, pamphlets and posters in the centre foyers; information and advice included in newsletters or provided in parent information evenings at the centre. Parent participation also occurs through reading the day book to see what activities and information their child has been presented with each day. Three centres also reported sending out a survey form every year seeking input from parents regarding suggestions for inclusion of particular safety advice, and inviting parents whose work may be interesting and relevant to visit the centre. As one centre director reported: ‘That’s how we got a police officer, a fire officer and someone from child protection.’

Conclusions

This study suggests a need for further research investigating factors affecting the delivery of high-quality safety education resources and programs in ECEC settings. Given the extent to which ECEC staff are obliged to research and source curricular materials, there is a need to assess staff development requirements for undertaking this important aspect of their professional practice. There is also a need for a broader and more widely implemented range of accessible, cost-effective, hands-on resources addressing those aspects of safety education currently under-represented in ECEC settings. In particular, given the significant risks to children of serious injury or death by drowning and farm accidents, water and farm safety would seem to merit urgent attention.

References


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New vision for early childhood mathematics education in the United States

Mathematics Education for Young Children is not new. Mathematics has been a key part of early childhood education around the world at various times during the past 200 years. For example, in the 1850s, Friedrich Fröbel in Germany introduced a system of guided instruction centered on various ‘gifts’, including blocks that have been widely used to help young children learn basic mathematics, especially geometry, ever since (Brosterman, 1997). In the early 1900s in Italy, Maria Montessori (1964), working in the slums of Rome, developed a structured series of mathematics activities to promote young children's mathematics learning. In the United States, however, as the early childhood education field has maintained its time-honoured tradition of emphasizing social, emotional and physical development, historically not much attention has been paid to teaching academics, especially mathematics, to young children (Balfanz, 1999). Although there had been attempts from time to time to make early childhood programs more academically rigorous, the focus was primarily on language and literacy development (National Research Council, 2009). In the turn of the 21st century, the early childhood education field in the United States has begun to take a big step forward in promoting early childhood mathematics education. In 2002, the National Association for the Education of Young Children (NAEYC), jointly with the National Council of Teachers of Mathematics (NCTM), issued a position statement that advocates ‘high quality, challenging, and accessible mathematics education for three- to six-year old children’ (p. 1), and provided research-based essential recommendations to guide classroom practices. Since then, many national, state and local organizations have embraced this new vision (Clements & Sarama, 2004; NAEYC, 2003; NAEYC & NCTM, 2002; NCTM, 2000, 2006). As a result, early childhood teachers across the United States are now faced with a mandate to teach mathematics to young children.

The authors, as early childhood teacher educators and researchers, have attempted to assist prospective and practising teachers to realise the new vision of early childhood mathematics education. Our experiences tell us that many teachers, despite their good faith efforts to provide best practices to young children, are still confused and anxious about the teaching and learning of mathematics, and hesitant to change (Lee & Ginsburg, 2007a, 2007b). This hesitancy is perfectly understandable.
given that, until recently, instruction in mathematics was not expected in early childhood classrooms in the US (Balfanz, 1999). Rather, teachers were cautioned that purposefully teaching mathematics was unnecessary, inappropriate, or even harmful to young children (e.g. Elkind, 1981, 1998). In the absence of sound preparation for early mathematics education, many early childhood practitioners continue to hold opinions or beliefs that are not consistent with nor based on up-to-date research evidence.

In this article, we discuss nine common misconceptions about learning and teaching mathematics for young children that are widespread among prospective and practising early childhood teachers in the United States. These misconceptions were identified based on our in-depth interviews with early childhood teachers about the key issues in early mathematics education (Lee & Ginsburg, 2007a, 2007b) as well as our experiences in teaching early childhood students, conducting workshops with early childhood teachers (Ginsburg, Jang, Preston, VanEsselstyn & Appel, 2004; Ginsburg et al., 2006), working with them in early childhood classrooms, and engaging in informal conversations with them. Our description of the myths is also based on available research literature (Ginsburg, Lee & Boyd, 2008). The nine misconceptions are:

1. Young children are not ready for mathematics education.
2. Mathematics is for some bright kids with mathematics genes.
3. Simple numbers and shapes are enough.
4. Language and literacy are more important than mathematics.
5. Teachers should provide an enriched physical environment, step back, and let the children play.
6. Mathematics should not be taught as stand-alone subject matter.
7. Assessment in mathematics is irrelevant when it comes to young children.
8. Children learn mathematics only by interacting with concrete objects.
9. Computers are inappropriate for the teaching and learning of mathematics.

These misconceptions often interfere with understanding and interpreting the new recommendations on sound early childhood mathematics education, and become subtle (and sometimes overt) obstacles to implementing the new practices in the classrooms (Richardson, 1996).

We hope this article provides readers with an opportunity to examine and reflect on their own beliefs (and concerns) surrounding mathematics. We believe that, through this process, readers will be able to become more effective and proactive early childhood mathematics teachers.

1. Young children are not ready for mathematics education

When we begin to talk about teaching mathematics to young children, there are always teachers who express their concerns, sometimes fiercely, that ‘Young children are just not ready to learn math yet!’ These teachers feel there is no need to hurry children or overwhelm them with mathematics; it would do more harm than good to children who are too young and thus not ready to understand.

Why do these teachers underestimate children’s mathematical abilities in the early years? We suspect it is their interpretation of Piaget’s theory, which they believe focuses on what children cannot do, suggesting that children so young are cognitively immature and therefore not capable of understanding abstract concepts or the logical thinking required in mathematics. So there is no point in attempting to teach or push development in this area when children are not ready to construct true understanding.

Yet, over the past 25 years or so, many researchers have focused on what young children can do, and have accumulated a wealth of evidence that young children are more competent in a wider range of mathematical abilities than Piaget’s theory might lead one to believe. While young children display certain kinds of mathematical strengths of children in the early years. We suspect it is their interpretation of Piaget’s theory, which they believe focuses on what children cannot do, suggesting that children so young are cognitively immature and therefore not capable of understanding abstract concepts or the logical thinking required in mathematics. So there is no point in attempting to teach or push development in this area when children are not ready to construct true understanding.

Children’s learning begins long before they enter school ... They have had to deal with operations of division, addition, subtraction, and the determination of size. Consequently, children have their own preschool arithmetic, which only myopic psychologists could ignore (p. 84).

Young children can actively construct from their everyday experiences a variety of fundamentally important informal mathematical concepts and strategies, which are surprisingly broad, complex, and sometimes sophisticated. They appear to be predisposed, perhaps innately, to attend to mathematical situations and problems. (For more extensive reviews, refer to Baroody, 2000; Clements & Sarama, 2007a.)

Teachers should not overlook these impressive informal mathematical strengths of children in the early years. Given their interests and capabilities, it does not make sense to avoid involving young children in rich and meaningful mathematical experiences. Adults who fear introducing mathematics to young children may be reacting more to their own unfortunate encounters (and their low feelings of competence) with mathematics than to any appreciation of young children’s interests and capabilities. Young children are ready and eager to learn stimulating and challenging mathematics, and, as we shall see below, their mathematical learning is not limited to the concrete; it is often abstract.
2. Mathematics is for some bright kids with mathematics genes

Many teachers believe, either explicitly or implicitly, that some children may be born with mathematical aptitudes or mathematics genes, and others are not. Some teachers even believe that children from certain groups (such as gender, ethnicity and race) are blessed with superior mathematical ability. Some teachers feel there is not much that can be done to change or improve the innate ability of those unfortunate children who are inherently not good at mathematics.

When looking at mathematics achievement, disparities among children from different national, gender and income groups emerge as early as preschool and kindergarten. American children are out–performed by their counterparts from East Asia in mathematics achievement (Miller, Kelly & Zhou, 2004). Within the US, children who live in poverty, a group comprised of a disproportionate number of African–Americans and Latinos (National Center for Children in Poverty, 2006), show significantly lower average levels of achievement (Denton & West, 2002). Boys, especially in the upper end of the percentile range, demonstrate higher mathematics proficiency than girls do (McGraw, Lubienski & Strutchens, 2006; Robinson, Abbott, Berninger, Busse & Mukhopadhyay, 1997). Most of all, females and minorities of African–American and Latino backgrounds are under-represented in mathematically related areas (Jacobs, 2005).

Yet the existence of these differences, especially the differences young children bring to school, cannot be attributed to a certain group having a genetically-endowed advantage in mathematics. Rather, it is the result of a complex set of factors such as family, linguistic and cultural experiences.

For example, while American parents tend to believe that innate ability influences their children’s mathematical achievement, Asian parents tend to emphasise effort (Uttal, 1997), and tend to encourage their young children to spend more time on mathematics related activities (Song & Ginsburg, 1987). As well, mothers in the US are more likely to purchase mathematics and science items for their sons than for their daughters (Jacobs & Bleeker, 2004). Regular number-naming systems in Asian languages such as Korean (the Korean word for ‘eleven’ is ship ill, or ‘ten one’), compared to irregular English names, make it easier for Korean children to learn certain number concepts (Miura, 2001). Also, although poor children exhibit difficulty with verbal addition and subtraction problems, they perform as well as their more privileged peers on non-verbal forms of these tasks. It seems that weak language proficiency interferes with the comprehension of problems and the demands of a task (Jordan, Huttenlocher & Levine, 1994).

The mathematical interests and knowledge young children bring to school may indeed differ, but the causes are more likely to be their varying experiences, rather than their biological endowment. While teachers should be aware of and sensitive to these differences, they should never lose sight of the fact that all children, regardless of their backgrounds and prior experiences, have the potential to learn mathematics. In fact, the gaps in early mathematics knowledge can be narrowed or even closed by good mathematics curricula and teaching (Clements & Sarama, 2007b; Griffin, 2007a; Klein & Starkey, 2002; Sophian, 2004). Teachers should strive to hold high expectations and support for all children, without any ungrounded biases. When a teacher expects a child to succeed (or fail), the child tends to live up to that expectation.

