The ‘state of play’ in Australia: Early childhood educators and play-based learning

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THIS ARTICLE PROVIDES AN overview of the Education Meets Play study that will investigate early childhood educators’ use of play-based learning, now mandatory under the National Quality Standard. By building on what can be gleaned about educators’ approaches to play-based learning prior to the implementation of the Early Years Learning Framework, the study will contribute to the evidence base concerning the implementation and effects of Australia’s early childhood education and care policy reform initiatives.

Introduction

In 2007, the newly elected Labor Government embarked on an ambitious and wide-ranging national reform agenda aimed at increasing Australia’s productivity and competitiveness in the global economy. A key priority of this agenda was the national reform of early childhood education and care (ECEC). Prompted partly by an OECD (2006) report that highlighted Australia’s non-systematic approach to ECEC, and by Australia’s poor rating in a subsequent ‘league table’ of international comparisons on provisions for young children (UNICEF, 2008), the early childhood reforms were among the first components of the reform agenda to be mobilised. The ECEC reform initiatives have been described in detail by Cheeseman and Torr (2009). They include a commitment to providing universal access to a play-based educational program for all children in the year prior to school, with a particular emphasis on improving the participation of Indigenous children; the implementation of measures to expand and strengthen the capacity of the ECEC workforce; and the introduction of new National Quality Standard—encompassing regulatory requirements, a quality rating system, and a national Early Years Learning Framework (See also: www.mychild.gov.au/pages/ECA_Content.aspx). Despite some inevitable disappointments1, these initiatives have been widely welcomed for their potential to improve children’s participation in ECEC, the quality of ECEC programs, and the professional status of early childhood educators. Claims by the then Federal Opposition that the reforms are neither necessary nor sustainable (Karvelas, 2013), as reflected in its plan for early childhood education,2 have prompted fears that the September 2013 election of the Abbott Liberal-National Coalition government may see a stalling or even a reversal of reform initiatives. Such reversals occurred in the UK (Butler, 2013) and New Zealand (Te One, 2013) following the election of conservative governments. Policy reversals on high-profile initiatives in the face of substantial evidence of their benefits provide a stark reminder that influences on ECEC policy decisions are multiple and complex. While governments have been swayed by research evidence from evaluations of ECEC policy initiatives—for instance from the widely cited Effective Provision of Preschool Education (EPPE) study in the UK (Siraj-Blatchford, Sammons, Taggart, Sylva & Melhuish, 2006)—it would be naive to assume that evidence concerning the effectiveness (or otherwise) of particular policy initiatives is necessarily the most salient influence (Bown, Sumsion & Press, 2010). Nevertheless, lack of a robust evidence base showing positive outcomes from current Australian initiatives would presumably increase their vulnerability to being wound...
back following a change of government. Regardless of political considerations, there is an ethical imperative to monitor and evaluate the efficacy of investment in costly taxpayer-funded ECEC reform initiatives. Hence, for a number of reasons, a significant escalation of evaluation efforts is required.

Accordingly, our purpose in this article is two-fold. We emphasise the need to construct a rich and comprehensive evidence base with respect to the implementation and effects of the ECEC reform initiatives, including aspects that are difficult to measure. We also illustrate possibilities for innovative approaches to generating evidence concerning the implementation of Belonging, being and becoming: The Early Years Learning Framework for Australia (the EYLF) (DEEWR, 2009), Australia's first national early childhood curriculum framework, and a key component of the reforms.

The article proceeds in three moves. It begins by sketching some of the contours of evidence building to date concerning the ECEC reform initiatives before narrowing the focus to the EYLF, and more specifically, the requirement that early childhood educators implement play-based approaches to learning. It then reports on a survey of literature concerning early childhood educators' views about, understandings of, and approaches to play in Australian ECEC settings prior to the implementation of the EYLF. Finally, it provides an overview of an Australian Research Council (ARC)-funded study, Education Meets Play (EMP). This study is designed to investigate how educators are responding to the requirement in the EYLF for play-based learning, and incorporates innovative approaches to generating evidence.

