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Waiata / Song

Hutia Te Rito

Hutia te rito

Hutia te rito o te harakeke

Kei hea te kōmako e kō

Kī mai ki ahau

He aha te mea nui

He aha te mea nui o te ao

Māku e kī atu

He Tangata, He Tangata

He Tangata Hi

Pluck the Baby (of a flax bush)

Pluck the baby

Pluck the baby of the flaxbush

Where will the bellbird sing

You ask me

What is the greatest thing

What is the greatest thing in the world
I will tell you

Tis People! Tis People

Tis People

Adapted by Rose Pere





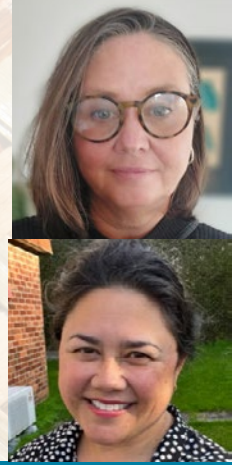
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EDITORIAL:

Infants, toddlers, teachers, and educational reforms

BY DR KIRI GOULD AND DR MARIA COOPER



*Tēnā koutou. Ngā mihi nui ki a
koutou katoa.*

*A warm welcome to the third online publication of
The First Years: Ngā Tau Tuatahi.*

This issue of *The First Years: Ngā Tau Tuatahi* comes at a time when the education system in Aotearoa New Zealand (NZ) is the focus of reform guided by an ideological shift. This shift is taking place on two fronts: the first is occurring in the compulsory schooling sector and the second in a review of regulations for early childhood education (ECE). Major changes in direction for education create unique opportunities to revisit conversations about the purposes and practices of ECE and what kinds of ideas should underpin decision making regarding young children. Even when educational change does not directly reference infants and toddlers it can shift the tone for overall priorities and values in ECE, and so a thoughtful consideration of all children in the conversation is important.

Recent reforms in the compulsory sector in this country have been couched in concerns about declining educational statistics. Current reforms such as the introduction of structured literacy and math approaches favour more explicit instruction, testing, and a stronger focus on knowledge and skills. These changes signal a significant shift away from child-centred and competency-based approaches, both of which have long been foundational principles in ECE. Early indications suggest that these shifts will also impact expectations for teachers in ECE; evident in the Ministry of Education's increasing emphasis on learning progressions and outcomes. For instance, the recent press release titled *Better Outcomes for Early Childhood Education* introduced the online resource *Kōwhiri Whakapae*, aimed at helping ECE teachers to "drive better literacy and numeracy outcomes for young learners" (Stanford, 2024, para. 1). *Kōwhiri Whakapae* is embedded within the national curriculum *Te Whāriki's* holistic framework and encourages teachers to notice, recognise, and respond to math and literacy opportunities, and to children's social, emotional, and oral language (Ministry of Education, 2024a).

The development of *Kōwhiri Whakapae* to coincide with reforms to school curriculum and practice is notable. Without adequate provision of professional learning or an understanding of learning, development, and relational pedagogy in the early years, there is a risk of "downward creep" in ECE pedagogical practices. This creep may manifest as a shift in focus away from play-based and sensory-rich experiences and toward measurable outcomes and discourses of school readiness. How curriculum reform will directly impact infants and toddlers in particular is still unknown, but perhaps the biggest risk is that the unique characteristics, holistic development, and diverse needs of this group of children will be overshadowed.

A second area for reform, that will have a more direct impact on infants and toddlers, is the current review of the early childhood regulations. The review was announced by Minister David Seymour as the first review undertaken by the new Ministry of Regulation. The Ministry of Regulation is an ACT Party initiative and reflects ACT's identity and purpose, which is to reduce the role of government and increase the role of the free market (ACT, n.d.). The Ministry of Regulation is set up to control the impacts of regulation and to slash "red tape [that] increases compliance costs and creates missed opportunities by stopping productive activity" (ACT, n.d.). ECE has been chosen as a focus because "burdensome rules and regulations" have "redirected time, money and effort away from what the sector should be focused on, educating and caring for children" (Ministry of Education, 2024b, para. 5) and "make setting up new services complex and inhibit competition" (Seymour, 2024, para. 4). Careful attention to language and messaging is needed to unpack the tensions and opportunities this review presents.

On the one hand, complex compliance and accountability processes for teachers do have the potential to take away from the care and education of children, and can even sit in tension with the local and relational conceptualisations of teaching that are highly regarded in *Te Whāriki*. It is difficult to capture the multidimensional complexities of teaching work in accountability frameworks, especially if they direct teachers to focus on evidence of a restricted set of learning outcomes, and so an overemphasis on accountability and compliance can be reductive and restrictive. From this perspective, reducing compliance for teachers could mean trusting teachers' professional knowledge and autonomy to decide on priorities and practices that work well for their communities. Allowing teachers to focus on their passion for teaching could also help with current sector issues such as work-related stress and burnout.

However, promoting teacher professional autonomy doesn't seem to be the focus of the regulatory review. Minister Seymour continues to advocate for the well-worn idea that issues of accessibility and affordability in ECE are best addressed by the marketplace. Central to this belief is the idea that parents are the best judges of what works for their families, and that a minimally regulated marketplace will meet their demands with affordable, high-quality, and innovative ECE services. This view is reflected in Seymour's comments to the press, where he likened ECE services to any other business. For Seymour, assessing quality in ECE is as simple as asking: "Do people come and give you money in return for your services?" (Radio New Zealand, 2024, para. 6). In his perspective, regulation hinders competition and obstructs the market's ability to function effectively.

A return to this way of thinking about ECE is tiresome at best and dangerous at worst. Substantial scholarship shows that ECE markets, both in Aotearoa NZ and internationally, do not deliver on choice, affordability, or quality (Mitchell, 2012; Vandenbroeck et al., 2023). Relying on the marketplace to address provision issues leads to a reduction in service diversity, as corporate providers dominate the market while smaller private and community-based centres struggle to compete. In Aotearoa NZ, a market approach has allowed ECE providers to establish centres and receive government funding without adequately considering community needs or their long-term sustainability. This has resulted in serious problems with over- and under-supply in various areas, issues that have been repeated and well-documented internationally (Cleveland et al., 2007; Mitchell, 2019). Furthermore, it hasn't made ECE more accessible to families; Aotearoa NZ ranks among the least affordable in the OECD and faces critical challenges in parts of the sector, such as teacher exploitation, stress, and burnout. Clearly, under-regulated markets do not benefit children, families, or teachers.

It is disappointing that the Minister's first "down payment on deregulation" (The Post, 2024, para. 2) has been to reverse the ECE network approval provisions introduced by the Labour party. These provisions allowed the government to determine where services should be located. While this strategy was not perfect, it emerged from *He Taonga te Tamaiti. Every Child a Taonga* (Ministry of Education, 2019), Labour's action plan for ECE. The strategy addressed persistent concerns about the negative impacts of market-based provision, including saturation by corporate providers. Reversing the managed network of ECE services without considering alternative strategies ignores important voices and experiences from the sector and minimises the harm that competition between centres inflicts on the quality of education and care in the sector, ultimately affecting both teachers and children.

Striking a balance between autonomy, trust, and regulation can be challenging. While compliance expectations for teachers can be distracting, certain areas of ECE require better regulation. For instance, regulations regarding group size for infants and toddlers in ECE centres are long overdue, as is progress on achieving pay parity for ECE teachers across service type and between sectors. In these cases, improved regulation would significantly enhance the well-being of both children and teachers, even if it might not favour the profit margins of some ECE businesses.

Where are the voices, experiences, and needs of infants, toddlers, and young children in sector debates about the benefits of regulation or deregulation? Establishing forums that pay attention to these and to the best interests of the child might illuminate a pathway forward for those wanting to advocate in this space. This principle is enshrined in the United Nations Convention on the Rights of the Child (UNCRC), which states, "All actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities, or legislative bodies, shall ensure that the best interests of the child are a primary consideration" (United Nations, 1989, para. 1). The full application of this concept necessitates a rights-based approach that engages all stakeholders, ensuring a strong start in the early years. General Comment 14 further emphasises that a child's best interests is a substantive right that should be prioritised "and in many cases paramount" when balancing various interests, ensuring this right is upheld whenever decisions are made concerning individual or groups of children (United Nations, 2013, para. 38).

This issue of *The First Years* highlights the complexity of the sector, showcasing a rich repository of thinking, research, and innovations across a range of practices and issues related to infant and toddler care and education. Addressing the concerns we raise in this editorial, Denee emphasises the importance of maintaining visual arts practices that are intentional, reflective, and appropriate for infants and toddlers, rather than outcomes-driven. Similarly, Wood critiques outcomes-driven approaches to play, advocating for a view of play as a valuable activity in its own right. Redman et al. then draw our attention to the vital role of professional development for teachers and a relational pedagogy to enhance infants' and toddlers' language learning, while Boyd's piece on child agency prompts us to embrace a holistic view of agency, resonating with children's holistic approach to learning in the early years. Birbili reminds us of the importance of curiosity and question-asking in very young children, suggesting we steer clear of methods that stifle these valuable dispositions and practices. Josephidou and Kemp advocate for incorporating nature-based pedagogies that support holistic learning, underlining outdoor environments as opportunities for sensory-rich learning. Aligned with inclusive and rights-based approaches to ECE, Veukiso-Ulugia et al. discuss how partnerships in research can inform culturally responsive pedagogies, particularly for Pacific children. Informed by reflection on her knowledge and practice, Neff provides practical advice for new teachers transitioning to the toddler room, highlighting the emotional and relational realities of working with this group of children. Following this, Henderson and Bednarski explore the role of digital technology in early learning by introducing BabyX as a tool for understanding infants' social actions. Their work suggests important implications for ways student teachers learn to care for infants. Weisz-Koves et al. introduce us to an interactive gallery established at Auckland's MOTAT (Museum of Transport and Technology) to foster inquiry-based



learning for young children within a child-centred environment rich in exploration, creativity, and play. Aligning with our call for teachers to have greater autonomy and support to meet the diverse needs of young children while avoiding stress and burnout, Cooper's interview conversation with long-time NZ ECE advocate Ann Hatherly and her friend and former colleague Jean Rockel emphasises the need for leadership that supports teacher professional development, collaboration, and advocacy. Finally, Becker's review explores new ways of thinking about observation and reflection in teaching young children, advocating for practices that embrace complexity and challenge narrow approaches to teaching and learning.

Collectively, the diversity of these articles illustrates that ECE transcends ideas about "choices" for families, or preparation for the next step in the system. It emphasises the urgent need for service providers who recognise the possibilities of play-based and sensory-rich experiences for this age group, the importance of thoughtful, knowledgeable teachers who begin with the best interests of each child as paramount to their decision making.

We hope you will enjoy the thinking possibilities that these articles offer.

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Visual arts with infants and toddlers: Developing respectful and intentional pedagogy



DR RACHEL DENEЕ

(peer reviewed)

Abstract

Infants and toddlers are highly motivated learners and tend to be drawn to the exploration of art materials when available. However, within early childhood education (ECE) settings there is a gap in understanding what constitutes meaningful visual arts experiences for this age group and how teachers can best support them. Drawing on research conducted in Aotearoa New Zealand this article examines the practices and perceptions of ECE teachers regarding visual arts education for infants and toddlers. Through a nationwide survey and a case study involving a professional learning community three key challenges emerged: concerns over safety, mess, and a developmentalist perspective on infant-toddler capabilities. The findings from the professional learning intervention highlight the importance of reflective learning and practical experience in strengthening teachers' confidence in facilitating visual arts learning for this age group, ultimately leading to a more intentional and respectful pedagogical approach with infants and toddlers' visual arts learning.

Introduction

Infants and toddlers are vital and curious learners who tend to make the most of every learning opportunity, and this extends to visual arts materials and experiences. However, there is a distinct lack of guidance about what makes a quality visual art learning experience for infants and toddlers in group ECE settings, and what the early childhood teacher can plan, say, and do for visual arts. The early childhood sector in Aotearoa New Zealand has long been influenced by a strong free-play ethos, more recently framed through a socio-cultural theoretical lens (May, 2013). The value of play has been promoted by educationalists here over the past century in resistance against highly structured or formalised learning contexts for under-five-year-olds (May & Bethell, 2017). Yet, while the value of play is emphasised by Vygotsky (1978), sociocultural theory also has a strong central theme of adults engaging in co-construction and active pedagogy such as scaffolding and reciprocal conversations (Brooks, 2009). These ideas are highly relevant to fostering visual arts learning in early childhood, including for infants and toddlers.

This article draws on data from a study of ECE teachers' practices and perceptions about visual arts in Aotearoa New Zealand (NZ) (Denee, 2022). The study included a nationwide survey of ECE teachers and leaders about visual arts education, and a case study of a 9-month professional learning community (PLC) with seven teachers from four ECE settings. Findings from the study indicate that early childhood teachers can lack confidence about offering visual arts to infants and toddlers, and that this stems from three

key issues: concern about safety, concern about mess, and a strong developmentalist view of infants and toddlers in ECE. The professional learning intervention at the centre of the study demonstrated the effectiveness of reflective learning and practical experience in order to increase teachers' confidence in visual arts teaching. By the end of the project the participants held a view of infants and toddlers as being equally capable of engaging in visual arts learning, albeit through adapted and age-appropriate teaching approaches. This article presents one strand of the research findings with a particular focus on infants and toddlers' visual arts learning and the role of the teacher to support this.

Infant Toddler Pedagogy

Infants and toddlers are an under-researched group in ECE, having only begun to be included in education research in the later part of the twentieth century. Prior to this, infants and toddlers were largely seen as only needing child-minding (Dalli et al., 2011). As infants and toddlers tend to require more care-routine time than older children, the notion of care has appropriately been incorporated into pedagogical approaches for under-3-year-olds in ECE (Dalli et al., 2011; Mason, 2023). However, Cheeseman (2017) has argued that educators need to start viewing infants as protagonists who have thoughts and interests beyond their attachment relationship needs. She proposes that "a shift from images of infants as having needs to images of infants as initiators and agents of their own learning suggests a broader range of pedagogies and a more expansive view of infants as learners" (p. 64). Nonetheless, Salamon and Harrison

(2015) contend that early childhood educators hold conflicting views of infants and toddlers' capabilities and that these perceptions influence teaching practice, which in turn may limit the learning experiences these very young children are exposed to in early years settings.

In recent years, the ECE sector has increasingly drawn on the educational ideas of Pikler and Resources for Infant Educators® (RIE®) approaches (Mason, 2023; Rameka & Glasgow, 2015; Salamon & Harrison, 2015). Pikler and RIE® approaches are focused on respectful caregiving and freedom of movement for infants (Gerber & Johnson, 1998; Mason, 2023; Pikler, 1994). These two philosophies are closely aligned and are often taken as one and the same, as both take a strongly maturationist view of children's development (Horm et al., 2019). While RIE® and Pikler have had a positive effect on respectful caregiving practices in the ECE sector in NZ, their creators did not intend to present these ideas as pedagogy or curriculum for ECE settings. Some have argued there is a lack of criticality in their use in this way (Horm et al., 2019; Rameka & Glasgow, 2015; Salamon & Harrison, 2015).

For example, in the NZ ECE context, Rameka and Glasgow (2015) conducted a literature review and survey through a sociocultural theoretical lens, and found that Māori and Pacific teachers did not think that RIE® and Pikler made allowances for their own cultural beliefs and knowledge about what is best for infants and toddlers. While RIE® and Pikler approaches may help teachers to develop attuned and sensitive relationships (Mason, 2023), they may not be adequate on their own to provide sufficient guidance for ECE teachers regarding their role in the youngest children's learning and cultural identity development in ECE settings.

From a sociocultural perspective there is little in the way of specialised guidance for ECE teaching practice for infants and toddlers' thinking and learning. While Gopnik (2009) describes the infant as a scientist and philosopher, and Malaguzzi (1998) views babies as whole and competent learners from birth, literature on teaching infants and toddlers remains almost entirely focused on caregiving relationships. For example, in a comprehensive literature review on infant and toddler pedagogy, Dalli et al. (2011) found plenty of evidence for relational pedagogy and attachment-based approaches to infant and toddler ECE. This centres on the relationship between the child and the adult as a primary concern, and suggests that learning and development are enabled if the adult-child relationship is attuned and securely attached. Beyond this, the authors do not elaborate on what a teacher might do intentionally once the relationship has been established to further a child's learning.

It seems that the avoidance of suggestions for instructive teaching for infants and toddlers has resulted in a singular focus on relationships, at the expense of teachers being given any guidance about what learning-rich experiences and materials could be offered to these children (Cheeseman, 2017). This lack of guidance particularly comes to light in visual arts education as there have been strikingly few studies that consider what is appropriate or effective practice with infants and toddlers. Along with a general lack of research about ECE teaching practice for infants and toddlers, this leaves room for potentially inappropriate and ineffective practice in this domain.

Infants and Toddlers' Visual Arts Learning

Infants and toddlers are under-represented in visual arts educational research, and minimal literature was found for this review regarding teaching practices for infants and toddlers' visual arts learning in ECE settings. Richards and Terreni (2022) synthesised a range of literature about visual arts in early childhood generally, and proposed intentional teaching practices that are adaptable to infants and toddlers as well as older children. For example, they suggest that collaborative art-making experiences can be opportunities for social connection, communication, and shared creative expression.

Another proposed practice centres around the importance of culturally responsive teaching in ECE visual arts (Richards & Terreni, 2022). This is certainly relevant in infant-toddler pedagogy. However, it is worthwhile to consider specialised pedagogy for this age group because they have unique learning strengths and engage in different ways than older children (Dalli, 2017). For example, Danko-McGee (2016) argues that "infants can benefit from viewing and making art because these opportunities provide sensory experiences that lay the groundwork for perceptual, cognitive, and receptive language development to occur" (p. 1).

In a study on NZ infant-toddler teachers' beliefs and practices around visual arts, Visser (2006) found that ECE teachers are confused between developmentalism and sociocultural theory when it comes to their role in infants and toddlers' visual arts learning. Visser (2004) suggests that infants and toddlers engage with visual languages even before they begin mark-making. In this view, the first scribbles and marks should not be seen as the beginning of a child's artistic development; rather, their engagement with the aesthetic environment is the beginning of artistic awareness. This forms the backdrop for artistic production, whether as a toddler or as a professional artist, and it has ramifications for the role of the infant-toddler teacher. Infants and toddlers develop spoken language best in a language-rich environment. They also develop visual literacy best in a visually rich environment where interesting, culturally relevant visual stimuli are provided *and* where infants and toddlers are supported in their exploration and interpretation of this by engaged adults (Danko-McGee, 2016; Schwarz & Luckenbill, 2012; Visser, 2013).

Methodology

A mixed-methods study including a survey and an embedded case study were used in this research. An interpretivist, constructivist stance influenced the research design and the analysis of data; this positioning acknowledges the subjective nature of knowledge of both the inquirer and the participants, viewing knowledge and experience as constructed by people in a particular time, place, and socio-historical context (Schwandt, 1994). A national survey of ECE teachers working in the NZ ECE sector at the time of the data gathering was undertaken. The survey included a range of questions about teachers' individual visual arts practices and perceptions and their teams' shared pedagogy for visual arts. Likert-scale results were analysed using a descriptive statistics approach (Fraenkel et al., 1993), and the qualitative comments were thematically analysed (Braun & Clarke, 2006). The embedded case study used in the research involved the establishment of a 9-month-long PLC which focused on visual arts in ECE. An embedded case study allows for multiple data sources and multiple perspectives (Scholz & Tietje, 2002), appropriate to the complexity of a PLC. The PLC brought together seven teachers from four ECE settings. Data gathering

included interviews with participants and their leaders, focus group interviews with the four ECE teams and the PLC group, assessment document analysis, photographs of environments and workshops, and PLC meeting dialogue. The study was not initially designed with a focus on infants and toddlers, but emergent findings from both the survey and the case study produced interesting insights into ECE teachers' perceptions of infants and toddlers as visual arts learners and what indicated common teaching practices for visual arts with this age group. These emergent findings about infants and toddlers' art learning experiences are the focus of this article.

Survey Findings

The survey received 196 responses from ECE teachers across Aotearoa NZ. Infants and toddlers' participation was mentioned in 11 responses across the survey, and six of these identified it as a problem in terms of how to provide appropriate visual arts experiences for this age group. Comments about visual arts with infants and toddlers included words like, "tricky," "challenging" and "limited". Several respondents said that they did not keep an art area set up because they worked with infants and toddlers, so only put out art materials and experiences occasionally rather than having a dedicated area. One respondent said that the growing number of toddlers on their roll meant the team was "currently more focused on other things such as safety and routines."

However, several comments about infants and toddlers focused on sensory play with materials. Four comments described art experiences for children under 2 years of age, and three of these focused on sensory exploration. Sadly, the following was the only positive comment specifically about visual arts with infants and toddlers:

I work with under 2s and find they really enjoy any art activity whether it be painting, gluing or drawing. Art activities are always included on our planning board as a continuing interest for our children.

While the findings about infants and toddlers from the survey are limited, the emergent nature of the comments and the evidence of lack of engagement in this domain make these data worthy of consideration.

Findings From the Professional Learning Community Intervention

Before the PLC began, the participants described a varied range of confidence about visual arts, both in their professional teaching roles and in their personal lives. However, regardless of their confidence about visual arts, all seven participants expressed pedagogical uncertainty about how to engage with children during visual arts learning. They were also uncertain about when it might be appropriate to intervene or facilitate and had concerns about how to extend children's learning beyond their initial interest and exploration. Their frustration with a lack of guidance in visual arts education and an awareness that there could be better pedagogical approaches had led these teachers to volunteer to participate in the visual arts PLC dimension of this study.