3. Simple numbers and shapes are enough

Many teachers typically have a very narrow concept of the mathematical content that young children should learn. Teachers often limit their focus to one-to-one correspondence, simple counting and numbers, and perhaps naming and sorting simple shapes, even when children are capable of learning far more complex content. It is unfortunate that mathematics is often equated to arithmetic or numeracy (perhaps because it rhymes with and seems at the same level as literacy).

Early childhood mathematics education is both deep and broad. It should cover the big ideas of mathematics in many areas—including number and operations, geometry (shape and space), measurement, algebra (particularly pattern), and data analysis—within learning contexts that promote problem-solving, analysis and communication (NCTM, 2000, 2006). In turn, each of these big ideas comprises several interesting sub-topics. Consider the domain of geometry, for example. The topic of shape includes not only simple plane figures (e.g. circle, triangle) but also hexagons and octagons (if young children can say and understand ‘brontosaurus’, they can do the same for ‘octagon’), solids (e.g. cubes, cylinders), and symmetries in two and three dimensions. Spatial relations include ideas such as position (e.g. in front of, behind), navigation (e.g. first go three steps to the left), and mapping (e.g. creating a schematic representing the location of objects in the classroom). Children can enjoy and learn the full spectrum of all of these topics in geometry.

In order for mathematics education to include more than a superficial focus on simple numbers and shapes, teachers need to expand their concept of mathematical content for young children, and develop a deep appreciation and understanding of the fundamental mathematical ideas that young children should learn.
4. **Language and literacy are more important than mathematics**

Many teachers claim that language and literacy are by far the most important topics to be taught in early childhood, and that a focus on these subjects leaves little time for mathematics. While teachers speak passionately and confidently about language and literacy, the silence can be deafening regarding the teaching of mathematics.

Mathematics is at least as important as language and literacy, if not more. Mathematics ability upon entry to kindergarten is a strong predictor of later academic success, and is in fact an even better predictor of later success than early reading ability. While reading predicts only later reading ability, mathematics performance predicts not only later mathematics but also later reading ability (Duncan et al., 2007). Mathematics is indeed a core component of education from very early ages to the higher grades.

Mathematics education is, in part, education in language and literacy. Children learn to speak, read and write the language of mathematics in order to communicate mathematical ideas. From the age of about two years, children learn the language and grammar of counting. They memorise the first 10 or so counting words (which are essentially nonsense syllables with no underlying structure or meaning) and then learn a set of rules to generate the higher numbers. For example, once you figure out that 40 comes after 30, just as four comes after three, it is easy to append to the 40 the numbers one through nine, and then go on to the next logical ten number, 50, which comes after 40, just as five comes after four.

Young children also learn other kinds of mathematical language, like the names of shapes (‘square’) and words for quantity (‘bigger’, ‘less’). Indeed, some of these words (such as ‘more’) are among the first words spoken by many babies (Bloom, 1970). As children grow, they expand their vocabulary and mathematical concepts embedded in it. That is, they learn that terms and expressions such as ‘altogether’, ‘put together’, and ‘in all’ are often used to indicate addition; that ‘how many are left?’, ‘take away’, and ‘the difference between’ are often used to indicate subtraction; and that ‘equal shares’ and ‘share equally’ are often used to indicate division (Moseley, 2005). Mathematical words are so pervasive in everyday life and so deep in the core of human cognition that they are not usually thought of as belonging to mathematics.

The most important kind of language children can learn in a stimulating mathematics program is the language of thinking, justification and proof. Children learn to talk about their own thinking (‘I added by counting them all up on my fingers’). They learn to justify their answers (‘I knew it was a triangle because I saw that it had three sides’). They may even learn to propose proofs (‘This can’t be a circle. It only has straight lines’). This kind of communication is a key part of mathematics, certainly more important than remembering that five and four is nine.

In addition, children struggle with a very narrow form of mathematical language, namely formal symbolism. Children begin to use the mathematical symbols, such as addition (+), subtraction (–), and equals (=). The special written symbolism of mathematics is the hardest form of language for children to learn. For example, when asked to represent a quantity such as five blocks, young children exhibit idiosyncratic (e.g. scribbling) and pictographic (e.g. drawing blocks) responses, and only much later can they employ iconic (e.g. tallies) and symbolic (e.g. numerals such as ‘5’ responses (Hughes, 1986).

The importance of mathematical language is underscored by the fact that the amount of teachers’ mathematics-related talk is significantly related to the growth of preschoolers’ mathematical knowledge over the school year (Klibanoff, Levine, Huttenlocher, Vasilyeva & Hedges, 2006). Also, promoting children’s mathematics through books and literature is an effective teaching practice (Hong, 1999). Language and literacy are clearly deeply embedded in mathematics learning and teaching.

5. **Teachers should provide an enriched physical environment, step back, and let the children play**

Another common misconception is that the teacher’s role is to set up a physical environment with a rich variety of mathematical objects and materials, and that mathematical learning occurs incidentally, through exploration during free play, with little teacher participation.

Teachers need to play an active role in teaching early mathematics to young children. A rich physical environment, while an important indicator of quality, is not enough by itself. The crucial factor is what the environment makes possible, but what children actually do in it. The environment may provide ‘the food for mathematical thought’, but the existence of mathematical food for thought in a classroom does not guarantee that children will ingest it, let alone digest it.

Children do indeed learn some mathematics on their own from free play. However, it does not afford the extensive and explicit examination of mathematical ideas that can be provided only with adult guidance. As we have discussed, early mathematics is broad in scope and there is no guarantee that much of it will emerge in free play. In addition, free play does not usually help
children to mathematise—to interpret their experiences in explicitly mathematical forms and understand the relations between the two. For example, children need to understand that combining one bear with two others can be meaningfully interpreted in terms of the mathematical principles of addition and the symbol $1 + 2$.

Free play can provide a useful foundation for learning, but a foundation is only an opportunity for building a structure. Adult guidance is necessary to build a structure on the foundation of children’s informal mathematics (Hildebrandt & Zan, 2002). Teachers should actively assist children to advance beyond their informal, intuitive mathematics to the formal concepts, procedures and symbolism of mathematics.

6. Mathematics should not be taught as stand-alone subject matter

Many teachers said they did not and should not teach mathematics as a single subject. They strongly believed that mathematics should be discussed only when children show interest or when it is integrated or disguised within other activities (so that children do not know they are learning mathematics).

All of this is not surprising, since the field’s endorsement of an integrated curriculum approach sometimes also seemed to mean a rejection of a subject-matter curriculum. This is reflected in statements such as ‘because a subject-matter approach to the curriculum is expert-based, much of the content is difficult for children to understand’ (Jalongo & Isenberg, 2000, p. 205); and an example of inappropriate practice is ‘times are set aside to teach each subject without integration’ (Bredekamp & Copple, 1997, p. 130). Yet, as Wheatley (2003) writes, ‘inappropriate curriculum is not necessarily a result of an emphasis on subject matter’ (p. 98). In fact, particularly in mathematics, it is recommended that ‘teachers must set aside time specifically for the study of mathematics and be purposeful in planning experiences that help children develop specific mathematical understandings’ (Richardson & Salkeld, 1995, p. 42). Mathematics can be an interesting and exciting subject of study in its own right. Children are fascinated with numbers and shapes for their own sakes. Mathematics does not always need to be integrated within other activities, or sugarcoated to appeal to young children.

The integrated approach to teaching mathematics has its own merits. It allows children to engage in, explore, and elaborate on mathematics as it arises in the course of their in-depth investigation of a central theme or topic. Thus, it situates the mathematics learning in a highly motivating investigation of real-life problems, and also takes advantage of the natural relationships between subjects such as literacy (Whitin & Piwko, 2008) and music (Geist & Geist, 2008). However, ‘the curriculum should not become, in the name of integration, a grab bag of any mathematics-related experiences that seem to relate to a theme or project’ (NAEYC & NCTM, 2002, p. 8). In addition, an integrated curriculum too often results in an overemphasis on content areas that teachers feel most comfortable with, and a neglect of mathematics, often one of teachers’ least favourite subjects (Coley Padron, 1998).

In addition to integrating mathematics into classroom routines and learning experiences across subject matters, ‘an effective early math program also provides carefully planned experiences that focus children’s attention on a particular mathematical idea or set of related ideas’, (NAEYC & NCTM, 2002, pp. 11-12). The organised mathematics curriculum is an essential part of high-quality early childhood mathematics education. It can serve as a blueprint and guide focus on mathematics for thematic units in an integrated curriculum. Fortunately, there are research-based mathematics curricula available. Some examples in the United States are:

- **Big math for little kids** (Balfanz, Ginsburg, & Greenes, 2003; Ginsburg, Balfanz, & Greenes, 2003)
- **Building blocks** (Clements, 2007; Clements & Sarama, 2007b)
- **Measurement-based** (Sophian, 2004)
- **Number worlds** (Griffin, 2007a, 2007b)
- **Pre-K mathematics curriculum** (Klein & Starkey, 2002)
- **Storytelling sagas** (Casey, 2004; Casey, Erkut, Ceder & Young, 2008)
- **Numbers plus in the High/Scope curriculum** (Hohmann & Weikart, 2002)

7. Assessment in mathematics is irrelevant when it comes to young children

In the discussion of mathematics, very few teachers spontaneously mentioned assessment. Some reported that they used observation to find out whether children are interested in mathematics or not, but not so much to gather information about what children know and are able to do in mathematics. When we brought up the topic, the responses often included, ‘I don’t test or quiz my kids, especially in math!’ These teachers appeared to have a narrow image of mathematics assessment as a paper-and-pencil test. This may not come as a surprise considering that, just as mathematics has been neglected for many years in early childhood education, so have the methods needed to assess and evaluate it. It is essential for teachers to ‘support children’s learning by thoughtfully and continually assessing
all children’s mathematical knowledge, skills, and strategies’ (NAEYC & NCTM, 2002, p. 4). While many educators are concerned (and complain) about teaching for testing, assessment should drive instruction and curriculum. As mentioned previously, young children come to school with intuitive ways of thinking and reasoning regarding mathematics, although their ways may not always be the same as those of adults. As children enter school, their mathematical understanding and abilities continue to develop quickly and broadly, in and out of school, with much individual variation (Clements & Sarama, 2007a). Thus, ‘well-conceived, well-implemented, continuous assessment is an indispensable tool in facilitating all children’s engagement and success in mathematics’ (NAEYC & NCTM, 2002, p. 10).