Evidence-building concerning Australia's ECEC reform initiatives: Priorities, considerations, progress

It is acknowledged in the November 2008 National Partnership Agreement on Early Childhood Education between the federal and all state/territory governments (COAG, 2008), that building a strong and comprehensive evidence base concerning the implementation, effects and outcomes of the reform initiatives is an important priority and responsibility (Baxter & Hand, 2013). Moreover, as Productivity Commissioners have emphasised:

... many of the reforms involve significant complexities and uncertainties. This has 'upped the ante' on having good analysis based on good evidence to help avoid making mistakes on a national scale which previously would have been confined to particular jurisdictions (Banks, Fenna & McDonald, 2012, p. 194).

Complex phenomena call for nuanced understandings that, ideally, are informed by diverse forms of evidence generated through an array of methodological approaches. In their commissioned report advising on appropriate foci for a research agenda for Australian ECEC to address gaps in current research evidence, Harrison et al. (2011, p. 36) conclude that 'where possible, research and evaluation questions should be addressed through the complementary use of large-scale datasets, including matched or nationally reported data, and small-scale locally-relevant qualitative research'. While in broad agreement, we argue for a more eclectic mix of methodological approaches, providing the emphasis is on building a cumulative evidence base.

We are following with interest, therefore, developments in the burgeoning field of implementation science, which is concerned with factors associated with policy implementation. There remain many unknowns concerning the what, who, when, and how of successful implementation of initiatives (Durlak, 2010, p. 353). These unknowns require careful and systematic inquiry. As Durlak elaborates:

... we need more clarity about which aspects of implementation are most important for different outcomes, how to assess each aspect most accurately, who should provide the necessary data, when these assessments should be done, and what ecological factors should be evaluated (p. 353).

While Durlak is concerned primarily with the implementation of specific programs and interventions, his comments seem acutely relevant to the national initiatives of Australia's ECEC reform agenda.

To date, contributions to building an evidence base concerning the implementation, effects and outcomes of the reform initiatives have come primarily from annual self-reporting for accountability purposes by the federal and state/territory governments. These reports focus on progress towards objectives established as part of the National Partnership Agreement on Early Childhood Education. Several reports have also been released from government-commissioned monitoring and evaluation studies, and to a lesser extent, non-commissioned analyses of secondary data. Baxter and Hand (2013), for example, while noting the conceptual and methodological difficulties involved, drew on a number of national data sets to construct baseline data concerning children’s access to early childhood education in the year prior to school. Biddle and Bath (2013) used 2011 Census data to examine participation rates of Indigenous children in early childhood education, and to analyse differences in outcomes between those children who do and do not attend ECEC programs. The Australian Council for Educational Research (Rothman et al., 2012), as part of its evaluation of the validity and reliability of the assessment and rating process used...
by the Australian Children’s Education and Care Quality Authority (ACECQA), analysed the quality ratings of 491 ECEC services that were among the first to undergo assessment under the National Quality Standard. Of interest to the current article, the quality area titled ‘educational program and practice’ had the lowest percentage of services rated at either meeting or exceeding the National Quality Standard. The ACECQA ratings in themselves will become an important new data set as more services undergo assessment. These reports illustrate ‘the efficiencies that can be achieved through the collection and accessibility of national datasets’ (Harrison et al., p. 33) and the value of national data sets in providing a baseline from which progress can be tracked over time.