The monthly PLC meetings were centred around practical art workshops with visiting artists. After these there was generous time for reflective dialogue amongst the group. The participants described a clear connection between having art experiences themselves in the PLC, and how this helped them to be motivated

and confident to try art materials and processes with children in their ECE settings. Additionally, the reflective dialogue was highlighted as a powerful mode of lifting teachers' self-efficacy around visual arts. This was because the group was able to reflect and problem-solve together and were inspired by one-another's successes and ideas. The extended length of time of the PLC over 9 months allowed the participants to develop trusting relationships, which made them feel more empowered to engage in the group. This in turn helped them to enact multiple cycles of learning, practice, and reflection back in their ECE settings.

The PLC participants discussed infants and toddlers' visual arts during the reflective discussions, and as a result, those working with toddlers were able to trial new approaches. Significantly, the successes of those participants influenced the whole PLC group in discussions about the possibilities for infants and toddlers' visual arts learning. For example, one participant realised that being more intentional in her teaching of visual arts had given her confidence in her practice in this domain. She explained:

Probably my intentionality in the set-up of the area, that's increased my confidence, because in being more intentional you know more about what you want to do, and you can better support and extend children's learning.

She contrasted this with her previous behaviour of putting random art materials out without prior thinking and intentionality. This was because before, it had been harder to know what boundaries to put on the infants and toddlers' behaviour with the materials. As a result, it could become chaotic, stressful, and more messy which limited toddlers' engagement.

For the participants working with the infant and toddler age group or in mixed age settings, it became clear that they developed confidence in what was effective practice by being able to articulate the theoretical basis for being intentional with this younger age group for visual arts learning. In the following quote from a post-PLC interview, one teacher reflected on the way her intentional planning for learning supported toddlers' freedom of exploration with visual arts materials:

With our age group... they do need the opportunity to explore those materials to get familiar with them in order to use them properly, and sometimes you just have to take a breath and allow that to happen. But also I've found that being more intentional and more planned in my approach means that I know where those boundaries are, because I've decided what I want [children] to get out of that particular activity that we're doing.

Building on this, one participant reflected that while toddlers needed plenty of open-ended exploration, it was also empowering to scaffold their skills with different media and tools to extend their creative opportunities:

I think probably for our age group, a lot of it can be about learning how to use the materials... letting children have room to explore it, but also sort of deliberately showing them how to use materials as well, and making suggestions about... how we can work together to make art? or, how they could make their own art?

The data analysis from the PLC case study demonstrates the partic-

ipants' shift towards seeing the possibilities for an intentional teaching approach with infants and toddlers' visual arts. The participants developed increased confidence to plan and be prepared, and more awareness of what would create the conditions for success for both adults and younger children in visual arts experiences.

Discussion

The findings from the survey and the pre-PLC data suggest that visual arts teaching practice for infants and toddlers is an area of low confidence for ECE teachers, and that appropriate visual arts pedagogy for this age group is ill-defined and not well understood across the sector. Engaging infants and toddlers in visual arts was described as a difficulty or problem by more than half of the survey participants who specifically commented on infants and toddlers.

In the PLC participants' workplaces there were indications of similar anxieties and barriers for these teachers in infants and mixed age settings. For example, one barrier (raised by survey participants and pre-PLC focus groups) was a concern for safety when offering visual arts materials to infants and toddlers. Another barrier became clear when one of the focus centres said they did not offer any art experiences in the under-2-year-olds space due to a perception that it was not developmentally appropriate. One of the teachers in the team explained, "*for the infant room we don't really offer art, apart from drawing occasionally when children ask.*" This is concerning, as it seems unlikely that many infants and young toddlers would ask to have an art experience when it is not available in the environment. Prior research suggests that it is important to carefully consider the visual and creative context that adults provide for infants and toddlers, to offer opportunities to develop visual literacy, sensory learning, and for infants and toddlers to begin to see themselves as capable of creating (Danko-McGee, 2016; Schwarz & Luckenbill, 2012; Visser, 2013).

The findings from the study reported here about visual arts support prior research about the tendency of infant and toddler teachers to hold back from active involvement in children's physical or cognitive learning (Salamon & Harrison, 2015). Survey and PLC participants who were working with infants and toddlers commonly referred to the Pikler approach and RIE® philosophy, and survey comments mentioned teachers being observers and allowing children to develop naturally in visual arts and more broadly. However, Salamon and Harrison (2015) suggest that the philosophical influence of Pikler is likely to encourage early childhood teachers to hold back from intervening in infants and toddlers' learning and to stay in an observational mode, except for in care and socio-emotional situations.

In a NZ study, Dalli (2017) also found that teachers of under-3s were likely to resist seeing themselves as initiators of learning but were more likely to see themselves as background figures observing children's natural learning processes. Visser (2013) suggests that visual arts learning for infants and toddlers tends to be seen by infant-toddler teachers through a developmentalist view, highlighting an enduring perception that "infants' and toddlers' engagements with the visual arts are primarily sensori-motor explorations rather than encounters with the social, cultural and visual world and its languages" (p. 53). Visser found that infant-toddler teachers believed that children progressed through predetermined stages of visual arts development, and

that the teachers believed that they could not assist infants and toddlers through this development in any helpful way aside from providing appropriate resources and environment. The findings from this study similarly indicate that ECE teachers in NZ interpret infant-toddler visual arts learning with a developmental lens, and that this continues to influence visual arts pedagogy in the sector.

The experiences of the PLC participants offer suggestions of how to address this through professional learning. Through reflective dialogue and ideas from shared practice, the PLC participants developed a collective optimism about providing appropriate visual arts experiences and intentional teaching for this age group. While it is important to consider low-toxicity and safety of art materials, the results of this study show that teachers do not need to withhold visual arts from the youngest learners because of risk-aversion. Schwarz and Luckenbill (2012) contend that it is possible to develop visual arts teaching practices appropriate to infants and toddlers, including consideration both for safe resources and for rich learning opportunities. Further, at this younger age, visual literacy is an important early element of artistic learning (Visser, 2013); for this reason the ECE setting should also include examples of art that reflect the diverse culture of the wider learning community.

Survey respondents and team members connected to the PLC tended to perceive infants and toddlers as not being ready for visual arts learning. Nonetheless, through reflective dialogue and practice, the PLC participants developed a view of infants and toddlers as capable of engaging with intentionally designed visual arts learning experiences. The PLC participants who worked with toddlers shared some thoughtful reflections about the role of the teacher with this age group, and from this the whole PLC group built up knowledge and a more expansive view of infants and toddlers' capability in visual arts learning. The PLC group recognised that while infants and toddlers enjoy and benefit from open-ended exploration of materials, the teacher can ensure the experiences are educative and stress-free by intentionally planning and then facilitating the learning experience by being engaged and hands-on. Through practical experiences and professional dialogue, PLC participants came to the realisation that even the youngest children benefited from a present and engaged teacher in visual arts learning, and even the most open-ended and sensory exploration of materials benefited from thoughtful teacher planning.

The findings from this study suggest that it is effective to think about what happens in the infant and toddler space as foundational for visual arts education for pre-school age children. Very young children may have some of their first encounters with visual arts, including sensory exploration of materials and discovering the power of mark-making through the use of art materials. The findings indicate that mark-making opportunities are a central aspect of children's earliest encounters with art materials, as they discover the power of creating and the way a mark can be shared with others. ECE teachers can plan thoughtfully for such early encounters by considering how the children might engage with the experience. In this way, infants and toddlers can be offered a learning context to develop relationships with materials, thus building a foundation for future creative expression.

This is an opportunity to challenge contradictory thinking in ECE pedagogy, because infants and toddlers clearly benefit from plenty

of freedom to explore, as well as carefully planned encounters with materials and attuned adults who are fully present in the experience (Cheeseman, 2017; Dalli, 2017; Danko-McGee, 2016; Visser, 2013). Therefore, ECE teachers do not have to choose between either free exploration or intentional teaching for infants and toddlers' visual arts.

This research suggests that a complex theoretical view of learning and development across the early years is still required to challenge the view of infants and toddlers as not being ready for visual arts. A considerable lack of research and literature about infants and toddlers' visual arts learning is apparent, but findings from this study show that there is room to develop sociocultural and intentional teaching practices for infants and toddlers alongside respectful caregiving practices.

Conclusion

The findings from this study suggests that ECE teachers are likely to lack confidence about what is appropriate practice for supporting infant and toddler visual arts learning. The experiences of the participants in this study suggest that infants and toddlers are creative and capable, and benefit from engaged teachers who know how to provide enriching visual arts learning experiences.

Focused professional learning, as described in my study, can offer ECE teachers the theoretical and practical knowledge to become confident visual arts educators for infants and toddlers. The professional learning opportunities for the participants included team reflective dialogue, where colleagues critically examined their own assumptions and deeply held beliefs about young children's art development which helped change their practice. A selection of the questions used in interviews and reflective discussions has been adapted below, as an opportunity for practising teachers and teams to reflect on their own visual arts pedagogy.

However, further research is needed to study very young children and their teachers' engagement in visual arts teaching and learning, and to explore the impact of intentional teaching in this area. A sociocultural and intentional teaching approach, as suggested in *Te Whāriki* (Ministry of Education, 2017), does not need to conflict with RIE® and care-as-curriculum but rather can enrich respectful contexts.

Reflective questions:

This is a selection of questions adapted from the survey, interviews, team focus groups, and PLC group dialogue. The questions are included to help guide ECE teachers wanting to start their own reflective inquiry into visual arts planning and practice.

- What are your beliefs about art education in early childhood? How do these beliefs influence your approach to infants and toddlers' visual arts learning?
- How would you describe your own level of confidence and ability in making art?
- How would you describe your team's shared pedagogy around visual arts? Have you had any team dialogue about art before, and have you got any differing opinions and practices amongst your team?
- How would you describe your confidence in planning for and responding to children's art learning as an ECE teacher?
- What do you do when children are engaged in art making at your centre? For example, what kinds of language do you use, where do you sit, do you engage at all and if so, how?

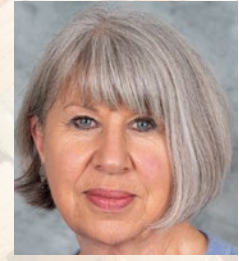
These questions are intended to encourage reflection on visual arts beliefs and practices. They could be adapted for student teachers, for whole team dialogue, and for internal evaluation.



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Play for its own sake



PROFESSOR ELIZABETH WOOD

Abstract

Readers of *The First Years* will know that play is important for young children's learning and development, and will understand the many reasons why. Whether we look at categories of play (physical, cognitive, socio-emotional), or types of play (construction, small world, digital, rough and tumble), there is a wealth of international research that has documented immediate as well as longer-term benefits. This article focuses on play for its own sake as a timely counterpoint to outcomes-driven approaches to play in early childhood.

Introduction

The contemporary realities of play mean that children's play lives are saturated with adults' versions of what children are like, what they desire, and what forms of play produce particular outcomes and benefits. From a commercial perspective, play is big business, with global brands occupying centre stage in the play marketplace. The blending of digital and traditional play has reinforced the reach of this marketplace with digital and physical versions of games. Related merchandise reflects the appeal of blended play, with popular culture integral to children's playworlds. Guidance is available for professional practitioners on pedagogy and practice, and for families to support children's play both indoors and outdoors, online and offline.

The fact that play is often divided and studied in terms of types and categories reflects these realities, and can produce atomised versions of what play is good for. It seems to be the case that if human beings are allowed time to play, then it must be seen to produce immediate positive outcomes for the individual, and longer-term social and economic benefits. This outcomes-led approach is evident in education policy frameworks and relies on a linear model of development where play may be related to developmental goals. When we consider play for its own sake, it is harder to define how specific types of play lead to specific outcomes in linear and hierarchical ways. This task becomes even more challenging when we think about babies and toddlers where play and playfulness are supported by interactions through significant relationships. In contrast, we can understand play as a complex web of interconnections, which may lead in many different and unpredictable directions. Those interconnections are formed through children's life experiences, relationships, heritages, and cultures, as they build their own meanings and interpretations of their social worlds.

Because play is pulled in these different directions, it is essential that we maintain an appreciation of play for its own sake across the human life span, and especially for children. This does not mean that play for its own sake is only about children's freely chosen play. From the moment children are born, relationships with family and kinship members develop through intimate and often playful connections. This is known as joint attention and inter-subjective attunement, both of which support joint participation (Rogoff et al., 2015). Cooing, singing, babbling, rocking, swaying, blowing raspberries, and playing peek-a-boo, are all ways of paying attention and signalling to children what playfulness means. It is not long before babies initiate those interactions and call for that inter-subjective attunement through gestures, facial expressions, gaze, and vocalisations. A key challenge for practitioners and families is respecting play for its own sake by maintaining openness and flexibility in what we notice and how we respond to children's play.

The first section considers play for its own sake from the perspective of the individual and the collective. The second section sets out contemporary interpretations of sociocultural theories with a focus on children's funds of knowledge and interests. The third section explores these theories in relation to the role of adults in supporting play. In the conclusion, some principles are suggested to maintain play for its own sake and to sustain the joyfulness of human play lives.

The Individual and the Collective

Children experience many different types of settings within and beyond the family. In early childhood settings the focus is on planning, observing, and tracking play and sometimes measuring the "outcomes" through children's assessment profiles/portfolios. These practices have been driven by national policy guidelines such as *Te Whāriki* in Aotearoa New Zealand (Ministry of Education [MoE], 2017) and the *Early Years Foundation Stage* in England (Department

for Education [DfE], 2023). Whilst play is valued in many such frameworks, there are increasing tendencies to ensure that play leads to specific outcomes and helps to prepare children for compulsory education (Chesworth et al., 2023). In the educational justifications for play children are projected towards an imagined future of being responsible and economically active citizens. Assessment practices inevitably focus on the individual child's learning outcomes or developmental goals. When it comes to play, a focus on the individual is somewhat limiting for two reasons. First, research indicates that the qualities of play are enhanced through relationships and connectedness, as will be further explored in the second section. Second, based on the work of Vygotsky (1978), a key position in sociocultural theories is that children are able to act as though they are a "head taller" (p. 102) than themselves in play. This is because they can act with imagined capabilities and create different versions of themselves. Social collaboration drives collective capabilities through, for example, imagination and pretence, shared interests and knowledge.

If we accept that play is made up of complex webs of activity, it follows that meanings, relationships, and interests evolve over time and in context. For children up to around 3 years of age, repetition is important for understanding what it means to be playful, and to embody playful routines and practices. Repetition can be goal-oriented such as building a tower of bricks, or open-ended such as exploring materials in a treasure basket. Solitary play can count as play for its own sake because it may reflect children's desire to explore and investigate in their own ways and own time. As children develop social and collaborative play skills, play themes can be changed and negotiated as they build shared cultural repertoires. Motivations are particular to the players, supported by time, space, place and materials. Play is thus a highly integrative social practice that requires effort, concentration, shared memory, and knowledge, but generally brings pleasure, satisfaction, and affective intensity.

It is important to add the caveat that play for its own sake does not mean that "anything goes". The role of adults is to ensure children's safety and well-being, and to address issues of inclusion and exclusion, and inappropriate or discriminatory language.

Children are continually co-authoring play as fluid and complex social practices. At the same time, they are co-authoring their identities – who they are, how they belong, their linguistic and communicative resources, and what they can contribute to the play. The collaborative and relational qualities of play are supported by contemporary sociocultural theories.

Contemporary Sociocultural Perspectives

Contemporary sociocultural theories focus on the individual and the collective, in which children's peer cultures connect with their wider cultural contexts and knowledge. Rogoff (2003) argues that children build play repertoires within their peer cultures. Children co-create play themes, play rituals, stories, and rules. Rules are integral to the flow and development of the play themes over time, and might include what, and who, can come into the play, and how they can contribute. Children invent the social rules of play to determine what they do and do not feel comfortable with, including whether adults can come into the play. As they step in and out of play children make their own unique contributions, which may include negotiating roles, developing the play theme, and clarifying understanding. These relational qualities combine uniqueness and togetherness, which

contribute to an understanding of agency as collaborative and transformative (Stetsenko, 2020).

The concept of transformative agency (Stetsenko, 2020) connects to the position that play does not create a linear developmental trajectory, rather that it is a complex web of activities that may evolve over time in different directions and combinations. For example, when children learn to crawl, stand, walk, control a wheelchair, or use assistive technologies, these are not just developmental milestones. Each new capability creates open-ended possibilities for new activities. As Stetsenko (2020) has argued, transformative agency involves children adapting the world to themselves, and, in the process, changing themselves and the world. Play activities may seem chaotic and unpredictable, especially in outdoor environments where children have more space and freedom to move. However, when we pay attention to play for its own sake, there is usually an underlying structure that develops over time, and reflects children's actions, purposes and meanings. Imagination, pretence and imitation contribute to collaborative transformative agency in terms of how children learn to use tools, and act out roles and characters. It is worth noting that imitation is not merely copying. Rather, as Holzman (2017) has argued, imitation is highly creative because play enables children to create their own interpretations and new performances of themselves. It is through these processes that children co-create their own developmental environments; they are able to express their developing sense of identities, interests, heritages, languages and cultural practices from their homes and communities. The concept of funds of knowledge is pivotal to understanding these processes in the context of children's play lives.

Research on children's funds of knowledge explores the rich cultural repertoires that children draw on from their home and family communities (Chesworth et al., 2023; Hedges, 2021, 2022). These cultural repertoires encompass family interests, hobbies and recreation, games, sports, religion, roles, languages, relationships and routines, and engagement with popular culture through different media and technologies. As children co-participate in everyday practices, they learn about family histories and heritages, and engage with languages, cultural tools and resources. When they are able to engage in play for its own sake, children can explore these cultural repertoires in their own ways with kinship members and friends.

Tatham-Fashanu (2021) carried out research in a multi-diverse primary school for children aged 4-5 and 5-6 in a city in the north of England. Focusing on the children's cultural and linguistic repertoires, she found that collaborative play activities enabled children to piece together fragments of their multiple home and community languages. They explained the meaning of specific words and phrases, and acted out social practices from their homes, as they communicated in multimodal and embodied ways. Play for its own sake was meaningful for the children because it enabled them to "translanguage" seamlessly and to maintain their multilingual communicative skills, even though the dominant language of the classroom was English.

As Hedges (2022) has argued, these shared cultural repertoires stimulate children's interests, which, in turn drive the complex meanings and motivations that children bring to their play. Some interests may be short-lived, perhaps as a response to events in the news or in the local community. Other interests may reflect deeper meaning for children, and can be sustained and developed over

time. For example, from around the age of 10 months, Beth loved to explore natural materials contained in an old tin box (an alternative to a treasure basket). Although the materials changed over time, her attention often centred on a large mother of pearl button, shiny and iridescent, and chipped at the edges, which provided sensory stimulus. The button clearly had deep interest for Beth, even though this was not immediately visible, and its symbolic meanings changed over time. The button was often placed at the centre of arrangements of other materials, then was subsequently tied onto soft toys as a decoration, sellotaped onto other creations, and used as money or an item of food in imaginative play. Years later, in her primary school, Beth included this button as a significant material object from her childhood when she was writing a project about her family history. (The button still sits on my desk with a fragment of sellotape attached). This example illustrates two key points for children of all ages: first, meanings are not immediately visible, but may become so with careful observation over time. Second, natural materials provide open-ended stimuli for play across all age groups.

Deeper meanings and experiences can also be shared in imaginative play. In the following example, children aged 4-5 were playing in the outdoor area where they had access to a wide range of resources and natural materials. A group of children were mixing birthday cakes in the mud kitchen and brought large coloured chalks into the area to make icing. They did this by crushing the chalks and adding water to create a liquid mixture. This spontaneous act led to a sequence of energetic imaginative play which drew on children's funds of knowledge: memories of birthday parties, making or buying cakes, going to cafes, what they like to eat and drink, different types of cakes for festivals, who was 4-years-old, and who was already 5, and ages of family members. One child said, "My Dad is really old, he's 32." The practitioners did not intervene, but did interact to go with the flow of the play when offered a cake or asked about their favourite colour of icing.

Although the immediate focus of interest in this activity was making the icing for the cakes, the longer-term shared interests in the classroom included cooking, food for festivals, making and sharing different types of food. The practitioners were aware of these shared interests and made time for collaborative preparation of daily snacks, designing menus, healthy eating, cooking and trying out different types of food. In these ways, the practitioners respected play for its own sake, but built on children's interests across other areas of their provision.

The following principles indicate how children's peer cultures are significant for:

- supporting social affiliation and co-operation (where practitioners are sensitive to inclusion/exclusion and ensuring children have equal access to resources);
- building identities and relationships with peers and adults;
- taking up powerful social roles – children can be 'the more knowledgeable others' when they share their own knowledge, expertise and play skills;
- sharing multimodal, cultural and linguistic repertoires;
- sharing interests and funds of knowledge – local and global;
- contributing to the collective culture of the setting.

Being able to develop these complex skills relies on children having access to stimulating and supportive developmental environments. It is here that we turn to the questions about adults' roles in play.