In early childhood classrooms, observation is used most commonly for understanding the children, as it is non-threatening and can be done unobtrusively. In the case of mathematics, teachers often use checklists to record their observations about whether a child has demonstrated certain mathematics knowledge. Items in number and operation, for example, include ‘counts out loud in the correct order to 5, 10, 15 or 20’, and ‘counts or creates groups of objects and says how many altogether’. A checklist like this is very broad and uncomfortably vague. Knowledge of ‘how many altogether’, for example, is not at all easy to assess, as cognitive research makes abundantly clear (Ginsburg, 1997). Obviously, observation is not enough.

For instance, a child says that ‘three apples and two apples altogether, are six apples’. This incorrect response is clearly important and needs to be corrected. But it is even more important to understand the thought process underlying the response in order to provide a sensitive guide to instruction. The child may have got it through faulty memory (‘I just knew it’), faulty calculation (the child miscounts the objects in front of him) or faulty reasoning (‘I know that three and two is more than four, and six is two more than four’). Depending on the reason, the teaching solution may differ. To reach below the surface to learn about children’s conceptual understanding and the strategies behind their answers, whether right or wrong, teachers need to engage children in a dialogue, which we term ‘flexible interviewing’, asking the child to elaborate on his or her ways of interpreting and approaching a problem (Ginsburg, 1997).

No one method of assessment is perfect, always accurate, or completely informative. Because of the natural fluctuation and rapid development of children, a single assessment—whether done by observation or flexible interview—may not provide accurate information. It is possible, and sometimes desirable, to blend the methods. The teacher can observe in the natural setting and at the same time give the children simple tasks and interview them. It is necessary to assess young children frequently and to base educational decisions on multiple sources of information.

8. Children learn mathematics only by interacting with concrete objects

Many teachers assume that young children learn mathematics by touching and moving concrete objects. In much of the talk about improving mathematics education, concrete objects, physical materials, or manipulatives have been seen as essential for mathematics learning. For example, Murray (2001) writes:

Concrete. Math is tangible. Children learn better when they’re using their senses; therefore, they should complete math tasks using three-dimensional objects to represent the numbers under examination (p. 28).

It is a widespread belief that ‘concrete is inherently good; abstract is inherently not appropriate—at least at the beginning, at least for young learners’ (Ball, 1992, p. 16).

But mathematics is not tangible; it is a set of ideas. Mathematics in the early years does not need to be limited to the concrete or tangible. While Piaget is widely cited regarding the concreteness of children’s thinking, what he meant by concrete was different from what people usually mean by it. To Murray (2001), like many others, it means something tangible that children can have their hands on. Piaget, on the other hand (pun intended), showed that children were very abstract, and in fact from the age of two onward sometimes over-generalise, employing concepts that are overly inclusive, as when they refer to all men as ‘daddy’ (Ginsburg & Opper, 1988; Piaget & Inhelder, 1969). Their thinking might be egocentric but is not concrete in the sense that some writers believe.

These days there is a variety of mathematics manipulatives on the market that are designed specifically to help children learn mathematics: pattern blocks, counters, number sticks, base-10 blocks and Cuisenaire rods, to name a few.

No matter how well-designed, these manipulatives, in and of themselves, do not guarantee meaningful learning (Baroody, 1989). The use of materials is effective only when they are used to encourage children to think and make connections between the objects and the abstract mathematical idea. It is not so much important that they simply have their hands on, but rather that they have their minds on.

Mathematics ideas are not in the manipulatives; they are in the child’s mind. In this sense, the particular
medium may be less important than the fact that it could be used or manipulated to reflect and to construct new meanings and ideas (Baroody, 1989). The medium could be concrete objects, pictures of objects or mental images, as long as they can be used or manipulated to think and reflect, and to construct meanings and ideas (Baroody, 1989). Thus, as long as children can think about what ‘four’ means in their minds, ‘foursness is no more in four blocks than it is in a picture of four blocks’ (Clements, 1999a, p. 48) or computer displays of pictured objects. Computers could indeed be an effective learning tool, providing meaningful or concrete experiences to young children.

9. Computers are inappropriate in teaching and learning of mathematics

Many teachers think computers are inappropriate learning tools for young children, especially for mathematics, as they involve no thinking and elicit mindless, random responses from children. Some even misunderstood the concrete nature of computer experiences as hands-on keyboard and mouse. In general, many teachers feel that computers isolate children and prevent social interactions and communications, and so fear that children will become antisocial.

Contrary to these beliefs, computers can be useful in teaching children mathematics, if used appropriately. In fact, computers have some unique advantages (Clements & Sarama, 2008). For example, computers increase children’s flexibility with manipulatives as they can move, cut, or even resize onscreen objects; often it is more difficult, or even impossible, to do these things with real objects. Onscreen objects do not pose the awkwardness of handling that real ones might. Further, children can save and retrieve their work on computers, and so can work on projects over a long period. Computers can also provide immediate feedback. Capitalising on these advantages, teachers can bring mathematics ideas to children’s explicit awareness.

Not all software designated for young children’s mathematics education is age-appropriate or high-quality. The same can be said of almost any educational material: manipulative, textbook, or television show. Teachers need to select wisely. They should not let colourful graphics, cute animation and music mislead them. Teachers need to critically review content and underlying objectives to evaluate what kinds of learning opportunities and experiences the software will provide for their young students. Drill and practice software may lead to gains in certain rote skills but not be as effective in improving children’s conceptual understanding of mathematical ideas. It can easily end up being an electronic version of worksheets or flashcards. Discovery-based software may be valuable when children are encouraged to think and to apply mathematical ideas to solve problems.

In addition, effective use of computers can elicit, encourage and extend children’s communication and collaboration in learning. As Clements (1999b) reports, computers serve as catalysts for social interaction. Children working at the computer solve problems together, talk about what they are doing, and help and teach friends. We do not mean to say computers should replace concrete objects or other real-life experiences or learning activities. Rather, computers can extend the range of tools children use in their learning experiences. It makes as little sense to say that computers are bad for children as it does to say that books or manipulatives are good. It all depends on what kind of computer software and books and manipulatives are used, and how they are used.

Conclusion

The concerns of many prospective and practising early childhood teachers in the US, and their reluctance to teach mathematics to young children are based on common misconceptions or misunderstandings as discussed above. As the field has embraced the new vision of early childhood mathematics education, teachers need to change their ideas about what kinds of mathematics should be taught, and how they should be taught in their classrooms. Further, as a result of fresh knowledge, teachers need to change their classroom practices so they will support young children’s mathematical learning. There is a gap, a rather wide one, between new recommendations and the current state of classroom practices (Ginsburg et al., 2008).

The most pressing need in early mathematics education is to improve early childhood teacher preparation and ongoing professional development (Ginsburg et al., 2008). Currently, very few teacher preparation programs in the United States offer courses devoted specifically to mathematics education in early childhood. Most of them require their students to take, at most, only one course in mathematics, compared to several courses in language and literacy. For practising teachers, in-service professional development needs to move beyond one-time workshops or occasional readings of articles on the topic. As in other areas, teachers need to keep up diligently with advances in research and best practices, by reading professional journals or books, taking courses, participating in conferences, and the like. In order for teachers to implement effective early mathematics education, they need to be supported by better teacher preparation and ongoing professional development opportunities. The teacher is the key to effective, high-quality mathematics education in early childhood classrooms.
References


Geist, K., & Geist, E. A. (2008). Do re mi 1-2-3 that’s how easy math can be: Using music to support emergent mathematics. Young Children, 63(2), 20-25.


WHILE MUCH HAS BEEN written about Indigenous students’ literacy learning (e.g. Gray, 2007; Luke, 2003; Nakata, 2003), there is a paucity of literature on numeracy, especially that couched within a positive framework, indicating how we can assist young Australian Indigenous students’ numeracy engagement. In addition, there have been few published studies on the impact of early childhood education on Indigenous students (Prochner, 2004). Our longitudinal research project draws from and adapts relevant mainstream research about young students’ numeracy learning and endeavours to situate these findings in local settings where Indigenous cultural practices are recognised and respected. Throughout the past five years there has been a surge in attention concerning early childhood settings and mathematics learning. The literature provides several reasons for this. In brief, these are:

(a) a recognition that students enter school with a great deal of intuitive knowledge about mathematics and that this knowledge can serve as a base for developing formal mathematics in a school setting (Carpenter, 1996)

(b) there is a relationship between early mathematical knowledge and later achievement (Aubrey, Dahl & Godfrey, 2006)

(c) the main determinant of later achievement is quality early mathematical experiences (Young-Loveridge, Peters & Carr, 1997)

(d) students do not need to be made ‘ready to learn’ (Balfanz, Ginsburg & Greenes, 2003)

(e) young students are capable of engaging in mathematically-challenging concepts (Greenes, Ginsburg & Balfanz, 2004).

In addition, the type of mathematical knowledge they enter school with reflects the types of experiences that have occurred in their home environments. Western mathematics is the dominant form of mathematics most people learn in contemporary schools. Until 15 years ago it was assumed that this mathematics was culture-free knowledge (Bishop, 1990). As Bishop says, many argued that two plus two equals four is a universal truth and an idea that is culture-free. Seminal literature has challenged this notion, suggesting such mathematics is imbued with values such as rationalism, objectivism, and power and control (Bishop, 1990; Weiglass, 2002). Western mathematics is not the only mathematics that exists in society. For example, with regard to number, engagement begins by counting (commonly finger counting) and recording numbers using a universal symbol system. Some cultures relate counting to other body parts (e.g. Papua New Guinea) and record

MANY MYTHS OCCUR REGARDING the inherent abilities young Indigenous students possess when they enter a Western school environment. One such myth in early numeracy is Indigenous students’ innate ability to instantly recognise the number of objects in a small group without counting them; that is, their ability to subitise. Willis (2000) reports that many young Indigenous students possess this ability as they enter school. The results of our recent research with Prep- and Year 1-aged Indigenous students indicate that this is not necessarily the case. In this paper we share the results of our study and discuss the importance of this visual strategy for the development of early numeracy understanding by young Indigenous students. We also present culturally–appropriate activities that support this development and discuss the importance of not over-generalising findings when considering young Indigenous students’ engagement in early numeracy learning.