For the most part, monitoring and evaluations to date of progress and achievements resulting from the ECEC reform agenda have focused on aspects that are relatively amenable to measurement. A notable exception, and of particular relevance to the current article, has been a mixed methods study commissioned by DEEWR and undertaken by researchers at Monash University to provide baseline data on early childhood educators’ engagement with the EYLF (DEEWR, Fleer, Shah & Peers, n.d.; Monash University for DEEWR, 2011, 2012). The qualitative component of the study involved case studies of existing practices in 20 ECEC settings across Australia. These settings were selected because, at the time (June–September 2011), they were known to have minimal or no engagement with the EYLF. The quantitative component involved a national survey (November 2011–January 2012) distributed to all ECEC services. The survey targeted educators with leadership responsibilities to ascertain their awareness of and attitudes towards the EYLF. The substantial delay in the public release of the findings of this important study highlights the need for research beyond that commissioned by government and direct monitoring and evaluation by government.

It has been encouraging, therefore, to see the awarding of ARC funding to at least two studies that will investigate aspects of the ECEC reform initiatives not amenable to conventional forms of measurement. One of the challenges faced by such studies is the lack of baseline data for many of the less readily measurable aspects of the reforms. To the extent possible, retrospective reconstructions of the status quo immediately prior to the implementation of the reform initiative therefore become necessary. Later in this paper, we explain how we went about reconstructing a retrospective baseline picture of the educators’ pedagogical practices in relation to play-based learning prior to the implementation of the EYLF. But first, we briefly outline the salient features of the EYLF.

Approved by the Council of Australian Governments in July 2009 for immediate implementation, the EYLF was one of the first ECEC reform initiatives to be rolled out. It became mandatory in January 2012 as a central component of the National Quality Framework for early childhood services. The EYLF outlines principles, practices and outcomes to ‘extend and enrich young children’s learning from birth to five years, and through the transition to school’ (DEEWR, 2009, p. 5). It has a strong emphasis on play-based learning, which it defines as ‘a context for learning through which children organise and make sense of their social worlds, as they engage actively with people, objects and representations’ (p. 46). Central to the concept of play-based learning in the EYLF is intentional teaching, which requires educators to be ‘deliberate, purposeful and thoughtful in their decisions and actions’ (p. 46). The EYLF continues to support child-initiated free play, which has long been a highly valued feature of ECEC in Australia. Its dual emphasis on, and explicit attention to, play-based learning and intentional teaching, however, is a marked ‘departure from tradition’ (Grieshaber, 2010), and a key feature of the ECEC reform initiatives.

The EMP study will investigate how educators respond to this distinctive policy shift. As there was no existing overall picture of educators’ approaches to play in Australian ECEC settings, we endeavoured to construct a retrospective baseline picture of how educators were addressing play-based learning before the implementation of the EYLF. We approached this task through a survey of relevant literature.

**Play-based learning prior to the EYLF: A literature survey**

We confined the literature survey to published empirical studies reporting on early childhood educators’ views about, understandings of, and/or approaches to play in Australian ECEC settings. To provide a contemporary but reasonably broad picture, we also limited the review to studies undertaken between 2005 and January 2012 when the Principles and Practices outlined in the EYLF became mandatory. This particular period coincided with a surge of interest in young children’s learning among early years’ researchers and some ECEC service providers in Australia, prompted in part by findings from the ground-breaking EPPE study in the UK. A highlight of the EPPE study was the importance of intentional teaching and sustained shared thinking in facilitating children’s concept development (Siraj-Blatchford & Sylva, 2004). This period also coincided with the rise of standardised testing in Australia and concerns about perceived ‘top down’ ‘schoolification’ pressures on early childhood education programs.

Using a combination of multiple data-base searching, citational trails, consultation, and manual searching, we identified 21 potentially relevant studies. After refining our criteria, we excluded from further consideration those studies concerned with:
1. preservice early childhood educators' views, beliefs, understandings or approaches to play (e.g. Ridgway & Quinones, 2012)

2. educators' views, beliefs, understandings or approaches to teaching, and children's learning/development, but without an explicit emphasis on play (e.g. Brown, Scull, Nolan, Raban & Deans, 2012)

3. a primary focus on children's play rather than on educators' views, beliefs, understandings or approaches (e.g. Taylor, 2007)

4. play in terms of physical activity levels with a focus on children's health (e.g. Dyment & Coleman, 2012).