The Role of Adults in Play

If we accept the principle of play for its own sake, then where does this leave the thorny questions of what adults could or should be doing, when they should interact and with what purposes in mind? Whatever the context, maintaining children's safety and well-being is paramount, ensuring that all children have access to play, and that spaces and resources are inclusive. A stimulating environment allows children some freedom to take risks, create challenges, and have a go. However, this does not mean that planning the environment should be done mostly by adults. Children's plans and purposes reflect their choices, which are expressed through dynamic combination of individual and relational agency. These processes are illustrated in the following episode, which took place in a primary school in a large city in England.

Being with children and practitioners in early childhood settings has been a consistent feature of my professional life, first as a teacher, then as a researcher. Stepping into a setting is always an adventure and I have noticed over the years that children usually welcome new people, because you are seen as an extra playmate. However, this welcome is a privilege, and one that has to be guarded with care because children will soon let you know if you are not a good player.

During a visit to a setting a very excited boy (Dario aged 4 years and 7 months) approached me with a piece of paper on which he had made some marks, and a pencil. He asked me to help him make a map of his local community so he could show his friends where the pirate's treasure was buried. I knew this was not the moment to invite him to look at maps, or introduce positional language, or ask questions about what treasure is buried, or where the pirates were coming from (up the river on a pirate ship, as I was later informed). The play momentum was already in flow, and he was eager to get back into the play. So, I listened to his instructions – "we can't cross the big road, so we'll have to go under the tunnel," and "not near the shops, we can't bury treasure cos of the pavements." My suggestion was offered tentatively as Dario drew that map. "How about you go past the shops, then maybe down this road to the park. Do you think that's a good place to bury treasure?" Dario's response was enthusiastic: "Yes, yes, thelympic (Olympic) park. That's where we go with my Nan. She can't walk a lot...but...but... she's got a wheelchair. And sometimes I go in it, and we go very fast." After this Dario took the map, waving it in the air as he ran off to his friends.

This brief interlude illustrates some important points about respecting play for its own sake. First, paying attention to the flow of the play and the child's intentions; second, resisting the temptation to go into "pedagogical mode" by asking questions, and third, listening to the child's thinking and reasoning. One event (making a map) connected to Dario's own personal geography: he was knowledgeable about his local environment, and his sense of place and space connected to family events that were of emotional significance in his life. Although the play activity was open-ended, it was goal-directed and purposeful. Conversations in play and in context helped to sustain momentum and imagination, consistent with Dario's goals and purposes.

Subsequent reflective conversations between the practitioners about the pirate play picked up the pedagogical implications, for example,

adding resources to develop the play, such as maps and plans, and making time for stories about actual and imaginary journeys and travel. This episode also illustrates the important principle that children's plans and purposes reflect their meanings and choices. By recognising the importance of children's peer cultures, practitioners can respect play for its own sake and build on children's funds of knowledge in their planning.

From the perspective of play for its own sake, adults can plan for children's play to develop over time in ways that combine structure and flexibility. This principle applies equally to practitioners, family, and kinship members. Structure and flexibility are both needed to sustain free choice, agency, imagination, improvisation and a dynamic combination of individual and relational agency. Although children's purposes and meanings are foregrounded, adults can be responsive, for example offering suggestions and ideas, providing open-ended resources and materials, supporting new directions, and acting as co-players if invited. Play for its own sake is enriched when adults enable children to co-create their own developmental environments.

Conclusion

In conclusion, play for its own sake is important from birth, and across the human lifespan. As children develop their play skills and repertoires, complex play evolves through a dynamic combination of individual and relational agency. Contemporary ideas about play as webs of activity conceptualise the multiple directions of development in play. Children create shared spaces and places for play, with joint attention and intersubjective attunement contributing to how play builds in social, emotional and symbolic complexity. Imagination, pretence and improvisation also determine this complexity, especially as children develop their skills in socio-dramatic play. Play themes evolve within play episodes, in context, and over time, with children contributing their funds of knowledge, as well as their cultural and linguistic resources.

The following principles underpin play for its own sake:

- Relationships, experiences, spaces, places and materials have personal and collective meaning for children;
- Create spaces and select materials that hold significance for babies and toddlers in your setting;
- Ensure children have access to natural materials and resources to support open-ended play;
- Play connects the cultural discourses and knowledges of home, communities and education settings;
- Involve families in the design of culturally rich play spaces for babies and toddlers;
- Children share meanings and purposes, including knowledge of popular culture;
- Tune into and support the multi-modal ways that babies and toddlers communicate their interests and intentions in play;
- Agency is distributed across social, cultural, material and relational contexts;
- Notice and enable babies and toddlers to make choices and decisions about their play activities;

- Physical, traditional and digital play come together in children's play repertoires;
- Undertake careful observations about the nature of babies' and toddlers' play.

Children's play lives have become saturated with adults' desires and expectations. Finding time and space for play for its own sake brings many benefits for children. Although these benefits may not be immediately visible, let alone measurable, they are nevertheless significant for how children come to understand themselves, and their place in their social worlds. Play for its own sake is an invitation for everyone to sustain the joyfulness of shared play lives across the lifespan.

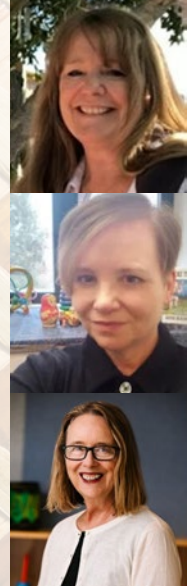
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What are you talking about? The power of professional development to enhance conceptual language interactions with infants and toddlers

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(peer reviewed)



Abstract

Most educators are aware of the significance of the learning and development that occurs in a child's first three years of life, of which language interactions play a huge part. Yet, evidence suggests wide variation in observed educator language interactions with infants and toddlers in early childhood education and care (ECEC) settings. In this study 16 educators engaged in a professional development (PD) program aimed at enhancing language interactions with infants and toddlers. Over the period of the study, educators' average number of words spoken increased by 52%, and conceptual language use increased by 135%. This article presents the stories of two participating educators selected to illustrate contrasting levels of qualifications and experience and differences in their amount and richness of talk with young children at the commencement of the study. Their stories demonstrate how language interactions can be enriched through targeted PD.

Introduction

Research findings leave no doubts about the significance of a child's early years which is when foundations for future development are laid (Sigman et al., 2014). During the first three years extensive development of brain architecture occurs, critical for supporting later learning and academic achievement (Ebbeck et al., 2010; Lally, 2010; Rushton, 2011; Shonkoff & Phillips, 2000). During these years children's early acquisition of language skills provides the foundation on which later language and literacy skills are built (Hirsh-Pasek et al., 2015; Rowe, 2012), providing the critical foundations required for future success (Gilkerson et al., 2018; Pace et al., 2019; Rowe, 2012). For example, upon entry into "big school", children with strong language skills face fewer difficulties when learning to read (Walker et al., 1994). In contrast, children without that solid language foundation are more likely to experience literacy and literary difficulties that can continue to become challenges in adulthood, affecting mental health and employment (Law et al., 2009). While the advantage throughout formal schooling and life that a young child has when exposed to a large number of words and supported to develop a large vocabulary is evident (Hart & Risley, 1995), research also shows that infants' language development outcomes may be more influenced and shaped by the quality of language heard (Golinkoff et al., 2019). Studies conducted in early childhood settings further indicate a relationship between the quantity of language heard and the quality of the educator-child language interactions; that is, when an educator talks more, the talk is more likely to include richer language (Golinkoff et al., 2019; Montag et al., 2018).

Early childhood researchers also suggest that routine contexts (such as nappy change and meal/snack times) can provide perfect opportunities for rich one-on-one interactions with the potential to support vocabulary development (Gest et al., 2006; Hallam et al., 2016). Yet observation of meal and snack times in infant/toddler classrooms, as reported by Degotardi et al. (2016) and Hallam et al. (2016), often fails to reveal educators engaging children in frequent language interactions. Concerns about less-than-optimum practices in early childhood settings have raised questions about the content and delivery of initial ECEC programs within universities and training institutions, with many studies finding a lack of attention and content devoted to the infant and toddler age groups (Chu, 2016; Dalli et al., 2011; Garvis & Manning, 2015; Garvis & Pendergast, 2015; Horm et al., 2013; Torr & Pham, 2015; White et al., 2016).

It was research findings such as these that prompted this study, which aimed to provide professional development (PD) opportunities to upskill educators to support infant and toddler language learning.

The Research Project

This 9-month-long study aimed to first design and deliver a targeted PD program to enrich the language interactions of infant and toddler educators, incorporating the lesser-studied conceptual dimension of language. Second, the study proposed to assess the sustainability of enhancements made to educators' practice over time. This aspect was chosen as when educators label (or name) an item or action that the child is jointly focused on with an educator (e.g., during joint attention), they are more likely to begin to associate the item

or action with the word – a skill critical to a young child’s developing vocabulary. Third, the study assessed the effectiveness and sustainability of the PD to educators’ practice over time.

Theoretical principles of practitioner enquiry underpinned the study design, and generated a participant-driven, research-informed program. Social interactionist theory was used to inform the content when designing the PD workshops. The study addressed three research questions:

1. Does a targeted professional development program based on the principles of practitioner enquiry improve educators’ language interactions with infants and toddlers?
2. To what extent are benefits gained from the professional development program sustained after termination of facilitator support?
3. How do educators experience the process of change that is integrated into the practitioner enquiry model of professional development?

Ethics approval for this project was granted by Macquarie University’s Ethics in Human Research (Human Sciences) Subcommittee.

The PD Workshops

The PD program consisted of three two-and-a-half-hour workshops designed and delivered by the lead author one month apart at the educators’ place of work. To design the workshops, evidence-based strategies that support or hinder different aspects of young children’s language learning were extracted from the literature. Topics were then organised into categories based on the three dimensions of language identified by Rowe and Snow (2020): Interactive, linguistic, and conceptual. To present each topic, workshop slides followed a consistent format comprising three parts:

- “What is...?” (a brief definition of the topic or concept),
- “What does the research say?” (a summary of how the research has shown the concept to support the child’s language learning and future academic success), and
- “Putting research into practice” (introducing specific strategies and practices for educator implementation).

Each workshop presented several concepts scaffolded from the most basic from each language dimension to the more complex. For example, after introducing “the importance of early language learning,” workshop 1 included “serve and return,” and “labelling language.”

Method

Participants

Early childhood services were sourced from the national register of ECEC services downloaded from the Australian Children’s Education and Care Quality Authority. Services in and around Sydney Australia with a National Quality Standard (NQS) assessment rating of meeting NQS or lower were “cold-called” to invite participation. Recruitment ceased when three services agreed to participate in the study.

A total of 16 educators from six infant and/or toddler rooms participated. Services ranged from low to high socio-economic status. Educators’ ECEC qualifications ranged from Certificate III

(an entry-level qualification) to university degree trained and their experience in ECEC ranged from 1 month to 36 years. Educators were predominantly English-speaking Anglo with a small number speaking English as a second language. Educators estimated that approximately 25% of families spoke English as a second language.

Data generation

Data were generated via 3-hour audio recordings of each educator interacting with infants and toddlers during their normal daily activities at three time points: Time 1 recordings were gathered prior to the commencement of the workshops to establish a baseline of educator’s language interactions, Time 2 after the final workshop, and Time 3 six months later to ascertain if enhanced language practices had been sustained over time. Extracts from the recordings pertaining to a meal or snack time, nappy change, and playtime were transcribed verbatim, coded, and statistically analysed to examine changes in the quantity and features of educator language input over time. Interviews and questionnaires interspersed throughout the project tracked educators’ personal experiences of change and provided insight into varying patterns of change.

Coding and data analysis

Software was used to code results into subcategories within the interactive, linguistic, or conceptual dimension of language. As less is known about the conceptual dimension of language, conceptual language scores were created for this study, derived from the combined occurrence of “labelling language,” consisting of nouns to label items and verbs to label actions, and “descriptive language,” consisting of adjectives, adverbs, and prepositions. To create a standardised scale by which to track changes and make comparisons, coded results were then calculated as a “per minute” score, as per Degotardi et al. (2018), Murray et al. (2006), and Pellegrino and Scopesi (1990). For example, the amount of educator talk coded as conceptual language was reported as the number of “words per minute.”

Presenting the Results

The results are presented through the stories of two very different educators, Holly and Khloe (pseudonyms), who worked in different ECEC services. The focus of their stories is on the use of conceptual language.

Holly’s Story

Holly is a room leader with 36 years’ experience in early childhood education and care, 20 years of those working with infants and toddlers. Holly holds three ECEC qualifications with the highest being a Master of Early Childhood. Holly was initially keen for her birth-to-three room educators to join her in the study but felt the workshops would be more beneficial for her educators who held lower qualifications or had less experience than for those with university qualifications or extensive experience working with the younger children.

Holly’s Time 1 baseline results showed that her use of conceptual language was above the average for the room and other educators in the study. At the children’s morning teatime Holly used labelling in single-word sentences when she asked children, “cucumber?” or “capsicum?” However, a golden rule had been specifically created for the PD program as a reminder for educators to use labelling and descriptive language: Based on this rule that *anyone that can hear you but not see you should be able to tell what you are talking*

about, there was room for improvement. For example, Holly was also frequently heard asking, “more?” or “Want some more?” when offering seconds to the children. During playtime she was heard to say things such as, “okay, put that over there.” When transcribing the audio recordings without the benefit of video, there were many times when it was impossible to know what Holly was talking about.

At Time 2 something quite unexpected occurred – Holly’s score decreased (note that this only happened for one other educator of the 16 participating). In an interview following a preliminary analysis of Time 2 results, Holly was informed of the decrease in her scores from Time 1 to Time 2 and provided with examples of her conceptual language use from her transcripts. She was shocked! In the ensuing conversation Holly stated,

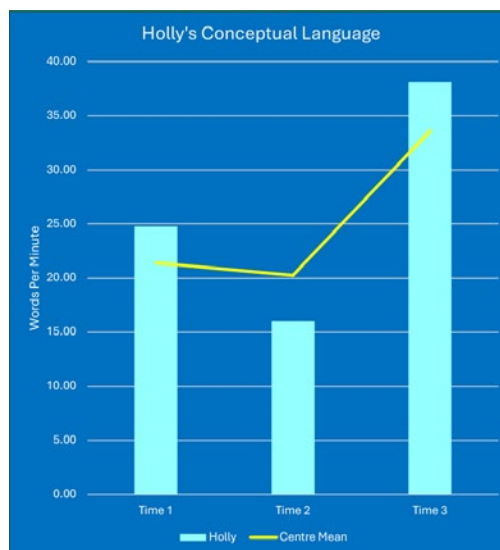
I thought ‘I’ve been doing this for over 30 years, I’m all over it’ – that sounds arrogant! I thought I had the strategies in place ... I don’t know, there were just some [strategies] that I thought, I’m already doing that!

On being asked before the Time 3 visit if the feedback had come as a surprise, Holly responded,

Absolutely. It shocked me. It certainly made me, I won’t say take it more seriously because I take my responsibilities to children very seriously, but, I suppose reflect on everything and make a conscious effort to work on my interactions. ... I think we’d become complacent – we listened to everything you said and discussed the strategies together, but I think we all thought, yeah, we’re already doing that, so it was definitely a wake-up call to find out we weren’t!

Vast enhancement to Holly’s language interactions were consequently seen at Time 3 following what she called her “wake-up call.” Holly was heard engaging in longer playtime conversations with more complex language, talking about coal trains, passenger trains, and freight trains, and by listening to the recording it was obvious what each interaction was about. The children’s vocabulary development in conjunction with their conceptual knowledge also became apparent when they themselves began labelling and describing different types of trains as “coal trains,” “pass-en-ger twain” (passenger train), “big twain” (big train), and “fwate twains” (freight trains). Holly’s morning tea transcript also demonstrated her using labelling within complete sentences, for example, “Jack [pseudonym], would you like rice crackers or jatz?” and “Do you want some cheddar cheese?” As shown in Figure 1, although Holly’s conceptual language score (and other scores) had dropped between Time 1 and Time 2, the renewed effort produced excellent results, increasing her use of labelling and descriptive language by over 13 words per minute, or an increase of almost 54% from the baseline Time 1 to Time 3.

Figure 1: Holly’s Conceptual Language Scores



In reviewing the strategies Holly had implemented in the final five months of the project, Holly stated in an interview:

I am definitely using several strategies from the workshops in my interactions with children. Off the top of my head ... using full sentences when offering children food, and I’ve been continuing with labelling – I’ve been practising and noticed how often I was saying ‘this and that.’

When asked what the main motivation for continuing to use the strategies was, Holly stated that the children had become more responsive, and even younger toddlers were “using their words”. Although gathering child language was not a feature of the design or assessment of the study and must therefore be interpreted with caution, Holly’s statement echoed what had been reported by other educators in the study. Holly was also motivated by another factor:

In some cases, it is the reaction of the children, however, mostly it’s seeing the value in the strategies as demonstrated in the evidence base in the information that you have shared with us.

Despite being entrenched in long-established habits, through engagement with practitioner enquiry, Holly was able to enhance her language interactions by becoming aware of and reflecting on her current practices and making the conscious decision to use, for example, full sentences, labelling and descriptive language.

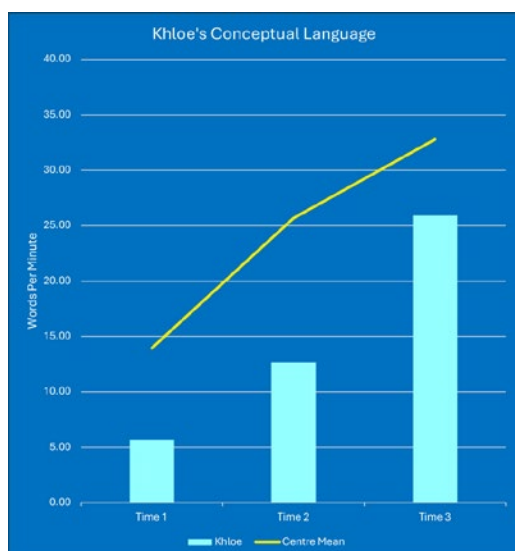
Khloe’s Story

Khloe is a young educator who at the time of this study had recently completed a Certificate III in Early Childhood Education and Care traineeship. She had worked for eighteen months in ECEC, all this time with children aged from six weeks to fifteen months. At an information session prior to commencement of the study Khloe expressed concern about not being able to confidently interpret the cues of preverbal infants and toddlers. She also stated that she “often didn’t know what to talk about to the babies.” It therefore did not come as a surprise when Khloe scored below the average of many participating educators in the Time 1 recordings. Khloe on average was found to be speaking 15 words per minute, six words of which were classified as conceptual language. During nappy

change Khloe rarely spoke except for responding to the babbles of the child with “What’s that?” or “You’re ok.” While spoon-feeding an infant, Khloe’s talk was limited to saying “Open” when it was time for another mouthful of food. During playtime a crawling infant was fascinated with some chickens in a chicken coop. Khloe quickly joined him and in response to his smiles and giggles, repeatedly said (referring to the chickens), “Where are they?”, “Can you see them?” and “Are they hiding?” Had this interaction not been observed and recorded in field notes it would have been impossible to ascertain what Khloe was talking about through the audio recording alone. At Time 2 a significant change was observed in Khloe’s interactions: She was talkative and took all opportunities to initiate interactions and respond to children’s attempts to communicate. This was reflected in her conceptual language score that more than doubled from speaking six conceptual tokens per minute to 13 tokens per minute. In an interaction that was almost a repeat of the previous ‘chicken’ scenario, Khloe was asking, “Are the chickens here?” “Where’s chickens?” “They’re hiding. No chickens.” The delight could be heard in Khloe’s voice when the 12-month-old child responded with “chick-ken!” In the interview following Time 2 when asked about the changes she had made to her interactions, Khloe stated, “I made a conscious effort to be more aware of the children’s cues and attempts to initiate interactions ... making a conscious effort to work on my labelling skills.” Khloe followed this up with a comment on her initial ECEC training: “When I was training, we were told to talk to the children, but we weren’t told how to talk to them.”

At Time 3 Khloe’s conceptual language use had again doubled from Time 2 (shown in Figure 2), with Khloe saying that it had now “become habit–I’m responding to the infants’ cues without having to consciously think about it.” Labelling language was heard when (for example) Khloe talked about the “cheese” and “tomato,” and “maybe chicken” in the children’s lunch. Descriptive language was also evident with Khloe making comments such as “that green apple sounds very crunchy today.” Like Holly, Khloe was motivated by noticing that the children were responding more, with even younger toddlers beginning to verbalise their requests, for example, stating “narna” (for banana) when given a choice of what fruit they would like for morning tea.

Figure 2: Khloe’s Conceptual Language Scores



In summarising Khloe’s scores, at Time 3 her conceptual language score had increased to 26 words per minute from six tokens per minute at Time 1. Statistically, this was an increase of 357%, but to view the results in a more practical sense, if we extrapolate the increased number of words over ten minutes (by multiplying the conceptual language tokens per minute by ten), it tells us that children were hearing an additional 200 labelling and descriptive words over a ten-minute period.

Limitations

All studies have limitations, and this study was no exception. In addition to a small sample size, a limitation of this study was that assessments and analyses were unable to factor in the naturally developing language of the children over the period of the study. While successful results were achieved for the educators’ enhanced language interactions, and every effort was made to choose extracts for analysis of educators interacting with similarly aged children each time, it is possible that infants naturally developing language may have been a confounding factor. Nevertheless, as seen in Holly and Khloe’s stories, the children’s reactions were a motivating factor for educators to continue to work on enhancing their language interactions.