Closing the gap: Myths and truths behind subitisation

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MANY MYTHS OCCUR REGARDING the inherent abilities young Indigenous students possess when they enter a Western school environment. One such myth in early numeracy is Indigenous students’ innate ability to instantly recognise the number of objects in a small group without counting them; that is, their ability to subitise. Willis (2000) reports that many young Indigenous students possess this ability as they enter school. The results of our recent research with Prep- and Year 1-aged Indigenous students indicate that this is not necessarily the case. In this paper we share the results of our study and discuss the importance of this visual strategy for the development of early numeracy understanding by young Indigenous students. We also present culturally–appropriate activities that support this development and discuss the importance of not over-generalising findings when considering young Indigenous students’ engagement in early numeracy learning.
numbers in different ways, such as knots on ropes (e.g. Mozambique). While Western mathematics is not the only mathematical system, it is important for Indigenous students to participate in this system for two reasons. First, it is an empowering process acting as a tool to identify power differences among socioeconomic classes (Gustein, 2003), and second, being innumerate can be profoundly disabling in every sphere of life, including home, work and professional pursuits (Orrill, 2001). It is also important to recognise that Indigenous students enter the classrooms with intuitive knowledge about mathematics, and that this knowledge may be different from the knowledge with which non-Indigenous students begin their schooling.

**Theoretical framework**

A predominant focus of mathematics in early years’ contexts is the development of an understanding of number. The literature identifies two theories of number development (e.g. Gelman & Gallistel, 1978). The first of these stresses the role of counting. This theory is grounded on the idea of preconsciousness of counting principles. In this theory, young students’ focus on an item in the pre-verbal stage is upon gauging its magnitude; that is, how many objects there are. Thus, the acquisition of the first few number words is achieved by mapping the word onto the magnitudes they have already registered before they can talk. Things are quantified by counting. The second theory relies upon the recognition of difference using perceptual or spatiotemporal cues—cues that are not numerical (Beniot, Lehalle & Jouen, 2004). Fundamental to this theory is the notion of subitising, the ability to quantify something without really counting (either internally or externally). Things are quantified by looking.

Subitising is the ability to rapidly and accurately apprehend the numerosity of a small collection of objects without counting the objects. The ability to subitise is not based on pre-verbal counting (or even fast counting), and is commonly limited to no more than four objects (Balakrishnan & Ashby, 1992). For numbers beyond four, Balakrishnan & Ashby (1992) suggest that students tend to break the number into components less than four and add the numbers (e.g. 10 is 4 + 4 + 2, or 10 is 3 + 4 + 3). Historically there has been much debate about the relationship between the ability to subitise and count. Some researchers have suggested the ability to count does not necessarily imply an understanding of number, whereas the ability to subitise does (e.g. Douglass, 1925). Some have claimed that subitising is a more basic skill than counting and a necessary precursor to counting (e.g. Klahr & Wallace, 1976). Others believed subitising develops later as a shortcut to counting (e.g. Beckwith & Restle, 1966). More recently, Benoit, Lehalle & Jouen (2004) claim that subitising may be regarded as a necessary developmental pathway for understanding the significance of the first few number words. They also found that young students were more competent at naming familiar configurations of objects, such as dice patterns, than they were at naming unfamiliar configurations. In spite of these differing perspectives, research is consistent in regard to the fact that subitising may provide the basis for understanding counting principles, such as cardinality, as well as arithmetic ideas. Clements and Sarama (2007) believe it would be an error to restrict quantitative development to number competence. Yet many mathematics educators see counting as the first step towards more advanced mathematical thinking (Young-Loveridge, 2002).

With regard to young Indigenous students and number, the literature identifies the ability to subitise as intuitive knowledge about mathematics that young Indigenous students bring to the classroom. Willis (2000), in a project commissioned by the Education Department of Western Australia (First Steps in Mathematics), observed that some Indigenous students were able to distinguish the number of items in a small collection without being able to count. She found that some students who could not ‘count to six’, when given eight rocks could say there were eight rocks. Although this research was inconclusive because of the small sample size, much has been written about Indigenous students’ superior power to be able to subitise, compared with non-Indigenous students, in both research and policy documents (e.g. Frigo & Simpson, 2008; National Numeracy Review, 2008). There is a paucity of research supporting this claim.

Other researchers suggest that for Indigenous students this ability is not necessarily context-free. For example, Treacy and Frid (2008), in their study in Western Australia involving 18 young Indigenous students, showed that context does seem to influence students to use the process of subitisation. In non-context situations all students could count to 20. However when given a task of collecting maku (witchetty grubs) to feed four, six, 10 and 16 Indigenous people, presented to the students as picture cards, the students did not count the people on the cards but simply collected the correct number of maku and gave one to each person. In their seminal research Rudder (1992) and Harris (1987) reported similar findings when Indigenous people collected turtle eggs to share amongst a group of community members. They also found that the focus was on gathering enough for all rather than gathering the exact amount. For example, when collecting grubs for 16 people many collected 17 or 18 to ensure there was at least one for each person.

While the results of the Evaluation of Mathematics in Indigenous Context Project (Aboriginal Education Board of Studies NSW, 2007)—a large project involving seven
schools, 18 teachers and 450 students from Kindergarten to Year 2—showed that Indigenous students’ ability to subitise improved with intervention after one year of school, it was not possible to draw conclusions from the results because of inconsistency of testing across sites and the lack of data on the intervention that occurred at each site. Results indicating that Indigenous students did not improve to the same extent as non-Indigenous students after intervention were also inconclusive.

The focus of this paper is to explore Indigenous students’ ability to subitise as they begin school and to identify culturally-appropriate strategies that support this ability. The particular research questions were:

1. Is there a difference between Indigenous and non-Indigenous students’ ability to subitise as both groups begin school?
2. Does this ability vary when using representations of different numbers in different and familiar contexts?
3. Does intervention assist with students’ ability to subitise?

**Method**

The project is in its second year. In the first year the cohort comprised seven preparatory classes from five schools in North Queensland, Australia. (In Queensland, Prep is a non-compulsory year of schooling prior to Year 1. Prep classes are conducted five days a week and children stay all day. Children must be aged five by 30 June in the year they start Prep.) One of the participating schools in the first year of the project was an Indigenous school, while the other four comprised both Indigenous and non-Indigenous students. In the second year one new Prep class from metropolitan Brisbane and three additional Year 1 classes from North Queensland joined the project. Three were from Indigenous schools, with two located in rural North Queensland and one in metropolitan Brisbane. The sample consisted of eight teachers and 112 students from the Prep year (average age 5 years), and three teachers and 55 students from Year 1 (average age 6 years). Table 1 summarises the number of students participating at each year level and whether these students were Indigenous or non-Indigenous.

### Table 1. The number of Indigenous and non-Indigenous students in each year level

<table>
<thead>
<tr>
<th>Year level</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indigenous</td>
<td>Non-Indigenous</td>
</tr>
<tr>
<td>Preparatory</td>
<td>29</td>
<td>83</td>
</tr>
<tr>
<td>Year 1</td>
<td>36</td>
<td>19</td>
</tr>
</tbody>
</table>

At the start of the project all students, regardless of their year level, completed an interview ascertaining their ability to subitise. The one-on-one interviews conducted by two of the researchers occurred in the second week of term two. Before beginning the data collection, both researchers spent time testing the tasks with each other to ensure consistency in the way the cards were presented to each child. The test instrument consisted of four different groups of cards: six with a dice pattern on each, 10 with the numbers 1-10 represented in tens frames, nine playing cards for the numbers 1-9 with the numeric digit removed, and nine with the numbers 1-9 represented as random selections of items. Cards and dice patterns were considered to be configurations familiar to both Indigenous and non-Indigenous students. It has been conjectured that many Indigenous students are more familiar with cards than are non-Indigenous students because of the focus on playing card games within their communities (Baturo, Norton & Cooper, 2004). Figure 1 illustrates an example from a card from each group.

During the interview each card was ‘flashed’ in front of the student, with the researcher counting ‘one, two’ between flashing the cards. All interviews were conducted by two researchers to ensure consistency in assessment. A tally sheet indicated which cards each student had correctly recognised. These results were entered into a spreadsheet for further analysis. The post-test interview occurred at the end of the year. At this stage only Prep students from the first year of the project have completed both the pre- and post-tests.

The research design requires all teachers to participate in professional dialogue/learning with the researchers four times each calendar year. On each occasion all teachers are released from their classrooms to participate in a day of professional learning. In our project the day consisted of sharing an understanding of the development of students’ numeracy in the early years and effective learning activities that support this development. Activities focused on:

(a) developing students’ patterning abilities;
(b) exploring the relationships between small numbers (e.g. 2 is the number before 3, and 3 is the number between 2 and 5)
(c) creating different stories about numbers (e.g. 3 is the same as 2 and 1)
(d) representing different numbers on grids as bar charts using picture cards.
(e) describing the relationships between the numbers (e.g. there are 2 more possums than there are dogs).

The professional learning day was followed by classroom visits. These visits focused on implementing learning activities that support students’ mathematical thinking as well as their ability to subitise. This professional dialogue occurred after the administration of the subitising pre-test. The next section describes the intervention strategies that related specifically to developing students’ ability to subitise.

**Intervention strategies used in the Prep and Year 1 classrooms**

For subitisation, the intervention strategies consisted of three key approaches:

(a) each week sitting the students on the floor and flashing cards with differing numbers of dots and objects and asking them to spontaneously identify the number of dots or objects on each

(b) creating and playing games with the subitising cards, such as ‘Snap’ and ‘Swat’

(c) initially using different-coloured counters to create stories about various numbers (e.g. 5 is 4 +1, 2 + 3, 5 + 0, 2 + 2 + 1).