We also excluded studies for which we could find few details about the research design, participants, methodology and/or findings in published reports. These exclusions left us with a corpus of six studies. Following the release of its findings, we added the DEEWR-Monash University baseline study as, within its much broader remit, it gave some attention to play-based learning. Details of each of the studies included in our analysis are provided in Table 1.

As indicated in Table 1, funding for the studies came from a range of sources. Two were funded by the ARC, one by the Crèche and Kindergarten Association of Queensland, and three, including a PhD project, by universities. The DEEWR-commissioned study had a national focus. Of the remaining studies, four were undertaken in Victoria (Vic.), (primarily Melbourne), one in Queensland (Qld) (Brisbane) and one in New South Wales (NSW) (Sydney), resulting in a notable metropolitan eastern seaboard bias. The studies varied considerably in scale. The DEEWR-Monash study was by far the largest (20 case study sites; survey responses from almost 1500 educators), followed by a study involving 16 early childhood centres, 16 educators and 119 children. Typically, however, the sample sizes were far smaller, exemplifying Harrison and colleagues' (2011) more general observation about the preponderance of small-scale, locally relevant research. Most studies focused on children aged between four and five years. Only two studies involved children aged under three years.

Five of the seven studies drew on Vygotskian perspectives for their conceptual or theoretical framing. One study was framed around attitudes to risk. The DEEWR-Monash study drew on the Concerns-Based Adoption Model (CBAM) (Hord, Rutherford, Huling-Austin & Hall, 1987), specifically the Stages of Concern component. Three studies used a mixed method design and three used qualitative methods only. Data collection/generation occurred within the period November 2005 through to January 2012. Despite the diversity of aims and methodologies across the seven studies, a common finding emerged: the important role of educators as mediators of children's learning. However, as Table 1 indicates, there were marked variations in the degree to which educators were taking on, or felt equipped to take on, that mediation role. Nevertheless, regardless of educational qualifications, there was a tendency for educators to focus on providing an environment and resources conducive to open-ended or free play but otherwise take a mostly non-interventionist approach. Where educators were actively involved in children's play, they tended to focus more on enhancing children's language than their conceptual understandings.

Similar findings were reported in slightly earlier studies undertaken in the UK (Siraj-Blatchford & Sylva, 2004; Wood, 2004). As noted previously, findings from the EPPE study indicated that educators' pedagogical practices were a key determinant of children's learning (Siraj-Blatchford & Sylva, 2004). Given the EYLF's emphasis on maximising young children's learning potential through play-based learning and intentional teaching, an important focus in building an evidence base about the effects of the national ECEC reform initiatives will be to ascertain whether educators, in general, are now more actively involved in children's play and if so, the nature of their involvement. In the following section, we explain how the EMP study will contribute to that endeavour of ascertaining how educators are combining play-based learning with intentional teaching.

The Education Meets Play (EMP) study

Odom et al. (2010) distinguish between structural and process-oriented approaches to researching curriculum implementation. The former focus, for example, on time spent on implementing the curriculum and the content covered; the latter on strategies used in implementation, and adaptations of the curriculum. In keeping with the non-prescriptive nature of the EYLF, the EMP study takes a process-oriented approach in that it will analyse the complex dynamics involved in educators' curriculum decisions when implementing the EYLF.

Research questions

The primary research question driving the study is 'How do educators bring together free play and play-based learning?' It will be addressed through three sub-questions:

- How do educators provide for play-based learning in their daily work with children and what intentional pedagogical approaches do they use?
- How does professional networking operate within the context of a new and compulsory curriculum document and specifically, how do educators seek and give advice on new ways of understanding and enacting play-based learning?
- What are the most significant changes educators have enacted in their practices, as a result of new understandings about play-based learning?
The first sub-question is not dissimilar to the research questions framing several previous Australian studies (see Table 1), which will enable some broadbrush comparisons. To the best of our knowledge, the second and third sub-questions will break new ground when it comes to providing evidence of some of the complex dynamics in educators' work.