Concluding Comments

While two very different stories have been presented here, the findings have demonstrated that regardless of the qualification or experience level of educators, language interactions with infants and toddlers can be enriched through targeted PD. While those who had the most to gain did so rapidly, those already using richer language were slower to change, but still enhanced the quality of their talk, demonstrating that high-quality language interactions are achievable when educators are open to reflecting on current practice and committing to change. For most educators, such as Khloe, not only were improved language enrichments sustained for the six months between Time 2 and Time 3, but they continued to improve during this time and became embedded into everyday practice. Additionally, at Time 3, the conceptual language increased at a greater rate than the amount of talk, suggesting that Holly, Khloe, and most other educators were incorporating a higher ratio of labelling and descriptive vocabulary into their talk.

By the conclusion of this study a further, unexpected benefit had emerged: As educators engaged in more frequent and higher-quality language interactions, children responded more and were “trying to talk more,” but the revelation was that educators found children’s behaviour greatly improved. The consequence of these combined factors was a reignited passion for working with young children.

Moving forward, what else can we learn from this study? The findings suggest that further research could be carried out to explore two aspects of pre-service training more fully: (1) The amount of focus given in general to the infant/toddler age group, and (2) The breadth and depth of course content specifically devoted to supporting language development for the under-three-year-olds. Further examination of these topics and the acknowledgement of the enormous benefits that under 8-hours of targeted professional development can have to ECEC educators, and their children, may well be the provocation needed for training providers to reevaluate and modify the infant/toddler content in pre-service ECEC courses.

To summarise the study using the words of an educator during her

final interview, "The results speak for themselves!"

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Infant and toddler agency: A provocation to think with collective rather than individualistic approaches



JENNIFER BOYD

Abstract

In this paper, I explore the evolution of my pedagogical practice and thinking about agency as a holistic concept, as an intentional move away from developmental perspectives that limit our understanding of very young children. I propose agency is a continuous process involving not just the child but also their environment. This view emphasises the interconnectedness of all relationships and highlights the complexity of young children's relational journeys.

Introduction

As an early childhood teacher, I drifted away from purely conventional education literature and towards different multidisciplinary concepts to play with in my evolving pedagogical practice. I felt uncomfortable when it was suggested that spaces and places were only to be organised by a teacher and that children were afforded agency by an adult rather than enacting it from within and in connection with all the materials in an early childhood setting. When I read Iris Duhn's (2015) paper on reimagining infant-toddler agency, I felt a sense of connection and understanding that my thinking was not "wrong" just because it differed from more established developmental theories. Duhn's scholarship posited that the autonomous individual agency ascribed by developmental theories to children limits our understandings of the not yet verbal infant or toddler. Duhn's (2015) paper theorised that agency was in a continual process of "becoming" (p.290) with not just the child but in all things - the surroundings, the environment, and beyond. This expansive understanding of agency opens up complexity in the narratives about very young children's journey into relationships, not just with the self and other children or adults, but in a shared responsiveness to the world.

The following storied and layered approach to pedagogy is based on my academic research and asks kaiako (teachers) to consider agency differently by decentering Western developmental approaches. Rather than the notion that a child has an individual human capacity to act in and upon their world, this approach asks kaiako to think with the notion of agency as a shared, relational concept. Agency in this sense is not just the control or impact of one thing or one person upon another but is far wider reaching and encompasses all aspects of relationship between all things. Further research within Indigenous scholarship can highlight how closely Duhn's work was interwoven with Indigenous te ao Māori (the Māori world) and Pasifika approaches and aspects of holistic agency that expand beyond narrow Western individualistic selfhood.

Duhn's Perspective on the Concept of Agency

In Duhn's (2015) *Making Agency Matter: Rethinking Infant and Toddler Agency in Educational Discourse*, she challenges the concept of the self-aware "I" between teacher and child. To put this more simply there exists both the individual teacher and individual child, but also a more nebulous space between and involving the two, where new meaning and ideas can spring forth as a result of the relationship, not simply one party informing or instructing another. Conceptualising agency in education for infants and toddlers is problematic if it is constrained to only the humanist notion of autonomy. For example, within a traditionally humanist development perspective, children develop agency by learning self-regulation, and independence via language acquisition and theory of mind; all within a prescribed age and stage of optimum mental and physical growth (Woodhead, 2009). These three concepts - autonomy, self-regulation, and theory of mind, all assume individualistic ideals - that growth and development occur as a result of the internal workings and actions of the individual, separated from external forces. However, rather than presupposing language and identity, Duhn draws on the work of Posthumanist scholars Bennett (2010), Latour (1996) and Lenz Taguchi (2010), noting that teachers can transform the narrative of the individual learner and challenge the "severely circumscribe(ed) infant's and toddler's capacity for action" (p. 926).

Expanding on the ideas of Duhn, I (Boyd, 2021) suggest that agency has been reduced to simply marking off development goals, while attempting to disguise this simplistic approach by adopting surface level aspirational goals for the child. At times, this voice is literally "unheard," and it risks marginalising infants and toddlers via their use of non-linguistic communication and thus ignoring the holistic mind-body assemblages that afford new understandings of agency. Whilst a mind-body assemblage sounds complex, it is really a collection of modes of thinking and how they are assembled to understand the world. If we were to think with mind and body at the same time and as one, we would consider

the young child's non-verbal expressions and experiences, as well as their verbalisation or action.

Within an understanding of the mind and body as one, an embodied learning, which empowers the whole child to feel and be within an experience, may occur. Ultimately Duhn (2015) asks us to reimagine new cartographies (mappings) of the present time and the "known" (p. 293) to ask what possible futures may materialise. By relooking at a narrative of a toddler, the dead-end cul-de-sac of agency can be shifted from a somewhat self-centred human-only construct to one in which the child is neither subject nor object, coming together "in mode" with the physical materials present in an early childhood centre - vibrant matter, objects such as toys, loose parts, furnishings, or sensory matter such as light, shadow or sound (Bennett, 2010).

Latour (1996) and other scholars (Aliamo, 2010; Bennett, 2010) illustrate that more critique of human only agency is needed, if we wish to consider things from a more whole and embodied perspective which is more collaborative, cooperative, and interactive relationship of many bodies and forces. Thus, this all-encompassing notion of more-than-human agency helps kaiako to see children in relationship with their surroundings, connected to the world, both natural and cultural, within histories and in storied conceptualisations of who they are and why their stories matter in a deeper context.

Duhn (2015) asks us to consider what our research or everyday noticing, recognising, and responding to young children might look like if kaiako were to consider grouping the heart, mind, and body as one, no longer considering cognition as the only way of an infant or toddler connecting with the world around them. Duhn's narrative style of reimagining agency also suggests more than an individualistic notion of selfhood, and instead becomes a collective and relational approach where the mind and body are entangled with everything in its environment in relational ways. This mind-body rationality is explored in a narrative of a child's connection to the earth and sky (Gould et al., 2023). Also, for kaiako in Aotearoa New Zealand, opportunities for relational thinking are already evident in *Te Whāriki* (Ministry of Education [MoE], 2017) which upholds the importance of te ao Māori, Pasifika, and other culturally responsive approaches. It could be argued that these Indigenous approaches already embody a collective rather than individualistic notion of the child.

In reframing the concept of agency for infants and toddlers it is necessary to challenge discourses which separate nature/culture or mind/body. Murriss (2018) explores how nature/culture and mind/body binaries have dominated Western philosophy and come to also dominate education systems in ways which create deficit and compartmentalised understandings of young children. Murriss (2018) emphasises that Indigenous cultures have not created these dualisms and therefore these understandings are not new and have a long history. She states that "binary thinking misses important knowledges—it cuts nature away from culture, mind from body, boy from girl" (p. 20).

Children's and adults' minds and bodies are part of nature rather than in control of it. This entanglement cuts to the heart of this education discourse. What we say, what we think, where we are, who we are with, and what are we surrounded by all work together to determine "self." Equally though there is everything else, both human and non-human, tangible or intangible, living creature or material object that possess and exert elements of being and becoming. The

relationship is fluid and evolving. This widened understanding of a child's relationship with people, places, and, crucially, things can help kaiako to challenge the deficit-bound educational rhetoric of the socially constructed, developmentally constricted infant. A child is far more than a simple empty vessel into which the knowledge of the educator is poured into until developmentally "full." The following narrative comes from my own teaching practice and a chapter I co-wrote about post-developmental observation (Gould et al., 2023). I use it here as an invitation to consider the concept of "shared agency" in the context of infant and toddler education and care in Aotearoa New Zealand, thinking with infants and toddlers, rather than simply on their behalf.

Movement between Sky and Earth

(Excerpt from Gould et al., 2023, p. 82)

Within Māori mythology, Papatūānuki (the earth mother) and Ranginui (the sky father) were joined together in darkness, their children (tamariki) born into the space between them. The children decided to separate them - bringing light to the world. All cultures have stories explaining the world, yet Western ways of knowing have taken precedence (Hall, 2018). What might happen if we strip back layered cultural constructs of individual human agency, and think of a holistic shared agency between a child, the sky and the earth?



Figure 1: Child's hand on window

The rain makes a familiar pattering sound as it lands on the veranda in the infant-toddler room. However, this time there is an overturned metal bowl that makes a different, trill sound. As the rain continues, the vibrations hit the bowl, and it slowly begins to move towards an eighteen-month-old child. The child moves towards the bowl and picks it up; the sounds and movement stop. The child looks to the sky and looks at the bowl, placing it back again. They hold both hands up to the sky, listening and waiting. For a week, the child carried this bowl, placing it in various spaces and places indoors and outside.

Source: https://stockcake.com/i/touching-rainy-glass_313719_379994

As kaiako how are we tempted to interpret the meaning of this narrative? Would we write notes about cause and effect? Would we extend the 'learning' to introduce more bowls of differing shapes and sizes? Would we take some photos or a video and share it with their family and other teachers? These are the bricolage of outcome-based results in which a child's agency and more-than-human relationships are at risk of being siloed into a developmental narrative of appropriate pedagogical and curriculum approaches.

Te Whāriki (MoE, 2017), states that:

Children construct knowledge as they make meaning of their world. Knowledge is cultural, social and material. It draws on cultural, aesthetic, historical, social, scientific, technological, mathematical and geographical information. Skills are what children can do; they are what make interaction in and with the world possible. (p. 22)

This framing is problematic if we want to follow a less human-centric and more relational worldview as it again limits interaction to the child simply impacting and acting upon the world. If we replace individual agency with shared agency when thinking about the child, the bowl, the rain, the surfaces and the sounds, all combine to expand our pedagogical understanding. When kaiako can think beyond the child's individual agency, they may come to see it in the scenario above as creating a new merged agency between child, rain, bowl, surface and themselves:

The rain created a musicality with the bowl, a chiming sound, producing a vibration causing movement, causing the child to notice and connect with the phenomena. The kaiako then can respond in a way that can either diminish or empower a child's agency. For example, kaiako might rethink their modes of documentation. Static images (photographs) only create partial understanding. Words tailored to fit into a learning story create one way of knowing. Perhaps a conversation provokes new perspectives. Did the child separate the earth from the sky or feel a simultaneous connection to both?

It can be argued that this moment can be reconceptualised as a matter of sound and movement, not bound by the nature/culture binary of brain versus bodily knowing (Matthews, 2017). The young child was embodied in that space, feeling the rain touch their skin, listening and seeing the effect of the rain on the bowl. There was a sense of trust and bodily autonomy for this eighteen-month-old to be out in the rain and able to guide their experiential narrative. Via a purely developmental lens, a young toddler would not have the agency to determine their actions at that moment – a regulatory gaze. The teacher would not ask questions to guide the conversation. They would not immediately plan to extrapolate evidence of appropriate learning. Nor would the teacher usher the child inside to avoid the weather. Instead, shared agency would be a two-way dance between child and teacher, with the teacher touching the rain, feeling the vibrations of the bowl. The kaiako may sit beside the child and engage with the moment rather than the human-centric expectation of the adult making learning visible. There will be no timeframe or tick box documentation, but rather a shared agency connecting the child, the kaiako, sky, earth, and all the elements in between.

Conclusion

Drawing on the scholarship of Duhn (2015) and decentering Western developmental approaches, kaiako might come to reframe their understandings of agency as shared and in continual relationality to materials, elements, and resonances in a young child's environment. If kaiako think deeply about their surroundings, and about the connections an infant has with the whenua (land) and to a greater embodied moment between all aspects of an encounter, a shift in being, belonging and becoming together may occur. Rather than documenting a learning moment as an individual pursuit, a child's playful exploration of weather, sound, cause, and effect can be an observation and an honouring of their mind-body connection with the world – always in relationship with people, places and things.

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Developing nature engaging/ nature enhancing pedagogies for babies and toddlers

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(peer reviewed)



Abstract

This article advocates for appropriate nature practices with babies and toddlers and, in particular, Nature Engaging, Nature Enhancing (NENE) pedagogies. The concept of NENE has emerged from research (Josephidou & Kemp, 2022) which focuses on babies' and toddlers' opportunities to engage with the outdoors. Our work identifies that there is limited international research in this area and practice can differ widely. We also recognise that only select voices contribute to discussions about what these pedagogies could look like, with Global North narratives dominating. We recognise the problematic nature of this situation from a social justice and babies' rights perspective but also in the current context of concerns about the climate change crisis and the role of the Early Childhood Education and Care (ECEC) setting in facilitating connections with the natural environment. We suggest that NENE pedagogies not only support children's holistic development but can also emphasise practices that support planetary health.



Figure 1: Observing children in natural environments
Image by the authors

Introduction

This paper offers a reflection on appropriate nature pedagogies for babies and toddlers (birth to 2 years old) and, in particular, we will discuss the notion of Nature Engaging/Nature Enhancing (NENE) pedagogies as described in Table 1 below.

Table 1: NENE pedagogies

Nature Engaging pedagogies	Nature Enhancing pedagogies
Follow children's lead and interests outdoors	Attend to what can be offered, rather than what can be received from nature.
Observe children in natural environments, valuing the connections they make, helping them to understand how everything links	Explore what humans and non-humans need to flourish
Value 'passive' and 'slow' ways of being outdoors to facilitate feeling, thinking, sleeping.	Become familiar with the local environment and its specific needs
Tune into natural processes and cycles (weather, light, seasons etc.) and the engagement opportunities these might offer	Create 'wild' spaces and increasing biodiversity

In the context of England, from which we write, babies is the preferred term for children approximately birth to 12 months, although we recognise in the international literature that the term “infants” is generally used. Our discussion is based on the body of research we have developed over the last five years which includes both empirical work and systematic reviews of the literature (for example, Josephidou et al., 2021; Josephidou & Kemp, 2022; Kemp & Josephidou, 2020; Kemp et al., 2023).

Our initial interest, when embarking on this research, was to explore the outdoor experiences of babies and toddlers attending ECEC settings in England. As we reviewed the literature and visited settings, we found ourselves continually wondering where, and if, the youngest children were to be found outdoors, hence the title of our very first report “Where are the babies?” (Kemp & Josephidou, 2020). This work was funded by The Froebel Trust, an organisation which promotes the ideas of Friedrich Froebel (1782-1852), a key early childhood pioneer who coined the term “kindergarten”. Froebelian principles have helped us reflect on our findings and consider notions of unity and connectedness, the importance of the experiences of early childhood, the importance of engaging with nature, and adults who can facilitate this. Froebel believed that parents should ensure that their children grew up “in” and “with” nature from birth:

Life in and with nature... must be fostered at this time by the parents... as the chief point of reference of the whole child-life (Froebel, 1826/1885, p. 30).

Nearly 200 years after he wrote this recommendation, babies are not solely looked after by their parents and may spend considerable amounts of their young life in ECEC settings. The answer to the simple question “Where are the babies?” seems to be complex. We

found that practice varies significantly between settings, although the idea that the outdoors is risky means that the youngest children spend most of their time indoors.

We wanted to understand in more depth what factors mediate the outdoor experiences of babies and toddlers. Our aim was to explore the potential of early childhood settings to develop more inclusive outdoor pedagogies. A further report of ours, “From Weeds to Tiny Flowers” (Kemp et al., 2023), highlighted the various social and cultural factors that inform outdoor pedagogies and practices. This report was based on a systematic review of the international literature focused on the outdoor spaces important to babies such as the setting, the home and the community. Its title was inspired by both Jenks (2005) “garden weeds” metaphor (that children are often perceived to wrongly be in adult spaces) and from Froebel’s (1826/1887) use of metaphors of nature to describe children’s development as and in nature, as for example:

“like a wreath of fresh flowers and branches” (p. 308)

“the desires and instincts in the child (the human plant)” (p. 75)

“Then will each successive stage [of childhood] spring like a new shoot from a healthy bud” (p. 30).

In the report we identified that certain characteristics in the environment were important in outdoor spaces for babies. These characteristics include “greening”, natural features which promise multiple learning opportunities and a sense of being enclosed and safe. Within these ideal spaces, babies also need attuned adults who know how to support a connection to their environment. They do this by introducing babies to unfamiliar elements and by helping them develop a sense of belonging, for example by passing on cultural

Figure 2: Valuing slow ways of being outdoors. Image by the authors



values. These adults are also committed to responsive interactions and close observation of babies' behaviours outdoors.

However, the report also identified that there are a range of intersecting social characteristics (socio-economic status, education, class, ethnicity, disability) which may impact on babies being able to access outdoor spaces or their experiences when they do have this opportunity. Such factors include the relationship between high socio-economic status or ethnic background and access to green spaces. Parental education can also impact on their willingness to facilitate time for their baby to spend outdoors and has been found to influence attitudes to risk.

Another suggestion drawn from the international research literature is that if children attend early years settings then they spend less time outdoors when at home (e.g., see Carsley et al., 2017). This is not because parents place little value on outdoor engagement for their children but more because they believe that the setting will have met this requirement. One paper we reviewed (Weck, 2019) found that expressions of social class in playgrounds in Germany impacted negatively on parents, including the potential to make them feel marginalised. As we contemplated the outdoor experiences of very young children in other countries, we considered how these ideas might apply to babies and toddlers in the English context.

Our interest in babies and toddlers' outdoor experiences was inspired by the seminal work of Gooch and Powell (2013) in their Baby Room project. This research explored practices in the spaces of English ECEC settings where babies were set apart in dedicated areas, away from older children, for their care and learning. Such spaces are often called "The Baby Room". ECEC has evolved in a less than straightforward trajectory in England, so that those who work

within it have a range of titles and a range of qualifications (Nutbrown, 2012). We use the word *practitioner* here to define all those who work with children in an ECEC setting regardless of their level of qualification or specific job title. Gooch and Powell (2013) engaged with the practitioners who worked with very young children. They were struck by "the extent to which the earliest years in children's lives had been neglected by education and early years researchers" (p. ix) and they recounted how the practitioners described themselves as "glorified babysitters" (p. 76) and the "lowest of the low" (Powell & Gooch, 2012, p. 120). Almost 10 years later, Sacha Powell worked with Cooper et al. (2022) to look at the care of one-year-olds across four different geographical contexts. In this paper, they continued to reiterate, as the Baby Room project had done, the complexity of the practitioner's role when working with babies.

In England, practitioners carry out their complex role in a policy vacuum, a term we use to describe the lack of explicit educational policy guidance for outdoor provision for birth to 2s (Josephidou et al., 2021). This lack of support means that it is up to individual settings to devise their own individual practices. This in turn, we would argue, leads to an inequality of experiences for these very young children in terms of opportunities to engage with nature. If we attempted to answer the "Where are the babies?" question now, having reviewed the international literature, visited many settings, and spoken to many practitioners, we would have a multitude of responses.

Firstly, we would acknowledge that some issues are practical whilst others are deeply embedded social and cultural factors. We would say they are perhaps indoors because prescribed ratios make it very difficult to physically take children outside, particularly if they are being cared for in a setting which is not purpose built (which is often the case in England) so that the Baby Room is on the second floor of an old Victorian building. Or they may be indoors because it is too complicated to work around care routines of feeding, sleeping and nappy changing. Or the weather and air pollution is a barrier. They may be outdoors in small, contained spaces well away from other children and away from any plants or greening. Perhaps they have their own patch of artificial grass to sit on to keep them safe and relatively clean.

Conversely, they may also attend settings that regularly take them to the beach or to the park. They may have freeflow into the garden area and may be cared for by practitioners who are passionate about facilitating their experiences in the outdoors. The important word in these descriptions of practice is "may"; although an increasing number of babies, both in England and internationally, access ECEC settings (Guard, 2023), it appears they receive scant attention in research, policy and therefore practice. The focus remains on older children and concerns around school readiness. The needs of babies appear to be continually forgotten and in particular when it comes to their opportunities to be outdoors.

Concept of NENE Pedagogies

The concept of NENE (Nature Engaging and Nature Enhancing) pedagogies has emerged from our research carried out over the past 5 years, research which has focused on the experiences of babies and toddlers outdoors and the opportunities they have to engage with nature. Much has already been written about the importance of human/nature interaction, and in particular for children who are impacted positively in terms of their holistic development and

Figure 3: Valuing the connections children make.
Image by the authors



wellbeing; yet our concern here is that the literature around the benefits of such practices, typically excludes babies. This gap in documentation fails to recognise ideas, such as those proposed by Froebel (1826/1887), that children are nature and they are born already deeply connected to the natural world. Therefore their separation from nature, whether that be in research, policy or practice, is an artificial one which fails to speak to this innate connection and therefore the holistic nature of their learning and development.