In ‘Snap’ each participant is dealt an equal number of the subitising cards. Each places the cards face-down in a stack. All players simultaneously turn one card face up. If two cards match (i.e. represent the same number) the first person to say ‘Snap’ wins the cards.

An adaption of this game was ‘Swat’. In this game the different representations of numbers were drawn on the backs of pictures of flies. Each player was given a fly swat. As the teacher put down three flies she called out a number, and the first child to swat the correct fly won the game. This fly was then replaced with a new fly and the game continued.

Activity (c) was followed by quickly presenting different numbers to the students as dot cards. The students were asked to explain what they could see (e.g. for a card with 5 dots they could see 3+2, 2 + 2 +1, 4 +1). This activity was believed to assist students to split larger numbers into components that can easily be subitised. In each instance all activities began with the number three, and the number of dots was gradually increased until the students were exploring at least six dots placed on the cards in a variety of patterns, including random and dice patterns.

Students were asked to identify the components they could see as each card was flashed. This involved sharing the components of each number they could see without counting the dots, and then articulating this in a sentence.

Figure 2 presents an example of a dot pattern presented for the number six, together with some typical student responses.

After each response the student showed the class the groups of dots they could see.

### Results

#### Preparatory students

Only the Prep students who participated in the first year of the project completed both a subitising pre-test and a subitising post-test. Table 2 presents the mean pre- and post-test scores for the four subitising groups of cards used in the interview with the Prep students.

**Table 2. Mean pre- and post-subitising test scores for the Prep students**

<table>
<thead>
<tr>
<th>Test</th>
<th>Pre-test mean score (n=112)</th>
<th>Post-test mean score (n=93)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indigenous</td>
<td>Non- Indigenous</td>
</tr>
<tr>
<td>Dice (6)</td>
<td>3.90</td>
<td>5.19</td>
</tr>
<tr>
<td>Tens frame (10)</td>
<td>4.34</td>
<td>5.57</td>
</tr>
<tr>
<td>Cards (9)</td>
<td>4.00</td>
<td>5.32</td>
</tr>
<tr>
<td>Random (9)</td>
<td>3.86</td>
<td>4.12</td>
</tr>
</tbody>
</table>

The mean scores indicate that all students could subitise to three in most instances at the start of school, with most being able to subitise to at least four for dice, tens frames and cards. T-tests were used to compare the Indigenous and non-Indigenous Prep students’ results in the subitising pre-tests.

Table 3 summarises the t-test values for the pre-test results together with the level of significance.

**Table 3. Comparing the Indigenous and non-Indigenous Prep students pre-test scores (n=112)**

<table>
<thead>
<tr>
<th>Test</th>
<th>t value</th>
<th>p value</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dice (pre-test)</td>
<td>4.53*</td>
<td>.000</td>
<td>.16</td>
</tr>
<tr>
<td>Tens frame (pre-test)</td>
<td>3.48*</td>
<td>.001</td>
<td>.11</td>
</tr>
<tr>
<td>Cards (pre-test)</td>
<td>4.12*</td>
<td>.000</td>
<td>.13</td>
</tr>
<tr>
<td>Random (pre-test)</td>
<td>0.89</td>
<td>.377</td>
<td>.00</td>
</tr>
</tbody>
</table>

*Significant p < .005
The results indicate a significant difference between the Indigenous and non-Indigenous students’ results on the dice pre-test, the tens frame pre-test and the cards pre-test. There was no significant difference for the random cards pre-test. The effect size suggests there is not only a significant difference between the scores for Indigenous and non-Indigenous students but also that this difference is large (Cohen, 1988) for dice, tens frames and cards. The mean scores for the two groups indicate that in all cases of significant difference between the scores the non-Indigenous students performed significantly better than the Indigenous students.

Figure 3 illustrates differences between means for the pre-test scores.

T-tests were also used to compare the Indigenous and non-Indigenous Prep students’ results to the subitising post-tests.

Table 4 summarises the t-test values for the post-test results together with the level of significance.

<table>
<thead>
<tr>
<th>Test</th>
<th>t value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dice (post-test)</td>
<td>-0.56</td>
<td>.581</td>
</tr>
<tr>
<td>Tens frame (post-test)</td>
<td>2.02</td>
<td>.145</td>
</tr>
<tr>
<td>Cards (post-test)</td>
<td>1.28</td>
<td>.203</td>
</tr>
<tr>
<td>Random (post-test)</td>
<td>0.128</td>
<td>.898</td>
</tr>
</tbody>
</table>

The results indicate no significant difference between Indigenous and non-Indigenous students’ post-test scores.

During the time between the administration of the pre- and post-tests all students had been engaged in intervention strategies believed to support the development of their ability to subitise. In order to ascertain if this intervention made a difference, paired t-tests were performed between students’ pre- and post-test scores.

Table 5 present the results of the paired t-tests.

<table>
<thead>
<tr>
<th>Test</th>
<th>t value</th>
<th>p value</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dice</td>
<td>4.71*</td>
<td>.000</td>
<td>.21</td>
</tr>
<tr>
<td>Tens frame</td>
<td>5.91*</td>
<td>.000</td>
<td>.30</td>
</tr>
<tr>
<td>Cards</td>
<td>4.00*</td>
<td>.000</td>
<td>.16</td>
</tr>
<tr>
<td>Random</td>
<td>5.66*</td>
<td>.000</td>
<td>.28</td>
</tr>
</tbody>
</table>

*Significant p < .005

The results indicated that the pre- and post-tests’ results for all four tests were significantly different. The effect size suggests a significant difference between the pre- and post-test results and that, according to Cohen (1988), this difference is large for cards and substantial for dice, tens frame and random patterns. Thus, the results presented in Table 5 and Table 6 indicated that, after one year in the project, all students had significantly improved their ability to subitise, and at the completion of this year there was no significant difference between the Indigenous and non-Indigenous Prep year students.

**Year 1 students**

The Year 1 students joined the project in its second year. To date they have participated only in the subitising pre-test interview.

Table 6 presents the mean pre-test scores for the Year 1 students.

<table>
<thead>
<tr>
<th>Test</th>
<th>Indigenous (n = 36)</th>
<th>Non-Indigenous (n = 19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dice (6)</td>
<td>3.79</td>
<td>5.12</td>
</tr>
<tr>
<td>Tens frame (10)</td>
<td>4.79</td>
<td>4.64</td>
</tr>
<tr>
<td>Cards (9)</td>
<td>4.11</td>
<td>5.02</td>
</tr>
<tr>
<td>Random (9)</td>
<td>2.68</td>
<td>3.00</td>
</tr>
</tbody>
</table>

*Significant p < .005

T-tests were used to compare the Indigenous and non-Indigenous Prep students’ results in the subitising pre-tests. Table 3 summarises the t-test values for the pre-test results together with the level of significance.
Table 7. Comparing the Indigenous and non-Indigenous Year 1 students pre-test scores (n = 55)

<table>
<thead>
<tr>
<th>Test</th>
<th>t value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dice (pre-test)</td>
<td>2.95*</td>
<td>.005</td>
</tr>
<tr>
<td>Tens frame (pre-test)</td>
<td>-.213</td>
<td>.832</td>
</tr>
<tr>
<td>Cards (pre-test)</td>
<td>1.48</td>
<td>.144</td>
</tr>
<tr>
<td>Random (pre-test)</td>
<td>0.71</td>
<td>.480</td>
</tr>
</tbody>
</table>

*Significant p < .005

The results indicated no significant difference between Indigenous and non-Indigenous students’ ability to subitise.

In order to compare the Year 1 students’ pre-test results with the Prep students’ pre-test results a Uni-variant Analysis of Variance was performed. The results of the analysis of variance are presented in Table 8.

Table 8. Comparing the Year 1 students (n=55) pre-test results with the Prep students (n=112) pre-test results

<table>
<thead>
<tr>
<th>Test</th>
<th>F value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dice</td>
<td>0.03</td>
<td>.875</td>
</tr>
<tr>
<td>Tens frame</td>
<td>4.16</td>
<td>.043</td>
</tr>
<tr>
<td>Cards</td>
<td>0.42</td>
<td>.519</td>
</tr>
<tr>
<td>Random</td>
<td>0.01</td>
<td>.910</td>
</tr>
</tbody>
</table>

*Significant p < .005

The results for all four tests indicate no significant difference between the pre-test scores for students in different year levels and in different ethnicity groups. These results need to be viewed with a degree of caution, however, as the results of the Leven’s test for homogeneity of variance indicated that the two samples were obtained from populations of different variance.

Discussion and conclusion

This research challenges the myth that Indigenous students come to school with a ‘superior ability to subitise’ (e.g. Gelman & Gallistel, 1978; Frigo & Simpson, 2008; National Numeracy Review, 2008). The Prep students’ results for subitising at the start of formal schooling indicated that non-Indigenous students were significantly more capable of subitising than were the cohort of Indigenous students (see Figure 2). It must be remembered, though, that this ability was measured by students recognising the number of dots/objects and quickly saying the corresponding number name. It is conjectured that these young Indigenous students had difficulty in articulating the number name, and hence the perceived gap in subitising ability. By contrast, the Year 1 pre-test results for the two cohorts (see Tables 6 and 7) indicated no significant difference between the Indigenous and non-Indigenous students’ ability to subitise. Both of these results in conjunction suggest that, at best, both cohorts share a similar subitising ability and, at worst, the non-Indigenous students are more capable. The results certainly do not support the findings of Willis (2000) and Treacy & Frid (2008) in their studies situated in Western Australia. The students who participated in our project were from many differing Indigenous groups; some from the Torres Islands, some from rural Indigenous communities, and some from a large metropolitan area. A tentative conclusion is that the ability of Indigenous students varies from context to context, and that for some groups of Indigenous students the ability to subitise is indeed superior, but for others it is not.