Conceptual framing

In recognition of complex dynamics of professional practice, and specifically in this case, curriculum decision making, the study design deliberately utilises a diversity of conceptual frames and constructs within a broadly sociological focus. Although building on aspects of previous studies outlined in Table 1, the EMP study has a critical sociological orientation. Its focus on the interconnectedness of relationships, knowledge and power will distinguish it from the sociocultural orientation of most of the previous studies.

Methodology

The EMP study is a mixed methods study. It utilises an innovative combination of the three components of Concerns Based Adoption Model (CBAM) (Hall, 2013), social network analysis, and the Most Significant Change (MSC) technique (Dart & Davies, 2003). CBAM enables insight into so-called dimensions of change through three key constructs: Stages of Concern, Levels of Use, and Innovations Configurations (innovative uses). Social network analysis studies social relations among a group of people (Borgatti, Mehra, Brass & Labianca, 2009). The MSC technique is a systematic dialogic approach that focuses on making explicit the values underpinning participants' identification of significant changes, in this case with respect to play-based learning. The study involves four interrelated phases:

Phase 1: CBAM survey

Using an adaptation of the standard CBAM survey, educators (n = 500) from approximately 50 early childhood centres in metropolitan, regional, rural and remote NSW and Qld will be asked to identify concerns (Stages of Concern) they may have with regard to the EYLF's emphasis on play-based learning. The survey questions are similar to the broader questions asked about the EYLF in the DEEWR-Monash baseline study, but have been adapted to focus specifically on play-based learning. The survey also includes questions that ascertain the extent to which participants perceive they are implementing play-based learning (Levels of Use). For example, some educators may be at the beginning of attempts at implementing change in their programs. Others may be confident with their engagement with play-based learning, but still seeking support through more information and/or resources. Still others may have made major changes in their approaches to curriculum, and be keen to share their new understandings with others. This phase will assist in providing a broadbrush picture of the extent to which play-based learning is being implemented and degrees of confidence with and/or concerns about play-based learning. It will also enable analysis of educator-level variables (e.g. experience, qualifications), centre-level variables (e.g. size) and organisational variables (e.g. for-profit/not-for-profit) that may be correlated with different levels of use and/or confidence with play-based learning.

Phase 2: Social network analysis

This phase maps the formal and informal professional networks used by approximately 100 educators from a subset of centres from Phase 1 when implementing play-based learning. Who do they turn to when seeking advice and support? And who do they provide advice and support to? Social network analysis acknowledges the strong social and professional networks that characterise the social space of early childhood educators. Social networks can be described by various mathematical constructs (e.g. in degree, density, reachability, connectivity). These constructs allow the network to be characterised and compared to other networks (e.g. in rural and metropolitan settings, and at the individual, centre or organisational level). Using this method, it will be possible, for instance, to identify how professional networks function for educators with vastly different levels of education, qualifications and experience. To date, little is known about how these networks impact on curriculum initiative and change. This phase will provide data about how information about play-based learning is shared, by whom, with whom, and analysis will propose insights into the operation of relationships, knowledge and power.

Phase 3: Individual interviews: Most Significant Change and Innovations Configurations

Individual interviews with a subset of highly networked educators will be undertaken on site visits to approximately 40 early childhood centres in metropolitan, regional, rural and remote NSW and Qld. The interviews will elicit and probe accounts of Most Significant Change (MSC) (Dart & Davies, 2003). Representations of these changes will also draw on the CBAM construct of Innovations Configurations (Hall, 2013). Interview questions will probe the minutiae of changes in everyday curriculum and pedagogical practice. Points of interest will include investigating how participants plan and enact play-based learning; intentional teaching; pedagogies and resources used; 'content'; outcomes; and how educators address equity in play-based learning.
Phase 4: Model development and prototype development

The combination of traditional and innovative methodologies outlined above will generate a rich and robust body of data. The combined data from the CBAM surveys of stages of concern and levels of use, social network analysis, and MSC interviews and CBAM Innovations Configurations will be used to create model/s of how ‘education’ and play are merged successfully. Data will also be used to create prototypes of key individual players, centres and organisations, and strategies that are employed in successful professional networking. Exemplars of practice will form part of the model/s.