Figure 4: *Following the child's lead.*
Image by the authors

A parallel current narrative focuses on how nature pedagogy discussions can predominantly emphasise the benefits to the human so a one-sided, anthropocentric view dominates which regards nature as a resource to be exploited. We use the term anthropocentric here to describe an attitude towards nature that sees the human, with their needs and wants, to be of prime importance so that they become desensitised to “knowledge of nature, blocking humility, wonder and openness...reduc[ing] nature to raw materials for human projects” (Ritchie, 2014, p. 50). By introducing the terminology of “enhancing”, the NENE concept still looks at what the benefits and possibilities to the human might be, but it also focuses on a reciprocal relationship by considering what the benefits to nature and the environment are also. It is therefore a concept very much influenced by Froebelian thinking and in particular those ideas around connection and unity.

NENE is a concept that recognises the reciprocal relationship needed between human and nature, particularly in the context of the present-day climate crisis. As a pedagogy, it is one of connection

and one which foregrounds the relationship between adult, child and environment in a web of interconnectedness. It recognises that babies, as part of the human world, are born connected to other humans and to their environment. The time of earliest childhood is then a period to build on this capacity for connection and to strengthen the mutual interdependency between adult/child/environment, the internal and the external, the human and nature (Josephidou & Kemp, 2022). It is a pedagogy that emphasises ideas such as the importance of attentiveness to nature as well as child and practitioner wellbeing.

If we see children as nature, then this informs the manner we facilitate their engagement with their environment. For example, we may consider that dividing spaces frequented by young children into indoors and outdoors as a false binary. We can bring young children outdoors but they are not necessarily interacting with nature; they may be sitting on plastic grass, exploring plastic toys, yes having the opportunity to watch the clouds or feel the breeze on their cheek, but with no greening nearby, no opportunity to see how plants cast shadows or how the breeze moves through the leaves of a tree.

On the other hand, an attuned adult can introduce a child indoors to natural features; even looking at books and photographs can support some understanding and engagement with nature. Froebel's (1826/1885) idea was that young children's surroundings “should be pure and clear – pure air, clear light, clear space” (p. 15). In our current context, this aspiration may be problematic in areas of poor air quality such as urban ECEC settings; certainly in England there have been some high profile cases, involving the negative impact on young children's health of poor air quality. However, there is planting and general enhancing of outdoor areas that can be done to mitigate the impact of pollution (Robinson & Barrable, 2023) and consideration must also be given to the suggestion that sometimes the air quality can be poorer inside the setting than outside. For example, Mendes et al. (2014) found higher bacteria concentrations inside one Portuguese early years setting when compared to the outdoors.

As illustrated above, the role the adult plays in supporting and facilitating NENE pedagogies cannot be underestimated; the very young child's access to, and experiences in, the outdoor environment are always facilitated by an adult. It could be therefore important to consider how NENE pedagogies may also impact on practitioner wellbeing. This is pertinent in the English context in which we write; here, the early years workforce is reportedly in crisis (National Council for Education [NCFE], 2023). There are recruitment issues because of the poor pay, unsatisfactory working conditions and low status in terms of the way the role is perceived. Fewer and fewer students are choosing to study early years qualifications, a fact which compounds the problems the sector is experiencing. The impact of these problems means that settings are closing due to staff shortages and funding difficulties. This is the context within which we advocate for babies and toddlers, so that “all possible measures [are taken] to...create conditions that promote the well-being of all young children during this critical phase of their lives” (United Nations, 2005, p. 4). Yet it is the practitioners who are left “holding the baby”, both literally and metaphorically, as they continue to juggle topdown directives of what they should be doing with young children, and those practices based on their own expertise and values. We recognise the limitations of suggesting further what they “ought” to be doing for young children without giving consideration to what they need for their own wellbeing to enable them to develop their practice. Our interest is in finding ways of supporting

the mutual wellbeing of the child, the adults who care for them, and their environments.

NENE Pedagogies in Practice

In our report “From Weeds to Tiny Flowers” (Kemp et al., 2023) we recognised that three types of outdoor spaces are important in the lives of the youngest children. These are spaces in the home, spaces in their community, and spaces within ECEC settings. We have already suggested some beneficial characteristics of these environments for babies (greenness, the presence of natural features, enclosure) and we have emphasised the important role that adults play in supporting engagement through connective care practices and through facilitating familiarity with the natural world. The interactions between babies and toddlers, the adults who care for them, and outdoor spaces are important but complex and can either be connective or disconnective but what might they look like in practice? Table 2 sets out examples of NENE practice seen in ECEC settings with babies and toddlers.

Conclusions

We assert that NENE pedagogies are an important inclusion when working with young children; from a very early age they can learn to become involved in a reciprocal, caring relationship with the natural world. This is something not emphasised in many early childhood pedagogies inspired by Western thought although we recognise, in the context of New Zealand, the guiding practice of the *Te Whāriki* framework emphasises the interconnection and interdependence of “people, places and things” (Ministry of Education, 2017, p. 12).

This reciprocal way of viewing the environment is part of current day conversations, yet its long roots lead back to indigenous teachings that support the importance of learning from non-human life, or more accurately, more-than-human life. In some of these narratives, nature is seen as caring for the human as if they were a younger, less learned sibling (Wall Kimmerer, 2015), teaching them in turn how to become a carer of the environment. Such a reciprocal model minimises the possibility that the human will “overspend”, by taking too much, or by continuing the embedded trend of depleting natural resources with no consideration for the impact. It is a model which draws on indigenous ways of “being, knowing and doing” (Ritchie, 2014, p. 56), of taking just enough and replacing what has been taken (Wall Kimmerer, 2015).

In this paper we have set out our intention to foreground narratives that both recognise the holistic needs of the very youngest members of our society and, at the same time, recognise the importance of practices which consider the interconnectedness of child, adult and environment. We argue that ECEC settings have an important role to play in developing more inclusive practices which both challenge the idea that the youngest children do not belong outdoors and also introduce new ways of supporting very young children in understanding their innate connection to, and reciprocal relationship with, the natural environment that surrounds them.

Table 2: NENE pedagogies in practice

Nature Engaging practices	Example from practice	Nature Enhancing practices	Example from practice
Follow children’s lead and interests outdoors	Children were interested to explore fallen leaves by touching and crinkling them in their hands. The adult brought leaves inside to give them further opportunities to explore.	Attend to what can be offered, rather than what can be received from nature.	Children learnt in age appropriate ways about looking after plants and animals within the setting. They watched the adult engaged in this work, listened to the adult describe what they were doing and joined in as they could.
Observe children in natural environments, valuing the connections they make, helping them to understand how everything links	The adult didn’t worry about outcomes or providing lots of resources but took their lead from the children in terms of what they were interested in. For example, when walking to the beach, the adult didn’t rush to get there, instead they stopped every time the children showed some interest in their environment and talked to them about what they could see.	Explore what humans and non-humans need to flourish	The adults planned for growing, eating and composting edible plants, involving the children as much as possible.
Value passive and slow ways of being outdoors to facilitate feeling, thinking, sleeping	A setting provided cribs for the babies and toddlers to crawl into when they felt sleepy.	Become familiar with the local environment and its specific needs	The children took bread crumbs outside after snack time to leave for the birds. They looked in rock pools on the beach for signs of sea life.
Tune into natural processes and cycles (weather, light, seasons etc.) and the engagement opportunities these might offer	The adult talks to the child as they get ready to go outside, discussing the clothes they are putting on and why, making references to the weather and to the seasons.	Create wild spaces and increasing biodiversity	The setting worked with a local wildlife group to green the outdoor. They chose planting to mitigate the impact of air pollution.



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Question-asking in the Early Years: All these silent ‘whys’...



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Abstract

While question-asking may be spontaneously associated with children who are able to communicate verbally, it actually begins before the onset of speech. This article draws on the literature on question-asking in the early years to highlight the role of questions in infants’ lives, both as intellectual and social acts, and to argue for the need to better understand the interdependence between children’s question-asking behaviours and the contexts adults create for children’s communicative efforts and goals. People, spaces, situations, and materials that stimulate young children to notice and explore the complexity of the world around them, and interact with other thinkers, instil in them a questioning mindset and empower them to take charge of their learning.

Asking for Learning

Research on children’s questions has come a long way (Ronfard et al., 2018). From the early years pioneers, like Friedrich Froebel and Susan Isaacs, who recorded their observations in diaries to the more systematic quantitative and qualitative investigations, and from the initial focus on the child as “a quasi-autonomous questioner” (Harris, 2020, p. 31) to the present interest in the social, cultural, and interactional contexts in which questions are posed, children’s questions have been deemed essential for their learning and understanding of the world (Wellman, 2020). Froebel’s description of young children’s questions as “a sign of intense mental activity” effectively conveys the “why” (Lilley, 1967, p. 77).

We now know that children ask questions for a variety of purposes, with gathering information from other people being a prevalent motive but not the only one. As Harris (2020) states, “children ask questions with a range of motives, some prosaic and practical, some deeper and more reflective” (p. 32). No matter what motivates a child to ask a question, the social or pedagogical interactions that result from this act have the potential to support children in their quest for learning, as well as to convey important messages about how knowledge is constructed. Of course, communicative interactions vary across cultures and contexts; thus, different conversational environments and cultural practices will influence differently not only the development of children’s question-asking behaviours, but also their understanding of what constitutes questioning (Butler et al., 2020, p. 3). In any case, taking an inquisitive stance and asking questions, either verbally or non-verbally, appears to be “a human universal” (Ronfard et al., 2020, p. 307) available from early infancy.

Although research into infants’ and toddlers’ question-asking behaviours is not as extensive as research into the questions asked by older children, studies in this age group, both from children’s and teachers’ perspectives, have further challenged the notion of young children as solely sensorimotor beings and have reinforced our view of them as competent thinkers and problem-solvers (Cooper & Quiñones, 2022; Degotardi et al., 2018; Tonyan & Paredes, 2017). Some of these studies have also provided insights into the use of pedagogical questioning to promote infants’ language, literacy, and intellectual development (Davis & Torr, 2016; Degotardi, et al., 2018).

Question-asking in the Early Years: Gestures, Expressions, and Vocalisations

While question-asking may be spontaneously associated with children who are able to communicate verbally, it actually begins before the onset of speech. As Lucca (2020, p. 90) explains, well “before infants acquire the verbal abilities to ask questions, they are already requesting information” and explanations that help them make sense of the world around them. Their requests are “purposeful, intended to fill a knowledge gap, to resolve some inconsistency, or to seek explanations and, more generally, to test and extend their developing understanding of the world” (Jones et al., 2020, p. 120). As adults respond to children’s inquiries, the development of questioning behaviour progresses in a “quite swift” way (Carruthers, 2020, p. 12).

In the seminal work, *Children’s Questions: A Mechanism for Cognitive Development*, Michelle Chouinard (2007) deliberately replaces “asking questions for information” with the term Information Requesting Mechanism (IRM) because, as she explains, it includes not only verbal question-asking but also “other recruiting behaviours such as gestures, expressions and vocalizations” (p. vii). Thus, for

example, infants can gather information by pointing to unfamiliar objects or holding them up to their parents quizzically (Begus & Southgate, 2018; Chouinard, 2007). Even when they are on their own, young children may engage in question-asking when they pick up something heavier than the object they were holding earlier, or when they follow a ball to see where it goes (Chouinard, 2007).

The non-verbal and body-based ways in which young children communicate their questions are further highlighted by contemporary theories of communication in the early years which draw our attention to how infants' sensory ways of being feed into relating and communicating with others and how their voices materialise in formal early childhood education settings (Alcock, 2016; Flewitt, 2005; Guard, 2023). For example, it is from studies in this field that we now talk not only about IRM but also about young children's "sophisticated acts of meaning" (Guard, 2023, p. 608) which they strategically direct to the adults responsible for their care and education (Hedges et al., 2014; Juhl, 2019), a behaviour termed social referencing —looking at a social partner with the expectation of eliciting a response or the required information (Begus & Southgate 2018).

Given that, as Begus and Southgate (2018) point out, "much of what infants need to learn, they must learn from those around them" (p. 18), it becomes clear that if adults want to support children's understanding of the world, it is crucial that they learn how to think deeply and analytically about children's non-verbal forms of expression (Cooper et al., 2012). Noticing and understanding these first spontaneous questions that may arise because "the child has been struck with a new and puzzling situation" can be, as Nathan Isaac believed, "a matter of fundamental importance for [children's] future intellectual development" (Graham, 2023, p. 154).

What is your interpretation of the term "voice" in relation to pre-verbal children?

In what ways might you ensure that you don't prioritise talk over silent expressions of meaning in your centre?

What strategies do you employ to facilitate the expression of very young children's voices?

What do you feel are the biggest challenges for adults when communicating with non-verbal and pre-verbal children?

Hearing and empowering the voices of very young children requires adults to slow down and experience unhurried personal moments with them. Are practices like these important in your early childhood centre?

Supporting Question-Asking in the Early Years

Several studies have examined why infants and toddlers engage in interrogative behaviours. In many of these, curiosity is identified as a significant driver of young children's questioning behaviours (Carruthers, 2020). Indeed, as the literature on child development confirms, curiosity prompts young children to ask questions before they can utter the word "why" (Jirout & Klahr, 2012; Vale, 2013): When they play with "toys that produce interesting sounds or visual effects as a response to their actions", when "a piece of puzzle does not fit" or when they witness "water being absorbed into an object" (Birbili, 2017, p. 17).

How do you stimulate the curiosity of infants and toddlers?

While the idea that their brains are hardwired to experience curiosity and seek information about what is going on around them (Begus & Southgate, 2018) makes it reasonable to assume that children will always ask questions, research over several years and in various contexts has demonstrated that the rate of question asking decreases significantly as children get older (Ronfard et al., 2018). As Begus and Southgate (2018) explain, "children's expressions of inquisitiveness, as well as its maintenance, can heavily depend on the social environment that children are interacting with" (p. 31).

Let us think, for example, adult responsiveness to signs of curiosity in babies: children who are rewarded by adults for expressing their curiosity or puzzlement are more likely to acquire interrogative behaviour "more swiftly and robustly" (Carruthers, 2020, p. 15) and continue to ask in any way they can. Or, let us consider the availability of adults to help infants voice their questions and adults' willingness to position infants as conversational partners long before they develop the necessary language skills (Degotardi et al., 2018, p. 1016).

Interestingly, as several studies have found, even very young children are capable of evaluating adults' communicative intentions and understanding the degree of control they are allowed to have in the interaction (Grosse & Tomasello, 2012). In other words, children from early in their lives are sensitive to cues that indicate whether adults genuinely share their narratives, perceive them as partners in learning, and respond to their inquiries and interests. These cues also include the ways that children are encouraged to learn in their cultural contexts, for example, whether they are nurtured to seek information through non-verbal means, such as observation, listening and imitation, or whether they are expected to pose questions (Nicol, 1985; Odden & Rochat, 2004).

This knowledge has important implications for how teachers interact with children and suggests that professionals need to be aware of "how their own communicative signals support or influence interactions" (Hruska, 2017, p. 142). In practice, this would mean that teachers are mindful of the messages their body language communicates to young children (see appropriate eye contact, tone of voice, posture that demonstrates interest, engagement and attentiveness etc.) and employ active listening strategies which involve observing children's body language, interpreting their expressions, gestures or intentions and putting them into words.

In what ways might you find out about the various verbal and non-verbal methods families use to communicate with their children? What are their preferred interaction strategies/styles?

How do you use your body when you communicate with infants and toddlers?

How confident do you feel to engage in long back-and-forth exchanges with pre-verbal children?

How would you describe yourself when interacting with infants and young children: as a social partner or someone who is there to support their language development?

Given the link between curiosity and question asking, another goal for adults who care for young children should be to provide situations and materials that engage children's curiosity, sustain their interests, and answer their questions (Carruthers, 2020; Isaacs, 1930). Providing children with "true" questions and problems, open-ended

materials, loose parts, and puzzling or unexpected things encourage them to notice, wonder, explore or test (Birbili, 2017; Ministry of Education, 2017, p. 15; Ronfard et al., 2020).

Recommendations from research on the connection between young children’s question-asking and the objects available in their surroundings include providing children with manipulable objects (e.g., rather than using two-dimensional photographs of these objects) and incorporating novel elements in the classroom (e.g., new objects and toys or changing pictures on bulletin boards). However, when introducing novelty in environments with young children it is important to maintain a balance between familiarity and novelty and keep in mind that novelty is just one factor, among many, that activates human curiosity. Both children and adults also need to be stimulated by objects that present different levels of complexity (e.g., a shape sorting box) and ambiguity (a key characteristic of open-ended materials: a cardboard box is a typical example as it may be interpreted by children to symbolise anything) (Jirout & Klahr, 2012). Nature and outdoor spaces also offer a rich and diverse learning environment full of questions waiting to be asked. As Harding (2015) explains, the natural world is characterised by so many changing elements and moving parts, that it is bound to captivate children’s curiosity and get them excited about observing and asking questions.

In what ways might you show children that question asking is valued in your setting?

What opportunities do children and their families have to see children’s questions displayed in the classroom?

What features in your setting encourage children’s exploration of and connection with nature?

Pedagogical Questioning with Infants and Toddlers

Degotardi et al. (2018) use the term pedagogical questioning to refer to “educator questions that have an explicitly educational intention, as they are concerned with the construction of knowledge and linguistic representation of experience (e.g., ‘What’s this?’ ‘Who’s that?’ ‘What does the ducky say?’)” (p. 1005). They contrast these with questions that address classroom procedures and routines or serve as indirect expressions of commands or offers.

The notion of pedagogical questioning with children under two years of age may seem, at first, at odds with preverbal children’s abilities. However, when utilised to support and extend young children’s thinking and knowledge building, it can have an impact not only on children’s learning and language development but also on their identities as thinkers and knowers (Davis & Torr, 2016; Degotardi et al., 2018). Furthermore, such conversational exchanges can help teachers cultivate affective connections with infants and toddlers and function as influential models for language use and conversational styles (Degotardi et al., 2018).

Studies of pedagogical questioning in conversations with very young children suggest that closed questions (i.e., questions that can be answered with either a single word or from a predetermined set of responses) might be more advantageous than open questions for this age group. Closed questions are less demanding for preverbal children but still effective in engaging infants and toddlers in conversations with adults and creating motivating conditions for their play and learning (Quinones et al., 2021). In any case, in the context

of teachers’ use of pedagogical questioning, it is important to remember that interactions with children always occur on a moment-to-moment basis and are flexible, iterative, and feedback-sensitive. In other words, both children and adults will adapt their communication to each other’s input and this “tuning” relates to several factors (Duong et al., 2023). In practice, this means that in sensitive and responsive interactions, the type of questions asked will always depend on shared experiences and understandings.

Do you have opportunities in your professional practice to observe/analyse your interactions with children (e.g. through video recordings) and engage in critical reflection with colleagues?

Are you familiar with the distinctions between open-ended questions and closed-ended questions, as well as the goals that each type of query can achieve?

On a final note...

As Carlina Rinaldi (2006) argued, knowing that children feel the desire to ask questions very early in their lives gives greater significance to many of the things they do: “stopping to study a flower for few minutes, their enchantment with rain on a window and their various wonderings, their ‘whys’” (p. 112). To interpret these acts and all of children’s “silent whys” (Rinaldi, 2006, p. 111) requires teachers to know how to wait, to discover new ways of observing and to build strong images of young children. For Malaguzzi (1994), this is where teaching in the early years begins.

Some key points from the literature	Implications for practice
Infants use their body to manifest their curiosity and request information from adults	Understanding and/or interpreting infants’ questioning behaviours requires unhurried time with children and careful observation
From early infancy, children are aware that adults are a significant source of information in their surroundings	Interactions with adults who treat children as competent interaction partners play a vital role in the development of children’s questioning abilities
As infants acquire greater control over their movements, exploring their environment in various ways (e.g. by putting objects in their mouth) becomes another important way of getting information	After ensuring safety, the next step for teachers is to provide an environment that fosters exploratory play and learning experiences that encourage the development of children’s inquiry skills

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Research partnerships in early childhood education: Essential partnership principles when developing Pacific health education resources



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(peer reviewed)

Abstract

The Action Plan for Pacific Education 2020-2030 envisions diverse Pacific learners and their families feeling secure in their identities, respected, and empowered to achieve educational goals. This requires collective efforts from various stakeholders, including partnerships between early childhood education (ECE) centres and researchers. This article highlights the research collaboration experiences of a Pacific team comprised of two ECE teacher researchers, a community researcher, and an academic researcher, and their application of four crucial research-partnership principles developed by Lai and McNaughton (2013). The project *Nesian Narratives* is a qualitative study focused on developing health education resources for kaiako (teachers/faiaoga) of Pacific learners. This article highlights the vital role that ECE kaiako have as custodians of Pacific cultural practices within their centres. It also emphasises the learning potential when kaiako, community, and academic researchers collaborate to develop culturally sensitive health education resources for Pacific children.

Introduction

This research demonstrates the potential of collaborative ventures between ECE kaiako and community and academic researchers, illustrating how Pacific culture and values can be central in shaping partnerships and crafting curriculum materials. Such partnerships can directly address local needs and governmental education priorities, while informing the thinking of kaiako and how they can support infants, toddlers, and young children's emerging understanding of their bodies, health and well-being.