The results also support the findings of Benoit et al. (2004) that students’ ability to subitise differs according to the configuration of the pattern and is better for more familiar configurations. All students found it easier to subitise dice patterns, cards and tens frames than the random pattern configurations. Interestingly, the Indigenous students were no better than the non-Indigenous students at subitising dice patterns or playing-card patterns, suggesting that, contrary to the conjectures of Baturo, Norton and Cooper (2004), playing-cards are equally important in both contexts. Both groups also had success in subitising tens frames patterns, configurations that are considered unfamiliar within a non-school environment. The patterns presented on the tens frames were not random. This may have helped the students to quickly ascertain the number of dots as they were organised in pairs. In fact they found this configuration easier than both dice and playing cards. Thus ease may not necessarily be linked to familiar configurations but to configurations that assist students to quickly visualise the count.

Intervention did assist these young students’ ability to subitise. We are suggesting that this intervention is more than simply creating situations that encourage young students to subitise. The pedagogical approach was of substantial importance. The pedagogical approach underpinning the intervention strategies was four-fold.

First, it was conjectured that young Indigenous students learn through kinaesthetic activity.

Second, encouraging all students to orally describe the mathematics embedded in the activity underpinned the classroom discourse. Mathematics consists of a number of language registers. Learning mathematics depends on access to these registers (Dawe, 1995). Indigenous students need to understand mathematics language and feel in control of what they are learning (Howard & Perry, 2001).
Third, the affective domain is also an important dimension in learning mathematics. The more one enjoys ‘doing’ mathematics and feels success in mathematics, the higher one’s levels of engagement and the more one achieves. Research has found students’ attitudes and beliefs about themselves as learners to be positively related to motivation and expectations of success in dealing with the subject (e.g. Ignacio, Blanco & Barona, 2006). The activities were constructed so that there were no right or wrong answers. Many of the activities were also developed as games. All involved teaching within a play-based context with a focus on specific mathematical concepts.

Fourth, young students learn through play but they need adult guidance to help them to reach their full learning potential (e.g. Balfanz et al., 2003; Vygotsky, 1962). All activities were developed so they could be completed in small groups, individually, or in whole classes. In many instances the Indigenous education workers played a key role in monitoring students’ responses and ‘setting up the games’. While such an approach assisted all participants in this study, the results of the post-test indicate that it had a greater impact on Indigenous students’ learning than on non-Indigenous students’ learning. At the completion of the intervention, while both groups had shown marked improvement there was now no significant difference between Indigenous students and non-Indigenous students (see Tables 4 and 5).

Finally, a tentative conjecture from the results of this study is that, if no intervention occurs in the first year of school, there may be no increase in the ability to subitise for both Indigenous and non-Indigenous students (see Table 8). Although this is of grave concern, it is not unusual for young students to learn little about numeracy in early childhood settings. Thorpe, Tayler, Bridgstock, Grieshaber, Skoien, Danby and Petriwsky (2004), in their study involving 1831 Indigenous and non-Indigenous students from 39 selected sites across Queensland, found that students enrolled in Preschool (the year before school) over the year of the study made negative progress in their understanding of basic numeracy concepts. After one year of school the students knew less about a range of numeracy concepts, including subitising, than they did at the beginning of the Preschool year. It is conjectured that little exploration in some settings is occurring with regard to numeracy, let alone intervention with regard to the ability to subitise. It seems that children who bring early mathematical knowledge to school are advantaged in terms of their mathematical progress through primary school (e.g. Aubrey, Dahl & Godfrey, 2006; Young-Loveridge, Peters & Carr, 1997). A consequence is that students with little mathematical knowledge at the beginning of formal schooling remain low achievers throughout their primary years and probably beyond. The results of our past research suggest that attendance in a pre-Prep year of school may be an effective way to address this gap (Warren, 2008). Mathematical intervention in all early years’ settings is imperative. This paper begins to delineate some of the key dimensions of this intervention. This intervention consists of focused purposeful play with specific mathematical learning targets.

While much has been written about the importance of subitising to learning number concepts, the impact of this ability on the development of an arithmetic learning needs further investigation. Knowledge of arithmetic is a requirement of everyday life. It provides the basis for dealing with a variety of everyday problem-solving situations, many involving the ability to recognise quantitative amounts, add, subtract, multiply and divide. In this journey it is important not to assume that any one path is the correct path, nor that different cultures have different inherent strengths. Each individual brings different strengths and different understandings to the conversation. The results from this research imply that culture as such does not necessarily imply inherent cognitive strengths but may imply the utilisation of different pedagogical approaches. Thus the conversation needs to contain a variety of approaches and a variety of starting points to ensure all participants experience successful mathematical engagement.

References


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Beyond the developmental question: A new space for multiage research

For more than 15 years reconceptualist researchers have been questioning the role of developmental knowledge in the field of early childhood education and care (Cannella, 1997; Grieshaber & Cannella, 2001; Kessler & Swadner, 1992; Ryan & Goffin, 2008; Silin, 1995). They have been arguing that a developmental body of knowledge regulates children, parents and teachers because it is regarded as a set of ‘scientific’ facts about the child that are considered true. Drawing on Foucault (1980a, 1980b), developmental knowledge can be thought of as developmental discourse. As a theoretical concept, developmental discourse shapes, regulates and constitutes the field of early childhood (Graue, 2005). To move beyond developmental discourse, it is necessary for the field to generate a diverse knowledge base that might constitute early childhood in different ways. As others have shown (e.g. Blaise, 2005; Cannella & Bailey, 1999; Genishi, Ryan, Ochsner & Yarnall, 2001; Grieshaber & Ryan, 2006), postmodern perspectives provide useful frameworks for informing the field, and developing different ways of thinking about early learning and growth. This paper employs the term ‘postdevelopmental’, in recognition of the many shifts occurring within the field of early childhood education and care in recent years. This term, employed by Blaise (2005, 2009) in her work regarding the usefulness of queer theory and feminist poststructuralism for understanding children’s subjectivity, is used broadly in this paper. Postdevelopmentalism encompasses theoretical movements that have been used to question modernist assumptions of truth, universality and certainty, with respect to children’s learning and development in early childhood education and care. In this paper, we are also using the term postdevelopmental to reference theoretical understandings about children’s learning derived from cultural–historical theory as they are interpreted in relation to early childhood education (see for example, Fleer, 2006). While we acknowledge theoretical tensions associated with using the term postdevelopmental to encompass critical, poststructural, postmodern and cultural–historical ideas, our intention is to use the term as a basis for examining the many ways our understandings of children’s learning and development can be interpreted beyond a traditional developmental perspective.

While many recent theoretical and methodological advances in early childhood education have been conducted under what some might consider the banner of postdevelopmentalism (Blaise, 2005,
multiage grouping research has focused largely on the ‘developmental question’. This question is represented by research aiming to determine the effects of multiage grouping on children’s development. Such research assumes developmental theory as the norm for understanding children’s development, examining how multiage grouping is seen to impact on children’s developmental progress across developmental domains. Conducted within a process-product program of research, this approach does not necessarily uncover understandings regarding the complexities and issues commonly involved in the teaching and learning context (Shulman, 1986). This argument suggests the need to further examine the complexities associated with teaching and learning within multiage classrooms, rather than a continuing focus on the developmental outcomes of children’s participation in such classrooms.

A focus on the situated complexities of teachers’ work is made in Genishi et al.’s (2001) review of research on early childhood teaching. This review examines the importance of understanding teacher thinking in the provision of early childhood education and care. It notes how existing research examines teacher thinking out of context. These findings suggest potential for moving multiage grouping research beyond the ‘developmental question’ to a space where attention is paid to the complexities associated with learning and teaching in multiage settings. While this movement is consistent with a postdevelopmental perspective, it also suggests that a focus on the ‘developmental question’ in multiage grouping may in fact no longer be appropriate. Rather, research into multiage grouping could more successfully focus on how the approach is defined and experienced by participants, in order to identify the complexities and issues associated with teaching and learning in this way. Such research would be consistent with the argument that social realities, including those associated with children and childhood, are discursively known and should therefore draw on the perspectives of multiple participants (Moss & Petrie, 2002). This particular argument also references proposals made by Goffin (1989), Genishi, et al., (2001), and Ryan and Goffin (2008) regarding the need for early childhood education as a field to generate a research agenda based on the thoughts and actions of teachers, rather than simply continuing to study the effects of early childhood programs on children’s development. This paper presents the findings from a research project conducted across three Australian childcare centres from a postdevelopmental perspective. The project’s focus was on investigating the complexities and issues associated with the provision of multiage grouping from the perspective of key stakeholders.

Teachers’ understandings of multiage grouping: Methodology

The project aimed to determine different stakeholders’ understandings of multiage grouping and its associated issues. In line with current trends in evaluation research, data was sought that reflected the experiences and understandings of key participants involved in program delivery, including parents, children, teachers and administrators (Christensen & James, 2000; Lewis & Lindsay, 2000). A variety of qualitative research methods were utilised to gather data (informal interviews with children, photographic documentation, observations, focus groups). Teacher research was employed as a key strategy for accessing the understandings of the children and families.

The project was conducted over an 11-month period and included a five-month exploratory field investigation held across three early childhood centres located in an urban Australian city. While the project was designed to capture the experiences and the relationships between all stakeholders (including parents, children, teachers and administrators), the findings reported in this paper focus on the teachers’ understandings of multiage grouping. Each centre employed diverse structures in their approach to implementing multiage grouping for the children in their care. For example, centre one cared for children aged from birth to five years within one large room. Centre two grouped children from three to five years within two rooms, and maintained a separate kindergarten room which the four- to five-year-old children attended at intervals during the week. The third centre maintained one room dedicated to multiage grouping, which included toddlers and three- and four-year-old children. In this centre, the outdoor area was also used as a multiage space for babies, toddlers and preschool-aged children.

Project participants included eight qualified early childhood teachers (Diploma of Community Services – Childcare), one centre coordinator, two Children’s Services Resource and Curriculum Development officers, and the team leader of Children’s Services (totaling 12 adults), one family and 29 children. Teachers and parents were formally invited to participate in the project at the beginning of the study. Children were invited to participate in the project in instances where parental permission had been obtained.