We anticipate that the rich data and progressive analysis of findings from the four phases of the study will make a valuable contribution to an accumulating evidence base in relation to play-based learning programs for young children. The methodologies selected have the capacity to generate nuanced evidence-based findings that are relevant to the nature and contexts of early childhood educators’ work. They acknowledge the diversity of the workforce, the long and successful tradition of networking, and the establishment of exemplars and models as a means of sharing and building knowledge and expertise in the field. The evidence is likely to be useful for educators, early childhood organisations, and policy-makers concerned with curriculum, pedagogies and professional learning.

Discussion and conclusion

It seems highly unlikely that any early years educator has been untouched by the current ECEC policy initiatives and the momentum generated by changes to qualification requirements, educators’ roles, and quality measures, and the emphasis on professional learning. But what are the effects of these changes? What differences, for example, have they made to educators’ day-to-day practices? This article has been motivated by the need to build a strong evidence base that can address such questions. It has also been motivated by the belief that building an evidence base must be a shared undertaking, involving researchers and educators jointly constructing new knowledge and supported by a variety of funding sources. It is not sufficient to rely solely on government-commissioned evaluations—although, of course, these are important and to be welcomed. Now that some baseline data has been established about the implementation of the EYLF, it will be important for follow-up evaluations of the EYLF to be commissioned. It will also be imperative that other studies are undertaken, and that these build on prior research. The EMP study builds on previous work to contribute to a cumulative evidence base while striking new ground, particularly concerning the role of professional networks in curriculum change.

This article has focused solely on the Australian context. The studies discussed are specific to a particular time, place and culture. Aspects of their findings, however, seem likely to have wider applicability, adding to both the national and international body of knowledge about early childhood educators’ play-based pedagogy. Given intense globalised interest in ECEC policy reforms, we anticipate that the issues raised may have international relevance.

Acknowledgments

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References


Fleet, M., Sumsion, J., Barnes, S., Cheeseman, S., Harrison, L., Kennedy, 30(5), 712-730.


(Endnotes)

1 Some commentators (e.g. Sumson et al., 2009) argue that opportunities for truly visionary change have been overshadowed by an emphasis on human capital development.


3 The evaluation reports were released in July 2013, up to an 18-month delay.

4 See also Dockett and Perry’s (2013–2015) investigation of the impact of the EYLF and the Australian curriculum on children’s transition to school.