Te Whāriki's vision for early childhood education (ECE) in Aotearoa New Zealand (NZ) sees children, including infants and toddlers, as empowered individuals: adept and confident learners and communicators, thriving in mind, body, and spirit (Ministry of Education, 2017). Health education is an important aspect of learning, as it supports personal wellbeing—contributing to the overall hauora (wellbeing) of learners—by promoting positive body image, self-esteem, and emotional resilience (Ministry of Education, 2020b, 2020c). When children feel a profound sense of belonging and understand their significance in our society, they are confident in their ability to contribute meaningfully to the world around them (Ministry of Education, 2017). To accomplish this for Pacific children, educational environments must be able to integrate children's real-life experiences, include their emerging cultural understandings, and ways of being, knowing and doing (Ministry of Education, 2017; Toso & Matapo, 2018).

This article explores the application of four essential research partnership principles identified by Lai and McNaughton (2013) through a collaborative partnership between Pacific ECE kaiako (teachers/faiaoga - Samoan for teachers, see Tufue et al., 2021) and Pacific researchers (Veukiso-Ulugia, Tiakia et al., 2024). Quality research and professional development opportunities, such as engagement in external research projects, can support kaiako in understanding various ways to integrate Pacific children's real-life experiences into the education setting, which can contribute to more effective teaching practices and better educational outcomes (Ministry of Education, 2018).

In NZ, *Te Tiriti o Waitangi* - the Treaty of Waitangi provides a central foundation for education, particularly in realising equitable outcomes for Māori—the indigenous people of the land (Ministry of Education, 2017; Tawhai & Gray-Sharp, 2011). Pacific peoples and groups are welcomed as partners to *Te Tiriti o Waitangi*. Additionally, Pacific and Māori have a unique relationship, sharing ancestral and spiritual connections (thousands of years) (Teaiwa & Mallon, 2005). Over the last century, we have seen an increasing number of children in NZ sharing dual heritage (Pacific and Māori) (Veukiso-Ulugia, McLean-Orsborn et al., 2024).

This article focuses on the ECE kaiako experience of co-developing health education curriculum resources for young children with a specific focus on four research-partnership principles that guided their participation: rigorous research methods, a collaborative learning community, complementary expertise, and ethical integrity

(Lai & McNaughton, 2013). These principles will be discussed shortly. A focus on health education in ECE is important for all kaiako, especially those supporting infants and toddlers, as it can provide a foundation for all children in developing their body awareness and establishing relationships with others (Sansom & Rockel, 2015).

Education Policy and Practice

NZ aims to create a more equitable education system that values and incorporates the diverse perspectives of its multicultural communities. Pacific learners are emphasised in educational policy, such as *Te Whāriki* (Ministry of Education, 2017), the *Statement for National Education and Learning Priorities* (NELP) (Ministry of Education, 2020a), the *Action Plan for Pacific Education* (Ministry of Education, 2023) and *Tapasā* (Ministry of Education, 2018).

The *Tapasā* framework is unique to NZ as it a Pacific framework, developed by Pacific stakeholders to support and guide kaiako to develop effective and quality practice for Pacific learners (Ministry of Education, 2018). The framework acknowledges Pacific perspectives influencing culturally responsive approaches under three turu (strands). Turu 2 of the *Tapasā* framework underscores the significance of robust, reciprocal, responsive, and collaborative relationships, partnerships, and engagement among the teacher, early learning service or school, and the learner, alongside their parents, families, and communities (Ministry of Education, 2018).

Additionally, the significance of nurturing the cultural identities of Pacific learners is emphasised in scholarship regarding additive bilingualism and culturally responsive pedagogy (Mara, 2013; Tuifuti, 2013). These ideas endorse the preservation of heritage languages, the cultivation of cultural competencies, and the incorporation of spirituality into educational practices (Leaupepe et al., 2017; Sī'ilata, 2014). As Toso and Matapo (2018) note, Pacific indigenous knowledge offers alternative ways of thinking, being, and relating to the world, creating new possibilities for teaching, learning, and pedagogy with infants and toddlers. An understanding of Pacific knowledge not only benefits Pacific children but also enriches the educational experience for everyone by fostering a more inclusive and understanding environment.

However, as researchers have posited, meeting the cultural needs of Pacific infants and toddlers in mainstream early childhood settings is not straightforward and requires Pacific, and even non-Pacific, kaiako to have Pacific cultural competencies and engage in careful consideration and action (Glasgow & Rameka, 2017; Matapo & Leaupepe, 2016). It is important then for kaiako working with Pacific infants and toddlers to grasp indigenous cultural knowledge, which we acknowledge may be difficult to do given the prevailing Western or non-Pacific pedagogical approaches that dominate in ECE (Glasgow & Rameka, 2017; Leaupepe et al., 2017).

Fostering a Research Culture in ECE to Strengthen Culturally Responsive Practice

To strengthen culturally responsive practices for ECE learners, research collaborations with community and academic researchers focused on curriculum development can be highly effective (Hobbs et al., 2018; Lai et al., 2020). In NZ, the government's commitment to ECE has spurred collaborative research endeavours aimed at establishing practices that support all children, including Pacific learners, in reaching their full potential (Lai & McNaughton, 2013). However, a criticism often levelled at academic-community research projects is

the lack of accessible information concerning fundamental concepts and methodologies utilised in study design and research dissemination (Drahota et al., 2016; Lai et al., 2020). When researchers or research reports do not provide a clear outline of the process involved in developing and maintaining collaborative relationships, or the learnings from these relationships, it makes it harder for other researchers and kaiako to grasp the research results, thereby challenging the integration of research findings to inform pedagogy with very young children. This may also make it difficult for future users of such research to collaborate with others.

This article seeks to demystify this challenge by identifying the kaiako learning from *Nesian Narratives*, a research collaboration between kaiako and community and academic researchers, to develop culturally enhancing health education resources for teachers of young Pacific learners (Veukiso-Ulugia, Tiakia et al., 2024).

Methodology and Methods

Supporting the collaborative research efforts of the team comprised of Pacific ECE kaiako, community, and an academic researcher, is a sense of responsibility deeply rooted in a Pacific perspective of research. To support this health and education research project, the team drew on the definition of Pacific Health Research outlined by the Health Research Council of New Zealand (HRC, 2004). This definition of Pacific research accurately depicts the values and processes driving this partnership. The Pacific health research guidelines state:

The primary role of Pacific health research is to gain knowledge and understanding that will improve the health of Pacific peoples [...] the active involvement of Pacific peoples (as researchers, advisors and stakeholders)... Pacific research will build the capacity and capability of Pacific peoples in research, and contribute to the Pacific knowledge base... Pacific research will be underpinned by Pacific cultural values and beliefs, and will be conducted in accordance with Pacific ethical standards, values and aspirations. (p. 11)

The data excerpts in this article were derived from talanoa between the community and academic researchers and ECE kaiako between 2023 and 2024. Aligned with the narrative approach to storying learning in ECE, the talanoa methodology is deeply rooted in the traditions and values of Pacific communities (Ponton, 2018; Vaoleti, 2006, 2013). Through talanoa, researchers engage in open, respectful conversations with participants, fostering genuine relationships and co-creating knowledge that reflects the lived experiences and perspectives of Pacific peoples. This methodology prioritises community involvement, ensuring that research processes and outcomes are relevant, meaningful, and empowering for Pacific communities.

The project *Nesian Narratives* involved three phases (see Veukiso-Ulugia, Tiakia et al., 2024). The second phase which is the focus context of this article, entails the development of a broad set of health education ECE curriculum resources to strengthen Pacific children's (age 4-6) understanding of their bodies and sexuality in a positive and culturally affirming manner (Veukiso-Ulugia, Tiakia et al., 2024). Phase 2 involves highly collaborative and ongoing talanoa between Pacific ECE kaiako and a community and academic researcher (also of Pacific descent). Since 2022, early talanoa focused on the aspirations and requirements for developing culturally relevant ECE health education resources. While the resources do not

focus specifically on infants and toddlers, the insights in developing them are useful in thinking about the first years as a critical time for supporting infants and toddlers—in learning about body awareness, health and wellbeing in the context of positive relationships. Specifically, the significance of the ethics of care underpinning these collaborative relationships was amplified. Given the diverse Pacific knowledge systems and research experience of this group (kaiako, community and academic researchers), it was critical to ensure that robust ethical principles underpinned and guided the collective partnership. These principles are discussed shortly in relation to the insights gained from this collaborative research process.

The two ECE kaiako (co-authors) are of Pacific descent, with ancestral links to Samoa and Niue. One is the curriculum lead and both work with the infants, toddlers and young children in the centre. The community researcher (co-author) and the academic researcher (lead author) are of Samoan descent. The ECE centre is an English-medium community-based setting located on hospital grounds, with a parent community comprising both hospital and broader community members. The centre accommodates up to 90 children, including 30 children under 2 years. Many of the children are from Māori or Pacific Island backgrounds. The majority of ECE staff are qualified.

Principles for Effective Research-School Partnerships

As a collective of Pacific kaiako, community and academic researchers, we reflect on our collaborative experiences to date in developing Health Education curriculum materials all informed by Pacific values, knowledge, experience and relational ethics (HRC, 2004) and guided by Lai and McNaughton's (2013) four principles for successful research partnerships framework. Although this framework is derived from their Learning Schools Model in New Zealand, it is particularly suited for our project *Nesian Narratives* that bridges both health and education and its alignment with our emphasis on collaboration, relationships, diversity and equity within education settings. Lai and McNaughton's (2013) project was grounded in local community experiences, notably its collaboration with low socioeconomic schools catering predominantly to linguistically and culturally diverse children from urban areas.

Discussion

Principle 1: Partnerships Based on Robust Research Methods

The first principle emphasises partnerships firmly rooted in robust research methods and includes ideas like: addressing shared and pressing problems in practice, collaborative approaches to problem-solving grounded in evidence and employing research approaches that incorporate practitioners' perspectives (Lai & McNaughton, 2013). Identifying common and urgent issues in practice is essential to developing effective collaborations between ECE centres, families and researchers (Lai & McNaughton, 2013). The national ECE curriculum of NZ, *Te Whāriki*, emphasises the promotion of all children's health and wellbeing alongside equitable access to learning opportunities and recognition of their cultural identities (Ministry of Education, 2017). An urgent issue highlighted from ECE kaiako was the need for culturally respectful health education resources that empower Pacific children to feel confident, safe, and secure in themselves and their bodies. For infants and toddlers, this feeling emerges and develops as they interact with young peers and kaiako.

During talanoa, the kaiako noted that physical wellbeing is a broad area encompassing a range of education and health issues, including body safety and sexuality. These topics are considered culturally sensitive in many Pacific communities (Veukiso-Ulugia et al., 2023). This research team agreed that health education resources developed for *Nesian Narratives* must be culturally respectful and involve parents and families in the process. The following quote from an ECE kaiako of the collective partnership underscores these concerns and aspirations:

As early childhood educators we found that we were venturing on the same journey as a child with this taboo and sensitive topic within our Pasifika community - Sexuality. Through research, open and honest talanoa in our [research] group, with family, with friends, with working colleagues and friends... there were many mixed emotions. It opened up pathways of new knowledge, empathy, compassion towards sensitive information and dialogue. We needed our approach to be culturally respectful, in partnership with our families and provide an ECE teaching approach for the learning outcomes of this resource.

These issues, and the shared problems discussed during the group talanoa, highlighted the importance of providing adequate time and space for kaiako and researchers to share, and for kaiako to be actively involved in problem-solving and shaping decisions around the research processes and in developing health education resources for the children they care for and educate.

Principle 2: Building a Community of Practice—Shared Cognition and Collective Efficacy

"We want to set our tamariki up for success, but this needs to be done collectively." ECE faiaoga (kaiako/teacher)

The second principle from Lai and McNaughton's (2013) framework highlights the value of forming a community of practice, where members learn from each other to solve agreed-upon issues. Moreover, the partners involved should demonstrate a commitment to long-term collaboration to achieve common goals. A community of practice can also involve others beyond the education centre, such as parents, families, research and other community members to facilitate the exchange of goals and aspirations, acknowledging the diverse perspectives held (Wenger, 1998).

A key responsibility of kaiako, as outlined in *Te Whāriki*, is to engage in collaboration with others, such as ECE peers and specialist services (Ministry of Education, 2017). In Phase 2 of *Nesian Narratives*, kaiako are collaborating with external researchers to co-create culturally enhancing health education resources. They have invited, and continue to keep, parents informed of the progress and developments. This research process has been a unifying experience, whereby through talanoa, each member has gained a deeper understanding of the others' skills and expertise. As Pacific researchers (kaiako, community, academic), building and maintaining principled relationships is a key part of practice (HRC, 2004). This is reflected in the following quote from a kaiako:

Through our experience of researching and collaborative talanoa, we acknowledged and identified key indicators to achieve successful outcomes. When we look at the top of [a] coconut tree, we have the branches and leaves as a symbol of protection. This was a common value amongst our researchers

where we all had the same shared vision. We had a relationship of trust, respect to effectively communicate, and an appreciation for each other's roles. Inclusion, open and honest feedback was highly valued and an acknowledgement of each other's backgrounds, experiences and knowledge were cherished.

The experiences of the collaborative partnership group exemplify the second principle of a community practice, characterised by collaborative learning, sustained commitment, and respect for diverse perspectives. Ensuring that kaiako had multiple opportunities to engage in research talanoa at convenient times and venues was crucial. Moreover, in valuing and incorporating the knowledge of all involved, including kaiako expertise in pedagogy, curriculum, and responsiveness to young children helped to ensure the longevity of this collaborative partnership. As a group we continue to explore how the overall *Nesian Narratives* project can inform and support kaiako, children and their families.

Principle 3: Teachers as Adaptive Experts

The third principle outlined in Lai and McNaughton's (2013) framework views teachers as adaptive experts—those who can adapt and positively respond to changing contexts and acquire new knowledge and skills. *Te Whāriki* emphasises the promotion of all children's health and wellbeing alongside equitable access to learning opportunities and recognition of their cultural identities (Ministry of Education, 2017). The ability for ECE kaiako to adapt learning environments and further develop their teaching approaches and knowledge of infants, toddlers and young children is essential to nurturing inclusive environments and respecting diverse backgrounds (Ministry of Education, 2017, 2018). Kaiako may enhance their knowledge through a range of sources, including families, whānau, community, further learning, and partnerships with community and academic researchers.

Preliminary findings from *Nesian Narratives* (Phase 1) reveal the ambivalence many kaiako (across Early Childhood, Primary and Secondary) and Pacific parents have with aspects within health education, particularly sexuality education (Veukiso-Ulugia, Tiakia et al., 2024). During the Phase 2 collaborative design process, the research team (ECE, community, academic) explored the realities for kaiako when supporting young learners to develop body awareness and safety. Body safety is a broad topic and some kaiako may have not received comprehensive training in this area. As highlighted by kaiako in the first quote, the ability for kaiako to be open to new knowledge and ways of understanding sensitive information illustrates the courage they inherently possess. A kaiako said:

Through research, open and honest talanoa in our [research] group, with family, with friends, with working colleagues and friends... It opened up pathways of new knowledge, empathy, compassion towards sensitive information and dialogue.

Te Whāriki guides kaiako to view the child holistically, whereby a focus on the child's physical self (*tinana*) is interdependent with a focus on all other aspects of his/her development: cognitive, emotional, spiritual, social, and cultural (Ministry of Education, 2017). As demonstrated, the talanoa process enabled kaiako to explore sensitive issues in a safe and open environment and to develop new knowledge and understanding of the physical wellbeing of young learners. This holistic approach exemplifies how teachers,

as adaptive experts, continuously evolve their practices to meet the diverse and interconnected needs of their students.

Principle 4: An Ethical Imperative

The fourth principle for effective research partnerships concerns the ethical and moral stance embraced within the partnership, towards each other, and towards the collective goal of betterment (Lai & McNaughton, 2013). This principle aligns with those highlighted in the definition of Pacific health research, whereby the primary goal is to gain knowledge and understanding that will improve the health of Pacific peoples (HRC, 2004). Furthermore, as McNaughton (2011) contends, determining what is educationally significant is influenced not only by development, but also cultural and political factors. This too mirrors the aspirations of Pacific health research, where research will be conducted in accordance with Pacific ethical standards, values and aspirations (HRC, 2004).

The research group comprising Pacific ECE kaiako, community and an academic researcher is united in their desire to support each other and help ECE children gain a positive awareness of their own and other cultures. This commitment reflects *Te Whāriki's* strand of Contribution, where "Working together for the common good develops a spirit of sharing, togetherness, and reciprocity, a value important to Pacific and many other cultures" (Ministry of Education, 2017, p. 36), and is highlighted in the following quote from a kaiako:

A key and recurring element through our journey of dissecting, listening, questioning, and sharing, was relationships. This is a common value of our Pasifika cultures. It is instilled within our families and community. (Spiritually, cultural traditions and protocols). This was the core foundation, the heart of designing the resource kit as we explore topics of knowing oneself – who am I, my identity... Our approach towards the subject requires partnership, contribution and participation. Like a ripple effect, our families will make connections and feel a sense of belonging, to be confident to contribute, communicate, collaborate and to positively explore taboo topics (comfortably). This will promote quality and effective teaching.

Maintaining ethical standards involves working together to develop strategies for using and sharing evidence for evaluation, design, and improvement purposes, following principles of professional conduct and research ethics to ensure quality (Lai & McNaughton, 2013). The importance of a Pacific ethics of care is reflected in the HRC definition of Pacific research (HRC, 2004) and the *Tapasā* framework (Ministry of Education, 2018). The project team ensured that before proceeding with the *Nesian Narratives* study, ethical approval from the local ethics committee: the University of Auckland Human Ethics Committee was granted (see UAHPEC22322 Phase 1; UAHPEC24445 Phase 2). The ethics application highlighted that *Nesian Narratives* is a Pacific-led research project, actively involving Pacific peoples as researchers, advisors and stakeholders (Veukiso-Ulugia, Tiakia, et al, 2024). As part of the resource development process, the research group has planned to gather feedback from parents and kaiako to ensure that the resources developed are relevant and beneficial. The following quote from two Pacific ECE kaiako exemplifies how this research embodies the rights and roles of those involved in research, and the values and goals of improving the health and wellbeing of Pacific people:

Interweaving the leaves creates stability and strength - walking through the project alongside our researchers is an example of unified partnership, participation and protection. Our resource kit will be designed to instil the same values and experience in which we have experienced firsthand. But it will take a village to raise and protect a child.

These quotes and experiences demonstrate the research group's unwavering commitment to their ethical responsibility, embodying the fourth principle for effective research partnerships. By embracing a strong ethical and moral stance towards each other and their collective goal of supporting children to become competent and confident learners who are secure in their identities, an aspiration of *Te Whāriki* (Ministry of Education, 2017), they fostered a collaborative environment rooted in mutual respect, integrity, and a shared purpose.

Conclusion and Reflective Questions

This article demonstrates the potential of collaborative partnerships between educators and academic researchers, illustrating how Pacific culture and values can be central in crafting curriculum materials. Such partnerships can directly address local needs and governmental education priorities and shape the perspectives of kaiako on how they can support all children's emerging understanding of their bodies, health and well-being.

The *Nesian Narratives* research design demonstrates both strengths and limitations. The findings underscore the importance of implementing a strengths-based methodology, prioritising and amplifying the cultural assets within Pacific communities by actively involving kaiako, families, and researchers in the curriculum and resource development process. Efforts are underway to share the perspectives of Pacific parents and families involved in *Nesian Narratives*. While the health education resources are focused on children aged 4 to 6 years, the research group anticipate that a similar research approach will be undertaken with Pacific families of infants and toddlers to foster a mutual positive understanding of children's physical health, well-being and cultural identity. Furthermore, the research group recognises that the interpretation of the shared narratives can be subjective and influenced by the researchers' perspectives and the findings may not be generalisable to all Pacific kaiako or ECE settings. However, the planned feedback process with parents and ECE kaiako will help ensure that the resources developed are relevant and effective.

The following reflective questions identified by the research group and derived from *Te Whāriki* and *Tapasā* policy guides, researchers (e.g., Cooper et al., 2018), and practice, may support kaiako in reflecting on developing partnerships with external researchers. These questions also help in exploring the knowledge and theories informing practice.

Reflective Questions for Teachers of Pacific Infants and Toddlers:

- Have I/we engaged in Tapasā workshop/training in the spirit of supporting all Pacific children in our ECE? If yes, how do I/we use Tapasā to understand our learners' cultures as a building block for my/our own learning and practice? If no, what commitment will I make to read about Tapasā?
- Have I/we engaged in relationship building, working with community and academic researchers to enhance our practice? How can we further develop these relationships? What principles would foster these relationships?
- What other culturally responsive resources do I/we use to complement Tapasā to support governance and strategic planning, developing local curriculum, induction, mentoring and appraisals, and professional learning and development?

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Tips for beginning teachers joining the toddler room



CHRISTINE NEFF

Settling sleepy tamariki. Changing nappies. Helping small bodies process big feelings. The tasks of the toddler room require a special touch. I didn't embark on a career change to early childhood education (ECE) expecting to work with this age group, but after my last few months learning alongside curious, boisterous, wondrous 1- to 3-year-olds, I can't imagine anything else! Here I share tips that helped me embrace the transition from student to kaiako in the toddler room – as well as the nuggets of wisdom from my ECE study that inspired them.