During the data collection period the researchers conducted four workshops with the teachers. The workshops were two hours in length (audio-taped and transcribed), and provided opportunities for the teachers to access current information about teacher research, approaches to data collection and contemporary research on multiage grouping. The teachers were given the opportunity to respond to the information presented and to discuss their ideas,
practices and beliefs about multiage grouping. Each workshop concluded with a series of research tasks for the teachers to complete in their classrooms prior to the next session. Time was made available in the following sessions for the teachers to report the results of their research, and to comment on the data they had collected around multiage grouping.

Workshop one canvassed the notion of multiage grouping with the teachers, drawing on findings from the literature (Derscheid, 1997; Gerard, 2005; Logue, 2006; McClellan & Kinsey, 1999; Quann & Wien, 2006; Veenman, 1996) and encouraged the teachers to express their own understandings of multiage grouping. At the end of this workshop teachers were asked to document examples from their classrooms that were perceived as illustrating multiage grouping in practice (the teachers termed these examples ‘multiage moments’).

The second workshop introduced the teachers to quantitative and qualitative research as the two main methodological approaches in education research. Approaches to data collection within the qualitative tradition were outlined, including observations, interviewing and participatory listening. The aim was to equip the teachers with some general approaches so they could modify them or create new methods for collecting data with the children and families from their centres. During this workshop the teachers were asked to undertake a two-week pilot study implementing the kits and provided opportunities for questions regarding the equipment contained in each kit.

Workshop three introduced the teachers to the research kits and provided opportunities for questions regarding the data collection process. Following this workshop the teachers participated in a five-week period of formal data collection, during which they gathered examples of their programming and planning, maintained notes on their experiences of multiage grouping, interviewed children about their perceptions of multiage grouping, and collected photographic documentation of instances of care and education they considered reflective of multiage grouping. As well, a member of the research team made observation visits.

Workshop four provided the teachers with opportunities to share their data with other participating teachers and the research team; to reflect on their perceptions of multiage grouping; and to participate in a formal focus group interview on multiage grouping. The research process in which the teachers participated was therefore highly generative, including opportunities for the teachers to access formal knowledge about research and multiage grouping from the research team; to undertake classroom-based investigations; and to discuss their research findings in relation to the information they had been provided with throughout the project. This collaborative and generative approach to teacher research has been noted as moving beyond process/product-based research to the generation of research aimed at exploring and understanding the complexities of teacher work (Edwards, 2008; Carr, May & Podmore, 2002; Pring, 2000), and has been used successfully in projects examining teacher understandings of cultural historical activity theory (Fleer & Richardson, 2004; Fleer & Robbins, 2004; Edwards, 2007). Table 2 outlines the collaborative research approach used in relation to the data generated by the teachers and the researchers.

Three members of the research team followed three iterative steps to begin data analysis. These steps included an initial reading and noting of the data, describing the data in relationship to teaching and learning, and classifying the data. The researchers wrote individual memos while reading the data. Then they met as a team to compare memos and first impressions. Next they described the teachers’ talk in relation to the teaching and learning context. The researchers noticed how the participants were relying on the developmental discourse to describe their understandings of multiage grouping. Through further discussion, the research team read, re-read and discussed the data further, looking for themes within a multiage context. Themes were identified that tended to focus on the issues and benefits the teachers understood to be associated with multiage grouping for young children. These themes were validated by looking for supporting and disconfirming evidence within the data set.

Despite our original intentions to move away from the developmental question, the initial framing of the research findings was presented in predominantly developmental terms. This reflected the concepts embedded in the data whereby the teachers used a primarily developmental discourse to situate their understandings of multiage grouping. This meant the key concepts and themes arising from the data were tagged to developmental headings such as ‘supporting learning’, ‘peer group relations’ and ‘chronological groupings’. The framing of the data in this way actually served to highlight the tensions between the prevalence of the developmental. The findings are presented in the following sections of our paper. How the developmental discourse can be seen as shaping the teachers’ and researchers’ understandings of multiage grouping in practice is also discussed.
### Table 1. Information and equipment contained within the ‘Researching with children and families kits’

<table>
<thead>
<tr>
<th>Kit category</th>
<th>Kit contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methodological support</td>
<td>• Sample approaches to observations from teacher pilot studies containing comments from the researchers regarding the need for more detail (for example, date of collection, age of participants)</td>
</tr>
<tr>
<td></td>
<td>• Note-books for recording teacher observations</td>
</tr>
<tr>
<td></td>
<td>• Teacher logbooks for systematically recording and organising the collected data</td>
</tr>
<tr>
<td>Research principles</td>
<td>• Tip sheets:</td>
</tr>
<tr>
<td></td>
<td>– Interviewing with children</td>
</tr>
<tr>
<td></td>
<td>– Considering ethical issues when researching with children</td>
</tr>
<tr>
<td></td>
<td>• Key readings on qualitative research, and on researching with children and families</td>
</tr>
<tr>
<td>Project guidelines</td>
<td>• A copy of the research plan</td>
</tr>
<tr>
<td></td>
<td>• A copy of the research questions</td>
</tr>
<tr>
<td>Project documentation</td>
<td>• Explanatory documentation for parents and children</td>
</tr>
<tr>
<td></td>
<td>• Consent forms for parents and children</td>
</tr>
<tr>
<td></td>
<td>• Participation poster for parents</td>
</tr>
<tr>
<td>Physical equipment</td>
<td>• Disposable cameras</td>
</tr>
<tr>
<td></td>
<td>• Audio recorders (cassette tapes, batteries)</td>
</tr>
<tr>
<td></td>
<td>• Pens, scissors, ‘post-it’ notes, glue sticks</td>
</tr>
<tr>
<td></td>
<td>• Notebooks</td>
</tr>
</tbody>
</table>

### Table 2. Research process in relation to data generated by teachers and researchers

<table>
<thead>
<tr>
<th>Activity</th>
<th>Focus of activity</th>
<th>Data generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop 1</td>
<td>What is multiage grouping?</td>
<td>Teacher data:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Photographs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Notes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Example observations and programming formats</td>
</tr>
<tr>
<td>Teacher research</td>
<td>Teachers document examples of multiage grouping in practice</td>
<td>Researcher data:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Transcript of workshop discussion</td>
</tr>
<tr>
<td>Workshop 2</td>
<td>Approaches to educational research and qualitative data collection</td>
<td>Teacher data:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Interviews with children</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Photographs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Shadow studies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Documentation collection</td>
</tr>
<tr>
<td>Pilot study</td>
<td>Teachers implement and trial qualitative data collection techniques</td>
<td>Researcher data:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Transcript of workshop discussion</td>
</tr>
<tr>
<td>Workshop 3</td>
<td>Introduction to the Researching with children and families kits</td>
<td>Teacher data:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Interviews with children</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Photographs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Shadow studies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Documentation collection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Teacher reflections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Transcripts from teacher meetings</td>
</tr>
<tr>
<td>Teacher research</td>
<td>Teachers collect data on children’s, families’ and their own perceptions of multiage grouping</td>
<td>Researcher data:</td>
</tr>
<tr>
<td>Field visits</td>
<td>Researcher participant observation</td>
<td>• Field notes</td>
</tr>
<tr>
<td>Workshop 4</td>
<td>Examining perceptions of multiage grouping and teacher focus group interview</td>
<td>• Transcript of workshop discussion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Transcript of focus group interview</td>
</tr>
</tbody>
</table>
Teachers’ understandings of multiage grouping and the developmental discourse

The findings suggested three main understandings of multiage grouping, including:

1. Multiage grouping supports children’s learning
2. Multiage grouping assists children in the management of peer group relations
3. Multiage grouping reduces the stresses associated with working in chronological groupings.

Multiage grouping supports learning

Teachers in this study discussed, documented and researched what they termed ‘multiage moments’. Multiage moments referred to examples of differently aged children interacting, engaging and participating with each other. The teachers used them to provide examples of multiage grouping that represented their understanding of what the approach meant in practice. The data focused on examples that demonstrated the extent to which multiage grouping was understood to support children’s learning. Learning was defined in predominantly developmental terms and referenced developmental domains, ages and stages of development. For example, multiage moments showed the children learning from each other in ways explicitly related to certain areas of development, including language, social and physical development. This was illustrated by Gina, who, in discussing a sample multiage moment, described how multiage grouping provided children with access to a range of language experiences and developmental levels:

\[ \text{The children, the babies as well, they get more of a benefit in family [multiage] grouping. Being in an aged-grouped room they don’t tend to get these, they just get the plain boring things, but being in a multiaged group they get that variety in the development, in the language skills.} \]

This form of learning was perceived as particularly important to Gina, who worked in a centre with a large number of families whose first language was not English. She believed the multiage classroom contained a variety of skill levels in respect of language development which provided a framework for supporting the children’s acquisition of English. A chronological classroom containing second-language learners would not necessarily have provided the younger children with the same level of exposure to the older children. In this example, the variety in developmental skill associated with the different age groups was seen to provide a supportive context for extending the learning opportunities for younger children. Here, while highlighting the perceived learning advantage for the children in her classroom, Gina drew on a developmental understanding of learning to suggest that exposure to the higher levels of learning enabled by the older children benefited the younger learners. This finding was also evident in Martha’s description of the toddlers she worked with, who, she claimed, benefited from the provision of physical equipment usually reserved for older children. Here Martha outlined how the toddlers had become competent users of carpentry tools initially provided for the four-year-old children. The understanding of learning deployed was predominantly developmental as it focused on the appropriateness of specific learning tools for young children in relation to their developmental capacity. Drawing on a developmental discourse meant that both Gina and Martha referenced the increased learning capacity for the younger children in terms of the capabilities of the older children. A postdevelopmental discourse might have highlighted the context as contributing to the children’s learning instead of their actual developmental levels (see, for example, Fleer and Richardson, 2004). In this case, the toddlers’ ability to use equipment traditionally reserved for older children would be understood as part of their participation in the learning context, rather than a function of their age in relation to the older children.