5 As the EYLF did not become mandatory until January 2012, it was unlikely to have influenced participants in the two studies undertaken in 2009. The Study 6 lead researcher confirmed that in 2010 participants were not particularly cognisant of, nor influenced by, the EYLF.
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<td>Study 1: Cross-national study&lt;br&gt; Fleer et al. (2010) See also: Pramling-Samuelsson &amp; Fleer (2010)</td>
<td>What does ‘play and learning’ mean to educators with respect to children aged birth to three years? How do they support it?</td>
<td>Southern Victoria 1 early childhood centre (university-based)</td>
<td>6 educators 8 children (12-38 months)</td>
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<td>Study 2: Australian Research Council Discovery Project DP0558890&lt;br&gt; Fleer (2009a) See also: Fleer (2009b) Fleer (2010)</td>
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<td>Study 3: Macquarie University PhD study&lt;br&gt; Little, Wyver &amp; Gibson (2011) See also: Little, Sandseter &amp; Wyver (2012)</td>
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<td>Not specified</td>
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<td>What is the relationship between the conceptual knowledge children were acquiring and educators’ beliefs and practices in relation to play-based learning? To what extent were children able to identify concepts that educators considered were embedded in the open-ended learning experiences provided?</td>
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<td>Study 5: Crèche and Kindergarten Association of Queensland-funded study&lt;br&gt; Warren, Thomas, &amp; deVries (2011) See also: Thomas, Warren &amp; deVries (2011)</td>
<td>Educators’ i) perspectives on play; ii) beliefs and actions as they incorporated mathematical experiences into their play-based program; iii) pedagogical practices and extraneous factors that positively impacted on educators’ perceptions concerning interaction between play and teaching mathematics.</td>
<td>Brisbane 1 early childhood centre (Indigenous specific)</td>
<td>2 Indigenous educators 28 children (average 3 years, 6 months)</td>
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* Personal communication.
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<td>Educators primarily informed by Parten's theory of play and Piaget's theory of learning; emphasis on providing resources and an environment conducive to play and learning, rather than on interacting with children; non-interventionist approach.</td>
</tr>
<tr>
<td>Case studies</td>
<td>Field notes, video recordings, photographic documentation, and child and teacher interviews (2006)*</td>
<td>Vygotsky's categories of concept formation</td>
<td>Marked differences between approaches in the two centres, and in the beliefs of educators within the one centre. Different approaches afforded different types of learning outcomes.</td>
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<td>Multi-site comparative design</td>
<td>Interviews, questionnaire, observations (2006–2007)*</td>
<td>Descriptive/inferential statistics</td>
<td>Educators perceived benefits and learning potential of risk taking in play; they supported children's positive risk taking, intervening only when they perceived risk taking was inappropriate or negative.</td>
</tr>
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<td>See Study 6</td>
<td>See Study 6 (2007)</td>
<td>Thematic analysis, and by type of play/interactions</td>
<td>Participation in open-ended play did not necessarily equate to acquisition of knowledge/concepts; Discrepancy between what conceptual knowledge educators considered children were acquiring through play, what children thought the educators wanted them to learn, and what children actually learned; one educator reported that taking a more active role in fostering children's conceptual development during play was more satisfying. Most children appeared to value her active involvement.</td>
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<td>Intervention comprising: i) professional learning day and ii) unspecified number of fortnightly visits, using project materials based on the Transformative Teaching in Early Years Mathematics Model</td>
<td>Pre-intervention interviews with educators; video observation of children and educators; educator-researcher discussion of video data (2009)</td>
<td>thematic analysis</td>
<td>Pre-intervention: educators emphasised play for co-constructing learning, most co-construction occurred in child-to-child interactions; adult roles were primarily observing and creating contexts for play that were responsive to children's interests; educator interactions with children during play focused on enhancing language; limited incidental discussion of mathematical concepts. During the intervention: educators i) recognised interplay between supporting play and direct teaching of maths; ii) became more knowledgeable about what constituted mathematical knowledge; more confident engaging with mathematical concepts; and better able to recognise children's use of mathematical knowledge; iii) perceived their role had expanded to include direct teaching.</td>
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<td>Intervention: 6 clusters of educators with each cluster implementing 3 play-types (open-ended, modelled, purposefully framed) in a different order</td>
<td>Educators' planning/curriculum documentation and reflective journals; video observations; video-recorded group stimulus recall interviews with children; video-recorded interviews with educators (2010)*</td>
<td>By play type/Descriptive statistics</td>
<td>Educators were least likely to identify biodiversity concepts and pedagogical strategies in open-ended play; and most likely to do so in purposefully framed play.</td>
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<td>Mixed-method</td>
<td>Observation; Survey (June 2011–Jan 2012)</td>
<td>CBAM Stages of Concern</td>
<td>Educators were interested in/positive about the EYLF but inexperienced users of it; play-based pedagogy evident in all sites but free-play predominated; emphasis on providing rich materials; planning focused on individual children's developmental domains.</td>
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