Stay a Student

We may have a diploma in hand and a practising certificate card in our wallet, but, for kaiako, there's always something new to learn. Not only is it part of our professional responsibility to engage in "professional learning," beginning teachers especially benefit from staying in the student mindset (Education Council New Zealand [ECNZ], 2017, p. 16). I'm reminded of the philosophy behind the Reggio Emilia approach to ECE that encourages kaiako to see themselves as a researcher, "constantly seeking deeper understanding and new knowledge, in particular of the child and the child's learning processes" (Moss, 2006, p. 36). Even in centres that don't follow the Reggio Emilia philosophy, the approach has benefits. Spend time observing the other kaiako in your centre and learning from their practice. Expect and embrace feedback; consider it coaching, not criticism. Stay open to new ideas and ways of doing, especially in the toddler space where our tamariki are developing and changing so rapidly. And always listen to and learn from our tamariki; they may be our best teachers yet.

Be Flexible

In the toddler room, "routine" is more of a rhythm. Schedules vary. Approaches change. What works one time might not the next. And while it can be difficult as a beginning teacher to settle in when the routine seems to be ever-changing, I recommend staying open to the "complexity, variety, and often messiness of the intersection of care and education" (Mitchell et al., 2019, p. 7) we participate in as kaiako. Embrace the fact that every day looks a little different; plans are always shifting and the needs of our tamariki and teaching team ultimately decide how our days unfold. That flexibility will make you a valued team member – and keep you grounded when things begin to feel hectic.

Stay Reflective

Without the demands of coursework and documentation to complete, beginning teachers may let go of the habit of writing and reflecting on their practice. But we shouldn't! Not only is regular reflection core to our professional responsibility, it helps us learn and grow as kaiako (ECNZ, 2017). Even more, research by O'Hara-Gregan (2015) shows that critical reflection encourages the development of authenticity in practice, something beginning teachers especially need to be thinking about. So, jot down a few notes – something you learned, something you wondered about – every day. And carve out time during your non-contact hours for more in-depth reflection. As new kaiako, we're in the right mindset to stay reflective and grow this essential part of our practice. And we should.

Relish the Care Moments

Nappy changes and nap times make up a big part of the day in the toddler room, and it can get quite busy trying to change and settle a group of toddlers. But don't rush through these care times; embrace them as a way to connect with each tamaiti. I love sharing these experiences with our toddlers and feel it a great honour they allow me to care for them in these personal moments. It reminds me that ours is a caring profession and that "care is a holistic concept, bringing together thought and feeling, mind and body" (Taggart, 2019, p. 101). We attend to the physical, social, and emotional needs of our tamariki throughout the day. Yet we must also be mindful of our own thoughts and feelings, working to stay attentive and present in a compassionate way (Taggart, 2019). If you find yourself checking the clock or thinking about other tasks that need done when you're with a tamaiti during care moments, take a breath and refocus your attention on the child you're with. Remind yourself: This is why I'm here. This is what it's all about.

Expect Some Fails – and Adapt

Having worked with preschoolers and infants in my practicum weeks, I spent only a bit of time in the toddler room before becoming a kaiako. I quickly discovered that what works for other ages does not always translate to the toddler space. In one particularly rough fail, I pulled out my ukulele – an activity that would always get my infants singing and dancing – and found myself mobbed by toddlers wanting to hold the instrument themselves. Excitement turned to tears when they learned, "Only Christine can hold this ukulele." Oof. Not good. I learned to rethink the resources I chose, the art projects I planned, even the way I introduced materials to better fit these tamariki – and I still miss the mark every now and then. I'm reminded of the

mantra explored by Carmen Dalli (2018), “Watch, listen, act and adapt,” with particular emphasis on that last directive. Adaptation is essential to the role of kaiako, especially in the toddler room. And when the fails do happen (and they will!), don’t be too hard on yourself.

Try New Things and Don’t Underestimate Your Tamariki

A misstep may shake your confidence but try not to let it discourage you from trying new things, or even trying the same things again in another way. (I did lead a successful ukulele jam session another time by pulling out other instruments – xylophones, drums, maracas – for the children to play along with!) Also, stay intentional about never underestimating your toddlers. I think often of research done on the topic of STEM that found one of the strongest predictors of whether children learn maths in ECE is if teachers believe they can (McClure, 2017). Teachers who under-estimate their students’ ability may under-educate their students. I never want to be the reason my toddlers fail to explore new ideas and interests or miss out on learning opportunities, so I’m always willing to try new things and support our “competent and confident” (Ministry of Education [MoE], 2017, p. 14) toddlers’ attempts. And I’m constantly surprised by the creative ways my toddlers respond. They’re amazing!

Read (and Reread!) Your Te Whāriki

As an American studying ECE in New Zealand, I was very inspired by our curriculum document, counting myself among those who “celebrated *Te Whāriki* as a substantial early childhood curriculum of great importance” (Fleer, 2019, p. 195). In university, I enjoyed studying its principles and theories and seeing how those ideas applied in practice. But what I didn’t expect is how much I would rely on the document in my day-to-day work. I often find myself poring through its pages to help with a challenge I encounter or better understand the learning I’m seeing in my tamariki. I read and reread the sections that discuss toddlers, in particular, and find them incredibly helpful for making sense of this age. *Te Whāriki* really is a remarkable resource for kaiako, “a mat for all to stand on” (MoE, 2017, p. 12) – especially those of us just getting our feet under us as new teachers.

Play!!

This is my favourite part about being a kaiako in the toddler room and my biggest piece of advice for beginning teachers. By playing with our tamariki, we can develop relationships and scaffold their learning. And goodness is it fun! The relational play-based pedagogy that encompasses this approach is one I fully believe in, agreeing with the “rich teaching possibilities of blending play, learning and teaching in open-ended experiences that are authentic to children and teachers” (Hedges & Cooper, 2018, p. 380). And I find it so rewarding as well. So, join in – if invited! – to those games of pretend play. “Eat” the sand cakes. Be the fireman rushing to the emergency. Read the story with funny voices. Redirect unwanted behaviour with a new game. Sing, loudly, and often, and dance along to those Wiggles’ songs on repeat. Your students will love it, and you will see the benefit in the close relationships you develop with your tamariki and the learning you can observe and expand on.

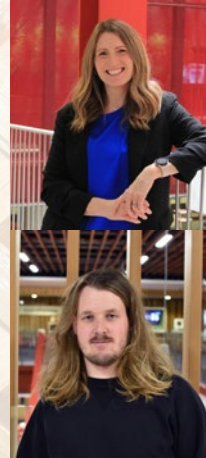
All the best to beginning teachers heading into the toddler room! Trust that your study has prepared you well, you’ll learn as you go, and you’ll have fun doing it. I’m certain you will find this age group challenging and rewarding and wonderful to work with, just as I have, and I know your practice will only grow stronger from the experience. Ngā mihi mō ngā tau kei mua i te aroaro!

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Learning about social contingency with the world's first digital baby – BabyX

BY PROFESSOR ANNETTE HENDERSON AND DR FLORIAN BEDNARSKI



Abstract

“Tangata ako ana i te whare, te turanga ki te marae, tau ana” – “A person who is taught at home will stand collected on the marae.”

In this research summary, researchers from the Early Learning Lab at the University of Auckland introduce their work with BabyX, a virtual simulation of a toddler. BabyX was developed by Dr. Mark Sagar and his team at Soul Machines and is now being used to learn more about how caregivers interact with children. This research project is the first of its kind and has the potential to advance research methodology and springboard novel applications for early childhood teacher education.



Introduction

At the start of 2024, the Early Learning Lab at the University of Auckland started collecting data for the world-first developmental psychology research project with BabyX. In cooperation with Soul Machines, the research group led by Professor Annette Henderson developed an interactive digital task for caregivers of toddlers. This work will not only advance the positive use of artificial intelligence for research but most importantly open novel and exciting ways to understand and improve the ways in which we care for young children.

Introducing BabyX

BabyX is an incredibly plausible simulation of a 1- to 3-year-old child. The simulation is displayed on a computer screen with the visual appearance of a white gender-neutral child (more diverse appearances are currently in development). They display emotions, play with blocks and speak in age-appropriate language. Participants can interact with BabyX by speaking and moving game pieces on a touchscreen. BabyX is powered by artificial intelligence models that enable their responses to be contingent upon the participant's speech, gesture and facial expressions. Thus, interacting with BabyX feels like interacting with a toddler in a video-chat setting.



In the current study, caregivers are asked to play different interactive games with BabyX. During those interactions participants can scaffold BabyX's learning about the individual game pieces, provide help if BabyX asks for it and support BabyX when they are having a hard time playing the games. These interactive patterns establish real social contingency between BabyX and the participants (Sagar et al., 2016). The researchers at the Early Learning Lab are harnessing this novel technology to research the ways in which infants' communicative signals shape caregiver responsiveness.

Background: Caregiver Responsiveness

Early caregiving experiences provide the foundation on which children grow as competent, integrated members of society. Indeed, caregivers provide the necessary scaffolding with which infants build early competencies that ultimately shape their lifelong social, emotional, language and cognitive functioning (Dunst & Kassow, 2008). Central to this scaffolding is caregiver responsiveness – the ways in which caregivers are sensitive to their child’s ongoing behaviour and adjust to maintain the bidirectional “interaction loops” that characterise early caregiver-infant interactions. Understanding how infant communicative signals influence caregivers’ responsiveness is crucial to understanding individual and contextual variation in this ability (Bigelow & Power, 2016). Yet, our current knowledge base is one-sided due to a significant barrier: infant behaviour cannot be manipulated.

Empirical evidence has emerged from observational and correlational studies or experiments that instruct caregivers to change how they respond to their infants. There is vast variability in responsiveness across caregivers with different caregivers responding to 30 – 85% of their child’s actions (Bornstein et al., 2008). While variability in responsiveness across caregivers is expected, variability within caregivers is intriguing. Caregivers change how they respond to their child to be consistent with the context and their child’s developmental level. Critically, variability in caregiver responsiveness predicts children’s social, emotional, language, and cognitive development. Heather Prime and her colleagues (2020) showed that infants’ verbal abilities at 18 months, as assessed with a standard picture vocabulary test, were further developed if their caregivers were more responsive. Consistent responsive caregiving is so crucial for development that it can buffer the harmful effect of poverty, stress, and other adverse childhood experiences.

Fantastic Futures with BabyX

Building a better knowledge base of the mechanisms behind responsiveness is a necessary step for improving support for caregivers. Our basic research with BabyX will help us to uncover fundamental dynamics of social contingency. We are interested in the effects of subtle changes in infants’ communicative cues on caregiver responsiveness. This research marks the first time in developmental psychology history that infant behaviour can be manipulated in a systematic way. This groundbreaking research will enable us not only to determine how infants are shaping caregiver behaviour but also to provide empirical support for potential practical applications of BabyX.

Taking care of young children requires a high level of sensitivity to cues in socially contingent interactions. Caregivers are constantly challenged to detect the mental states of the children in their care (Taumoepeau & Ruffman, 2008). For caregivers working with toddlers and young children, this means reading the most subtle communicative cues hidden in facial expressions, eye gaze, gross motor motions and often incomprehensible speech utterances (Suarez-Rivera et al., 2019). We believe that specialised training with BabyX will become a powerful tool for caregivers to train and fine tune their mind reading skills. That is, caregivers’ abilities to infer infants’ needs from non-verbal cues, such as eye gaze and facial expressions (Meins et al., 2012). This positive use case of artificial intelligence has the potential to take early caregiver education to the next level.

Outlook

The research community at Waipapa Taumata Rau | The University of Auckland and Victoria University of Wellington, where our collaboration partner Associate Professor Mele Taumoepeau is based, is, among other things, interested in applying BabyX as a training and intervention tool to diverse caregiving contexts. We imagine fantastic futures with BabyX as a virtual assistant helping early childhood teachers learn to better respond to infants’ communicative cues.

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Te Tumu: The early childhood gallery at MOTAT's new science and technology centre

TAMAR WEISZ-KOVES, ESTHER TOBIN, JULIE BAKER, AND DR DANIEL LOVATT



Abstract

In May 2024, Auckland's Museum of Transport and Technology (MOTAT) opened its new Science and Technology Centre, Te Puawānanga. Te Tumu the first of three galleries, has specifically been designed for infants, toddlers, and young children. The design of the environment and experiences Te Tumu offers reflect the unique context of Aotearoa New Zealand, embodying Māori knowledge and an active approach to learning. Co-written by the development team heading the project, Esther Tobin (Senior Exhibition Designer) and Julie Baker (Head of Education), and Early Childhood Education Advisers, Dr Daniel Lovatt and Tamar Weisz-Koves, the purpose of this article is to share insights about the intentionality and design of Te Tumu with those interested in science and technology education in early childhood and to invite children, families, and teachers to engage with this innovative space.

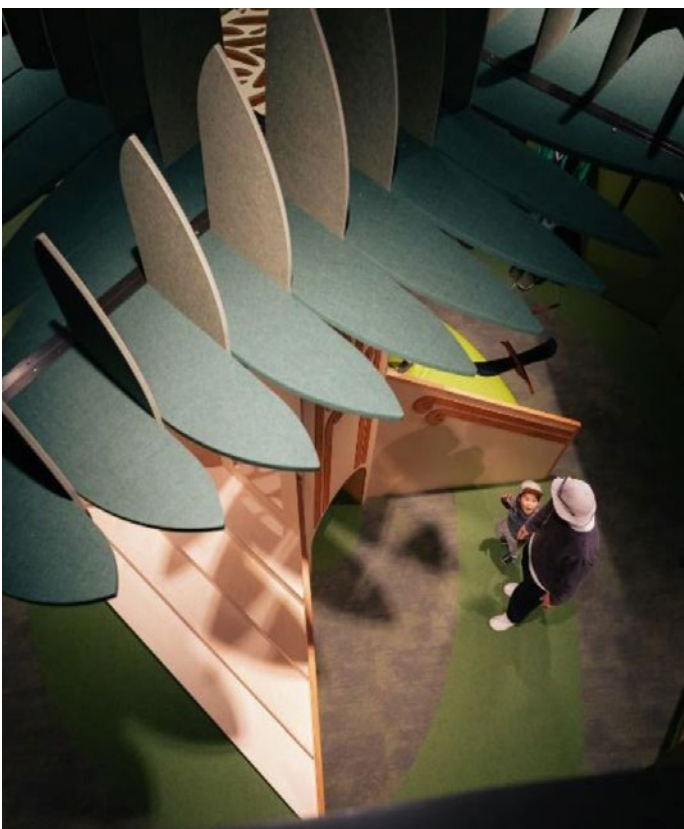


Image 1. Aerial view of child and caregiver exploring Te Tumu. Published with permission from MOTAT

Situated within Auckland's Museum of Transport and Technology (MOTAT), Te Puawānanga is an innovative large-scale science and technology centre designed for children, families, and teachers. Named after a native vine that flowers in spring, Te Puawānanga represents the pursuit and blossoming of knowledge. As a space, Te Puawānanga comprises three indoor galleries and three classrooms interconnected within one centre. These offer learning experiences for infants through to adults; reflecting the vision to appeal to learners of all ages and encourage intergenerational visits. Te Tumu, the name given to the Early Childhood Gallery, means foundation, with Te Tumu providing the physical and metaphorical foundation for the learning opportunities that Te Puawānanga invites.

Introducing Te Tumu

Informed by Aotearoa New Zealand's early childhood curriculum, *Te Whāriki* (Ministry of Education [MoE], 2017), Te Tumu promotes the learning of science and technology concepts through the context of children's play. The key threads of learning through play and exploration, Mātauranga Māori (Māori knowledge), and relationship with the environment are woven throughout Te Tumu, with its design reflecting its location in Te Wai Ōrea/Western Springs; an area of Auckland built on a natural spring and bountiful gardens. Themes and stories about gardening and its relationship to Maramataka (the Māori lunar calendar), harakeke (weaving technology), fishing, cooking, and birds and insects endemic to Aotearoa New Zealand are layered alongside traditional playground opportunities to jump, climb, slide, and hide.

Combined purposefully, the subtle lighting, natural hues and materials, and carefully selected resources result in a calm, beautiful, and intriguing environment full of possibilities. The space invites children to explore using their bodies and senses and engage their imaginations through playing with a range of appealing experiences and loose parts. These include a waka (Māori canoe), a nest, cave, and tree slide, fabricated tuna (eels) and kūmara (sweet potatoes), and moveable stepping stones. The design of Te Tumu brings elements of the outside inside and is unmistakably situated in Aotearoa New Zealand.



Image 2. Young child playing on transportable stepping stones. Published with permission from MOTAT

Consultation and Design

Much thought and consultation have gone into the design of Te Tumu with the development team heading the project, Esther Tobin (Senior Exhibition Designer) and Julie Baker (Head of Education), consulting a range of local and international experts for input. Beginning with MOTAT’s early childhood lead educator, Melissa Hodson, Esther and Julie went on to consult Kate Webber from the Junky Monkeys—a play-based learning organisation focused on loose-parts play—playground safety specialist, Tina Dyer, and seven large-scale science and technology museums around the world.

Consultation also included working with the co-authors of this article, external early childhood education (ECE) advisers Tamar Weisz-Koves, an experienced lecturer in STEM education in the early years, and Dr Daniel Lovatt, a teacher at the Aro Arataki Children’s Centre whose PhD focused on young children’s STEM working theories. The development team sought input from Tamar and Daniel to understand current pedagogies and curriculum related to ECE in Aotearoa New Zealand.

Through Daniel, the development team visited Aro Arataki Children’s Centre—a care and education service based in central Auckland—to gain insights into children’s STEM learning through play. This encouraged Esther and Julie to explore possibilities in the design for Te Tumu, such as including a waka and loose-parts play, that they had not considered before. They later returned to the centre to trial prototypes of resources with the children. After observing how children played with the prototypes, further refinements were made; embodying the spirit of trial, error, and improvement that is central to practical problem solving and the engineering design process (Boston Museum of Science, 2020).

In connection to Mātauranga Māori, the development team was mindful that Māori knowledge is relational; often specific to place and coded in pūrakau (Māori narratives). Esther and Julie worked closely with Pita Turei and Pūhoro STEMM Academy and MOTAT’s Mātauranga Māori Exhibition Developer, Reni Broughton. They also worked with māra kai (food garden) expert, Liliana Clarke, to learn about the Māori lunar calendar, Maramataka, and how the moon’s phases and star constellations guide when to grow, sort, and store kūmara.

The Vision

As core visitors to MOTAT, the vision underpinning the inclusion of an ECE gallery as part of Te Puawānanga was to ensure that children and their whānau (families) feel a sense of belonging and to foster early relationships that grow along with learners. In building an ECE gallery, the development team set out to deliberately include young children and whānau in science and technology learning in ways that are designed specifically for them.

One of MOTAT’s missions is to inspire the innovators of tomorrow. In addition to engaging children in science and technology learning from a young age, the development team wanted to create a space in the community to enhance teacher and whānau confidence in relation to science and technology. Knowing that science and technology are often perceived as “difficult” subjects by parents and teachers (Chalufour, 2010; McClure, 2017), building Te Tumu was a golden opportunity to demonstrate how science and technology learning begins in early childhood and can be embedded in everyday experiences and environments (ERO, 2021; Holdom, 2018; McClure, 2017; Sikder & Fleer, 2014; Zan, 2016).

Furthermore, the development team wanted to create a space with experiences and resources to support and augment the work of teachers across education sectors. For some, Te Tumu, and the other galleries of Te Puawānanga, might be the start of a journey sparking STEM inquiry. For others, the galleries might provide unique opportunities for science and technology learning that cannot be undertaken within their classrooms or ECE services.

Whatever the reason for visiting MOTAT, it is hoped that children and adults of all ages will feel inspired to keep returning.



Image 3. Infant and parents enjoying the space together. Published with permission from MOTAT

Design Considerations

There were a multitude of aspects the team needed to consider in their design of Te Tumu including the age of children, theories about teaching and learning, and the practicalities of maintaining a space without a MOTAT staff member always being present. These aspects added complexity to the design with the needs and interests of children and whānau being the primary drivers for decision making and experience development.

From a health and safety perspective, the development team considered factors like sightlines when designing the space, so that adults can see where children are. They also had door settings and internal gates installed to prevent children leaving the ECE gallery without their carers knowing. Provision was made for ample seating for adults and space provided for pushchairs. A quiet space, built away from areas where older children might engage in physically boisterous play, was created with infants and toddlers in mind.

Consideration was also given to the durability and washability of the materials used. For example, rather than building the large nest that children can climb and play in out of fabric, the team chose to work with a vinyl that can be easily cleaned. The resources provided are either washable or have covers that can be removed for washing to ensure that the space is hygienic and easy to maintain.

In addition to being maintainable, the development team was cognisant of creating an environment that fosters children's holistic learning. The aim was to ensure children will:

- Feel safe, welcome, comfortable, and have agency to move about;
- Enjoy using their bodies, senses, and imaginations to explore and learn about the natural world, Mātauranga Māori, Science, and Technology through play;
- Be able to express themselves and participate in experiences that support their learning dispositions, and working theories;
- Have fun in a social environment that supports their communication and relationships.

The principles and strands of *Te Whāriki* (MoE, 2017) were significant factors in the design of the space and its intended use. How *Te Whāriki* shaped the development team's approach will be expounded on in the next section, which addresses the research and theoretical underpinnings of Te Tumu.

Research and Theoretical Underpinnings

Early on, with support from the Visitor Research Adviser, Sabine Doolin, the development team reviewed international research about children's museum-type galleries. However, they quickly learned that there was very little research available. Moreover, the research that they did locate tended to focus on designing programmes rather than physical spaces for young children.