Socially, the teachers focused on multiage moments that described opportunities for older children to engage with the younger children, especially the babies. The teachers believed these interactions allowed the older children to ‘take the lead’, to settle the babies and to take turns playing with them. These interactions were understood as positive learning outcomes, particularly for the older children who were positioned as learning social responsibilities from the engagements. For example, Martha described how the older children comforted the younger ones:

\[ \text{... you know, the older children will shake a little toy and give it to the babies ... the younger ones really seem to like it and the older ones, they get to be the experts.} \]

Although focused on the positive aspect of learning, Martha’s description was framed in a developmental understanding which positioned the older children as more capable than the younger children. Further examination of Martha’s example suggests potential to interpret the perceived learning in other ways, perhaps focusing on the capacity for the multiage classroom to provide opportunities for children to learn how to care for each other and to respect differing abilities. In other words, while the babies, toddlers and preschoolers can be described as functioning at different levels of engagement; having all of them in the same room means there is potential to understand the interactions between them in terms of the composition of the classroom community. This means moving beyond...
Multiage grouping and peer group relations

This finding related to the teachers’ understanding that multiage grouping allowed the children to access a range of peer group relationships within the classroom. The teachers saw this as a positive outcome. For example, Lynne suggested:

You know, children are in there [child care] all day, every day, particularly in the older groups where the social dynamics are really heavy; it is really hard work to be engaged in that or fighting for survival in that if you’re not particularly good at it. For forty hours a week that is really hard pressure.

This argument was supported by Martha, whose observations of the children at play led her to comment on the range of social networks available for children within the multiage classroom:

Well, then you can just engage with some other child and you don’t have to go and look for another peer group thing; you can engage with a child that’s going to adore you. You know, like you can do a nurturing thing and that’s quite good.

Again, these examples were framed in a developmental understanding of children’s social interactions. The first assumed that older children have harder work to do in their social interactions than do babies and toddlers, and implied that they are part of a different and more difficult social reality. The second suggested an underpinning belief that interacting with babies and toddlers is easier than engaging socially within the chronological peer group. The teachers went on to describe how having access to an avenue of escape from a stressful peer group situation was a positive ‘way out’ for older children. This in turn, was viewed as building social competence as opposed to the constant rejection that can occur in chronological classrooms. Here, the management of peer group relations was presented as a positive outcome of multiage grouping. However, the benefit of the experience was explained in predominantly developmental terms by referencing the different social capacities of older and younger children. In these examples, the younger children were positioned as an escape route for older children struggling with socialisation within their chronological age groups. Noticing how the teachers focused on hierarchical relationships based on the children’s ages makes it possible to question the ways against discourses shape what and how teachers understand about learning within a multiage context. A postdevelopmental reading in which all social interactions were seen as equally valid, difficult and/or stressful for all participants, regardless of their age, would question this assumption.

Another finding linked to ageist discourses includes the suggestion that younger children benefited socially from observing the older children at play. For example, Tina noted the regularity with which she observed ‘two-year-old[s] standing watching play and watching the four-year and older children until they learn to enter the play.’ This way of framing the social situation was also evident in photographic data collected by the teachers which provided instances of older children supporting younger children in activities and the use of materials. In these examples, the emphasis was on the capacity of the older children to support the development of the younger ones. These same ways of understanding the social impact of multiage grouping were evident in the initial analysis of the data, where examples of older children supporting younger children were tagged to the ‘supports peer group interactions’ theme.

Moving beyond this developmental framing of the social situation requires consideration of how and why young children across age brackets engage with each other. Postdevelopmental readings would suggest re-visioning social interactions as complicated and dialectical, and older children as having as much to learn from babies as vice-versa. These readings might attend to the power relations that exist between children, allowing teachers to notice when and how ‘younger’ children take an active part in constructing identities of ‘older’ children. These alternative readings of children’s peer group relations recognise social identities, such as gender, race, class and sexuality as significant to children’s learning, rather than invisible (Blaise, 2005). Instead of being seen in terms of ‘older’ or ‘younger’ children and having the concept of age determine the learning relationship, a postdevelopmental reading moves multiage research to a different space where all children have the potential to learn with others.
Multiage grouping and teacher stress

The third understanding of multiage grouping expressed by the teachers was that working in multiage groups reduced the stresses associated with working in chronologically-based groups. Teachers with previous experience working in age-based classrooms described these as more stressful for themselves, children and families than were their experiences of multiage grouping. This finding was evidenced during discussions held with the teachers regarding parents’ perceptions of multiage grouping. Here, the teachers’ reported conversations with parents who expressed concern with the multiage concept. Parents were worried about potential harm being caused to younger children by older members of the classroom. These parent concerns represented a developmental perspective, in which children were positioned as needing to be with same-aged children to avoid being disadvantaged. The teachers vehemently disagreed with this perception and noted that one of the key stress factors in a chronological classroom was the number of accidents occurring amongst same-aged children. In these examples, the teachers used a developmental discourse to discuss the problems associated with chronological groupings. For example, toddlers participating in multiage classrooms were seen as having accidents because of their increased mobility and intense curiosity rather than because they were grouped with older children. Tanya, Tina, Anne and Lynne all agreed that, since working in multiage classrooms, they had seen a reduction in accidents, and specifically noted a reduction in biting and hitting amongst children. For example, Tanya said she was unable to remember the last time she wrote an accident report.

The teachers also talked about ‘toddler tantrums’, noting that working with a single group of 15 toddlers having simultaneous tantrums was intensely stressful for both teachers and children. Chronological grouping was also described as difficult when groups of toddlers of similar experience and capacity for sharing and negotiating with others made it difficult to attend to all of the children’s needs at the same time. One teacher’s passionate contribution to the discussion was: ‘I’m telling you there’s nothing worse than fifteen babies in a room!’ The teachers discussed how, in multiage settings, older children were more likely to intervene when they saw a child upset, providing comfort and reassurance and creating a sense of community and caring within the group. They argued that this level of engagement was not normally possible in situations where all the children are of a similar age, and that having older children to spread the ‘developmental load’ reduced teacher stress associated with toddler tantrums, sharing, turn-taking, and the need to provide scaffolded support for appropriate peer interactions. These perceptions were supported by non-teaching staff who commented that, when visiting the different services, the children ‘seem[ed] to be much calmer these days and to be much happier’. They described the services they visited as feeling so calm that they often wondered ‘if either all of the children haven’t arrived or if half of them have gone home’.

This finding was interesting in that a developmental discourse was used to explain the stresses associated with working in chronological groups. This same discourse was also used to explain why multiage grouping was not as stressful because the ‘developmental load’ could be spread across the children. Here the teachers explained a unique and important feature of multiage grouping. However, the dominance of the development discourse for understanding, describing and responding to children’s learning and behaviour meant this feature of multiage grouping was referenced in developmental terms.

Postdevelopmental readings of development?

The purpose of this research project was to move beyond the developmental question and research multiage grouping in ways that accounted for stakeholders’ understandings of the approach. In doing so, the research positioned teachers’ knowledge as important and relevant. For the teachers involved in this study, multiage grouping was understood as supporting children’s learning, assisting children in the management of peer group relations, and reducing the stress associated with working in chronological groupings. These findings have suggested that a developmental discourse provides a strong mechanism for thinking about, and responding to, children’s learning even in a context that is anything but ‘developmental’. In this sense, multiage grouping might be considered a postdevelopmental practice because it values the contributions children of different ages bring to the classroom, without necessarily focusing on the particular developmental ‘level’ associated their ages. By deliberately grouping children across ages and with different experiences, this practice resists the notion that children of a particular age group learn best when they are with others in the same age bracket. Although the practice of multiage grouping appears to work against developmental knowledge, the dominant developmental discourse frames how teachers are able to respond to the benefits and issues they have observed in their multiage work. As researchers, we have drawn on the notion of postdevelopmentalism as a way of recognising the limitations of relying exclusively on one perspective to understand early childhood environments. This idea is referenced by Graue’s (2005) claim that a hybrid reading of development ‘recognises the historical forces that shape conceptions of children;
acknowledges the cultural variation in ideas about development; and it illuminates the discursive functions of professional guidelines and parenting practice’ (p. 56).

Examining teachers’ understandings of multiage grouping with a postdevelopmental lens helps disclose how traditional beliefs about development, and a reliance on the developmental discourse to express these beliefs, actually works to shape what teachers understand multiage learning to be. Interestingly, this response occurs in a learning context that is patently not developmental in construction and/or implementation. Thus, by deconstructing how developmental discourse frames teachers’ thinking, and their responses to the experiences of multiage grouping, we have been able to consider alternative perspectives around how and why young children learn within multiage settings. For example, how does the social context of the multiage classroom contribute to social competence? How does access to learning materials traditionally reserved for older children challenge concepts surrounding the physical development and capabilities of younger children? How do the emotional, cognitive and social capacities of all children within a multiage classroom contribute to the creation of a less stressful teaching and learning experience for teachers and children alike? Thinking about these findings from a postdevelopmental perspective provides an avenue for expanding understandings about how learning might otherwise be conceived, particularly within multiage classrooms. This process is central to continued investigations and research aimed at supporting practices in classrooms supportive of diversity, whether in gender, ethnicity, or chronological age. Canella (2005) highlights the necessity of remaining alert to particular constructions of growth and learning, and the ways they can come to represent best practice:

For a number of years now [researchers] have challenged these dominant discourses related to the notion of ‘child’, whether deterministic constructions of progress, universalist developmental psychologies, or general scientific conceptualisations of human beings as knowable through scientific truth. The arguments have critiqued modernist Western assumptions about the world (including children and interpretations of them), focused on diversity and ways of being in the world that have been silenced, challenged the construction of authoritative structuralist expertise that would judge others, and drawn attention to the historical, contextual, and even political, power-orientated nature of generating knowledge that is legitimised in the name of science and labelled as best practice (p. 19).

Understanding the power of both developmental and postdevelopmental discourses to shape how and why learning is viewed is central to creating approaches to early learning that move beyond traditional beliefs about children’s development. The multiage context provides a powerful situation for reflecting on how developmental discourses continue to shape thinking and pedagogies in early childhood education. Drawing on postdevelopmental perspectives, which highlight the many different dimensions that contribute to a particular life experience, including the provision of education, provides an avenue for continued reflection and research in this area. Potential exists for such work to generate pedagogies that reflect understandings of postdevelopmentalism in action, as well as in theory.

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