A source they did find helpful was the Pauline Gandel Children's Gallery in Melbourne. Its developers provided invaluable insights into materials they could use and the importance of catering for different parenting styles. The three main types of parenting styles likely to be present in the space are: parents who actively engage with their children; parents who watch their children but are not actively engaged with their play; and parents who are physically present but not actively watching their children as they know they are in a safe space. The design of Te Tumu had to cater for all levels of whānau participation.

Initially, the development team explored Piaget's schemas as a means to envisioning how children and whānau might engage with the space. With input from Daniel and Tamar, they then looked to *Te Whāriki* (MoE, 2017), to deepen their understandings of the theories and pedagogies embedded in the early childhood curriculum document. *Te Whāriki's* sociocultural emphasis on learning through relationships with people, places, and things led the development team to focus on creating a gallery that provides meaningful experiences based on relationships and opportunities to foster children's learning dispositions and working theories through their exploration and play.

The development team found the following principles and strands of *Te Whāriki* particularly useful in relation to articulating the design of Te Tumu:



Image 4. Toddler investigating their reflection. Published with permission from MOTAT

The principle of empowerment/whakamana. The idea that children be respected and valued and have equitable opportunities for participation, learning, and play was fundamental to Te Tumu’s design. The team sought to create a gallery where children have agency to move about, act on their own ideas, and develop knowledge and skills that interest them;

The principle of family and community/whānau tangata. The gallery provides ample space for whānau to participate alongside children and help them make connections. It also provides social spaces for adults to gather, rest, and observe;

The principle of relationships/ngā hononga. The understanding that children learn through “responsive and reciprocal relationships with people, places, and things” (p. 21) is key. As a place, Te Tumu provides opportunities for children to learn through interacting with other children, adults, and resources designed for them;

The belonging strand/mana whenua. The development team aimed to create a space in which children and whānau feel a sense of connection and “links with family and the wider world are affirmed and extended” (p. 32). Incorporating the local environment of Te Wai Ōrea/Western Springs and Mātauranga Māori throughout the design situates Te Tumu firmly in Aotearoa New Zealand;

The communication strand. Much attention has been paid to creating visual storytelling through symbols, arts, and crafts. These incorporate Mātauranga Māori in ways that align with *Te Whāriki*’s emphasis on bicultural curriculum;

The strand of exploration. The gallery invites hands-on exploration and play; building children’s “confidence in and control of their bodies” (p. 46) while they explore, think, and reason.

Reflection on Challenges and Learning

The development team faced many challenges, from applying for funding to making decisions about what to include in the design and adapting the materials used, all while maintaining a clear vision for what they wanted to achieve. For example, the team originally envisioned having a slide that curved around a tree, but given the complexities of working with wood, a decision was made for the slide to go straight down, rather than around. Esther and Julie reflected that they learnt to trust the process and make hard decisions when at “sticking points”.

One of their strengths as a team was knowing what they did not know and seeking input from others. Working with experts from the community was a privilege that provided invaluable guidance. At times, the consultation and collaborative process led to an abundance of ideas and stories and differing perspectives, but this helped the project team to clarify and narrow down their focus. With a storytelling lens, Esther shared that the experience reinforced the importance of having a tight focus when it comes to storytelling and being mindful of focusing on what is key, without overburdening the story; that “it’s OK not to tell the whole story”.

For Julie, the experience of being part of designing Te Puawānanga has been a journey of significance. A qualified engineer with a background firmly rooted in Western science, Julie found that being part of this project led to rich insights into alignment between Western science and Mātauranga Māori.

Julie also reflected on her learning about how science and the design process are connected to values and ethos. The process involved bringing a group of people together and compromising, “You know you’re not all going to agree on stuff, but you have to keep moving forward”.

A tension the project team was aware of was involved balancing their aspirations with the constraints of being part of a working museum. For example, ECE advisers Daniel and Tamar emphasised the benefits of including opportunities for loose-parts play in the gallery. However, from a museum perspective, loose parts are problematic in that they require ongoing maintenance and costs. Fortunately, Esther and Julie were able to advocate for loose parts to be an integral component of Te Tumu’s design and to build in a budget for their ongoing maintenance.

Rather than being a finished project they can move on from, Esther and Julie feel accountable for the ongoing care and development of Te Tumu.

Next steps

Although the design and building phases are complete and Te Tumu is officially open, the development team is aware that the gallery is an evolving space. Esther and Julie do not assume that they will have “got it right” from the outset and expect that adaptations will need to be made in response to the way people use the space and resources. Furthermore, rather than being static, the intention is for Te Puawānanga to be a dynamic centre that offers changing experiences alongside familiar ones and to create space for members of the community to share their expertise as part of the programmes on offer.

The development of Te Tumu and Te Puawānanga, has been accompanied by a raft of organisational change within MOTAT. These changes include the appointment of a centre coordinator and developing MOTAT’s cultural capabilities as an organisation with the aim of being relevant and accessible to wider groups and communities. Having worked at MOTAT since 2015, Julie highlighted that this is a monument to change, “There’s so much potential for this organisation and hopefully this building will help realise that. We have started that conversation but there is much work to be done and that requires investment and time in genuine relationships.”

Early Responses from the Community

Special guests and speakers at a stakeholder celebration evening held ahead of the public opening of Te Puawānanga included Tom Irvine, the Ngāti Whātua Orākei CEO, Professor Sir Peter Gluckman, and the Deputy Mayor of Auckland, Desley Simpson. They spoke of the importance of science and technology and how Te Puawānanga makes a significant contribution to STEM education, both for Tāmaki Makaurau (Auckland) and Aotearoa New Zealand. Sir Peter Gluckman described Te Puawānanga as a critical asset for inspiring the innovators and problem solvers of tomorrow and to help future generations navigate a fast-changing world.

In the opening weekend, MOTAT welcomed 2,053 visitors to Te Puawānanga, with a steady flow of 130 per hour; double the regular visitation. Although it is still early days, visitors have been observed

enjoying the space and its offerings, including Te Tumu. Moreover, visitors have been spending higher than average lengths of time in the galleries; a clear show of their interest and engagement. One parent who visited Te Tumu with their child is quoted as saying, “This is brilliant, we’ll be back again”.

Summary

Te Tumu is a one-of-a-kind gallery in that it is a science and technology space specifically designed for children aged 0-5 years that incorporates Mātauranga Māori, is informed by the early childhood curriculum, *Te Whāriki*, and is situated firmly in the context of Aotearoa New Zealand. A labour of love, Te Tumu offers a unique space for infants, toddlers, and young children to explore, play, and learn that has been well received by the community and will continue to evolve over time.

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Leadership as key to sector transformation: A conversation with Ann Hatherly

DR MARIA COOPER, WITH ANN HATHERLY AND JEAN ROCKEL

Abstract

In a cosy coffee shop in Devonport, Auckland, Maria Cooper sat down with Ann Hatherly and Jean Rockel to discuss Ann's 40+ year commitment to early childhood education (ECE) in Aotearoa New Zealand. Some of Ann's significant contributions include her leadership in professional development, involvement in the national Kei Tua o te Pae: Assessment for Learning Exemplars project (Ministry of Education, 2004, 2007, 2009), and the ECE ICT PL programme (2006-2009). Ann shares her story from growing up on a remote farm to becoming a strong advocate for kaiako (teachers) and children. Her practical childhood experiences informed her pragmatic approach to education, while her career reflects a strong commitment to equity, sustainability, and community. Joined by Jean, Ann's former colleague and long-time friend, they discuss the importance of professional development for kaiako, the role of *The First Years Journal*, and the challenges facing today's kaiako. This engaging conversation offers insights and inspiration for those working with infants and toddlers.



Jean Rockel and Ann Hatherly (R)

Childhood Influences

Ann was born in Ōtaki and as a toddler moved to Tangiwai in central North Island. Tangiwai hardly exists today but is best known as the place where Aotearoa New Zealand's greatest train disaster occurred in 1953. Ann was raised on a remote farm, where out of necessity she developed many practical skills. "I was an only child and because there weren't kids around to play with, I was either out on the farm or sewing and knitting with my mother who did a lot of craft work." These childhood experiences gave Ann an appreciation for hands-on experiences and practical learning, which would later become central to her approach to education.

Despite the social isolation, Ann recalls her childhood with fondness. "We had a stream on the farm that was teeming with trout so I often went fishing after school. I had pet sheep and calves to care for and I remember there was a time when I could earn pocket money picking and selling lupin seeds grown on the road to our farm. Looking back it was a good childhood in many ways. It was a childhood that encouraged self-sufficiency and being at peace with my own company. But at the time, what I missed out on was a lot of social contact with people."

At the age of 13, Ann went to boarding school in Wellington for her high school years and then on to Wellington Polytech where she studied fashion design and construction. This was followed by a stint overseas, mainly in the UK and Germany.

Ann credits her parents, particularly her father, a farmer who held strong values about sustainability and community, with shaping her subsequent career and approach to leadership. Her story is one that exemplifies the role of personal values and experiences in determining one's professional trajectory.

Journey Into ECE

Ann returned to Aotearoa New Zealand in the mid 1970s, the era of second wave feminism. This had a profound effect on Ann becoming disillusioned with the fashion industry and embarking on a career in early childhood education. "I realised how pathetically superficial it was to be worrying about the length of a skirt or the height of heels. I wanted a career more aligned with a meaningful community impact and teaching seemed to offer that", she explains.

Ann acknowledges that her initial interest in early childhood was pragmatic. "I am embarrassed to admit but I initially chose early childhood because I thought my academic ability was not up to primary or secondary teaching. Of course, I have long since realised that this was a totally misplaced assumption – academic ability is just as important for teaching our youngest citizens who are at such a formative stage of their life-long learning." There was a silver lining to Ann's misplaced assumption – she soon discovered that early childhood teaching was a natural fit for her practical interests and offered more autonomy, flexibility, and creativity. As her appreciation of children's competence and thirst for learning grew so deepened Ann's interest and commitment to the early years sector.

While studying at Teachers College, Ann was taught by Tā Toby Curtis. "Although I had been brought up in a rural area where there were many Māori families, it wasn't until I encountered his 'taha Māori' course that I began to see the inequities and racism in our system. This experience was a real awakening for me."

At Teachers College, Ann began a BEd at the University of Auckland, followed by a MEd in Leadership and Administration at Massey University. During the first degree she taught full-time, at Ponsonby Kindergarten, Auckland when it was largely a Pasifika community. "While it was hard work, I thrived on the combination of teaching and study. I could attend a tutorial on scaffolding children's mathematics in the evening and apply this to building water ramps and wooden structures or sewing with children the next day. The practical was familiar and came easily, while the theoretical I found very challenging yet beneficial for boosting my confidence academically."

Following several years of teaching, she took on a lecturing role at the Auckland College of Education in 1987. It was here she met and worked with Jean. Ann adds, "And then of course, the next thing that happened was the development of *Te Whāriki* which brought in a whole new dimension to my learning and career."

Teaching, Leadership, and Advocacy

Ann's journey within ECE saw her transitioning from teaching to leadership. Her advocacy for children, families and kaiako surfaced during our conversation. She recalls that during the mid 1980s she was all for the move to diversify early childhood services so that parents, particularly women, who wanted to return to work could, knowing that their babies and young children were being

well looked after and were learning. With hindsight, she assesses her early enthusiasm for the growth of childcare as very naive. "I didn't anticipate just how much economics and neoliberalism – not children's welfare and learning – would become the driver of early childhood policies and provision as they are today." Jean agrees, noting, "It serves the labour market to have more women in work, so what does that say for children in early childhood?"

In the early 1990s the government introduced contracts to offer professional learning and development (PLD) in early childhood. This led Ann to move out of lecturing and become involved in leading PLD through contracts between the Auckland College of Education and the Ministry of Education. This was a role that highlighted Ann's advocacy for ECE. "I moved into professional development to get closer to kaiako and their practice because I believed this is where support really counted in terms of its impact." Ann says that the contract system – another product of neoliberalism – has many flaws, one of which is there is usually no way of measuring the impact of the support after the contract is over. "This meant that politically there was, and still is, constant dissatisfaction and uncertainty with programmes not delivering value for taxpayers' money. This can be disheartening for providers. For me it was always incredibly rewarding to hear a kaiako say, years later, that a particular phrase, example, or workshop changed their practice. If only these stories of impact could be heard by those who dish out the money!"

Ann's involvement in PLD included some significant projects such as contributing to the development of *Kei tua o te pae/Assessment for Learning: Early Childhood Exemplars* (Ministry of Education, 2004, 2007, 2009) with Margaret Carr and Wendy Lee. In 2005 she joined Tātai Aho Rau CORE Education to lead – mentored by "the wonderful scholar and researcher Vince Ham" – the National Early Childhood Education Information and Communication Technologies Professional Learning (ECE ICT PL) programme 2006-2009 (Hatherly et al., 2010). This was a 3-year programme for 60 services throughout the country based on the Centres of Innovation model, trialling children's creative use of digital technologies available at the time.

Ann emphasises the role of influential leaders in ECE who inspired her leadership and interest in action research. "Of course, Margaret Carr, Helen May, Tamati and Tilly Reedy in the 90s became really influential through developing *Te Whāriki*. And Anne Meade and Anne Smith ... I call them the Kauri of early years, those who paved the way for us in all sorts of ways over those years."

Ann believes that early childhood has always been a sector leader in confronting issues relating to Te Tiriti, biculturalism, and multiculturalism. She reflects on the sometimes very challenging yet critical experiences she has encountered through her professional life regarding race relations and Māori sovereignty. "At times it was awful – fear, guilt and feeling that all I stood for was of no value or consequence – but boy, now I think what a privilege to have had those experiences. They have enabled me to understand and advocate, in the best ways I can, for current issues around colonisation, equity, poverty, sustainability and of course Te Tiriti. I feel that without early childhood education, I might have been one of those people with limited tolerance for values and beliefs different from their own."

Balancing Academic and Practice

Ann has strong views on the role of practitioner journals, like *The First Years*, in supporting kaiako understanding and learning. She believes that a good practitioner journal should balance academic rigour with practical relevance.

Ann was actively involved in the production of *The First Years* from its inception in 1998 and launch in 1999 at the Nelson Early Childhood Convention. She recalls spending hours with kaiako, helping them shape their stories into publishable articles. “I saw this as a way of giving back to the sector for all it had given me, and promoting leadership,” she explains. “Writing encourages the clarification of thoughts, which is beneficial for both advocacy and leadership, especially when it integrates localised experience with a broad worldview and research.” Ann’s comments highlight the value of good mentorship in supporting kaiako to make meaningful contributions beyond the ECE setting.

Jean attests to Ann’s dedication and impact. “Ann was the perfect person to be there in those very early days of encouraging people to write ... having Sue Stover too ... I always used to send my editorials [for review] to either Ann or Sue. ... You [both] gave the feedback that was what we needed to keep things moving.”

Aligned with her goals, Ann’s efforts have helped many kaiako see themselves as leaders, contributing to the profession’s evolving body of knowledge. These recollections reiterate the role of leaders in fostering supportive environments for kaiako to feel empowered to share their strengths, knowledge, and experiences.

Reclaiming Time for Political Talk and Reflection

Looking back on her own career, Ann feels fortunate to have taught in an era when kaiako had more child non-contact time to engage with colleagues and develop professionally. In the context of current expectations and funding models, she sees this as such a luxury. “Now, kaiako are incredibly time poor in their professional lives and often in their personal lives too. They often lack opportunities to step outside of their working environment and gain fresh perspectives.” This is something that Ann believes absolutely contributed to her understanding of leadership and advocacy. She elaborates, “When I started, we had KTA [Kindergarten Teachers’ Association] and later NZEI [New Zealand Educational Institute], where many kaiako of different backgrounds united locally and nationally to lobby and discuss political strategies impacting early childhood. These occasions were incredibly energising and helpful to the quality of our work with children and families.” Jean agrees, noting that today kaiako can be preoccupied with merely surviving. When asked, Ann finds it hard to imagine how we might move beyond the very siloed approach of today. While she acknowledges that online communities work well for some, she questions how effectively they unite kaiako around transformative issues and practices to collectively shape a better future for ECE.

Ann advocates for structural changes that would enable kaiako to have more time for reflection and collaboration. Her call for change encourages much-needed thinking about how educational policies and institutional structures have evolved and in whose interests. “Currently, I don’t see too many signs of support – or solutions for that matter – to reduce the growing demands on kaiako and their well-being.”

Looking Forward: Hopes for the Future

Despite the challenges, Ann remains hopeful that neoliberalism will run its course and the focus will one day shift back to valuing people over economic goals. She asserts, “We have to change and get back to a society where people and community are valued, not just money,” offering a powerful reminder of the value of human relationships and connections.

Ann’s vision is to see better conditions for kaiako, increased attention to children’s well-being, and a balance between economic and human values. She sees leadership as key in this transformation. “Leadership is about having an understanding of early childhood in the context of the social, political and economic narratives of the time. It is also about being curious – about children, people, and their talents and values,” she says. This view supports a broad purpose of leadership in fostering inclusive and engaging learning environments.

To conclude, Ann Hatherly’s life and career reflect a deepening commitment over the years to ECE, grounded in her practical experience and passion for equity and community. Her journey from a remote farm in Tangiwai to becoming a leader and advocate in ECE highlights valuable lessons in resilience, dedication, and the importance of practical learning. Through her work, Ann has helped shape the landscape of ECE in Aotearoa New Zealand, inspiring many kaiako and contributing to their professional development. Her story is a reflection of the impact that leaderful individuals, like Ann, can have on education, children, and adults. Importantly, Ann’s story reminds us of the importance of real-life experiences, the balance between theory and practice, and the role of leadership in empowering others. It also encourages us to ask, what are the drivers and motivations of our practices and how well do we advocate for the policies and structures needed to support our colleagues, children, and their families?

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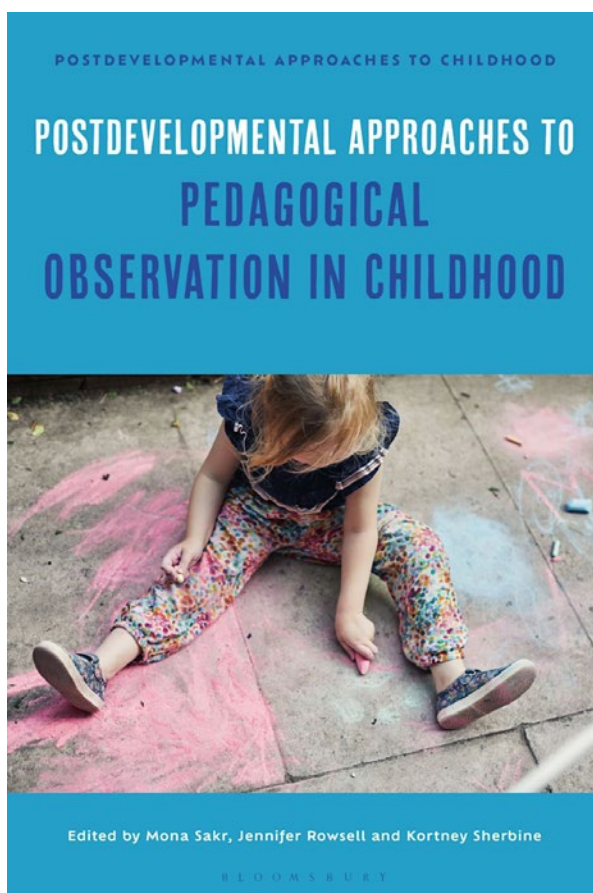
BOOK REVIEW:

Postdevelopmental Approaches to Pedagogical Observation in Childhood

edited by Mona Sakr, Jennifer Rowsell and Kortney Sherbine



REVIEWED BY VIVIANA BECKER



This edited book, which includes chapters by scholars from a range of countries including New Zealand, seeks to reimagine pedagogical observation by drawing on postdevelopmental theories and multimodal approaches. Long titles can be deceiving. In this case, once you open the cover, you discover that behind the formality of the title the pages contain stories of splotches of paint, broken toys, and long sheets of paper. The to and fro of everyday teaching life is present in all its messiness. As a teacher, it was hard not to feel right at home!

The book contains ten chapters - ten invitations to look differently at what we understand as observation and documentation. Learning stories, photographs, videos, artmaking, baby journals, and digital tools, to name a few, are all part of the conversation. Each is explored, in dialogue with the reader, to trouble preconceived ideas about observation. The book asks and answers: Why do we do what we do? What else is there? How are others resisting observation-as-usual and its entanglement with normal developmental trajectories? What ways are there not only to contest prescriptiveness of developmental observation but, most importantly, to open spaces for hope and possibility?

Throughout the book we are invited to develop a willingness to speculate, “letting go of the notion that we can ever truly see or understand what it is that we observe in the classroom” (p. 21).

By speculating, we remain attuned to affect, open to potential and cognizant of one’s own entanglements with children and objects in moments of observation [. . .] we slow down and linger with the entanglements we notice among the human and non-human and that we refrain from drawing broad conclusions about what those entanglements might mean or how they might define children. (p. 22)

Across chapters, we are invited to re-think teachers’ relationships with children and to consider collective relationships, where collaboration, observation and documentation emerge from “the idea of with” (p. 31); experiencing with, observing with each other. Leaning, thus, “into the idea of the collective rather than the singular” (p. 34) and reflecting on how these notions inform curriculum and pedagogy.

We are also invited to think differently about children's artistic engagements, including their collective drawing. Teachers are encouraged to be attentive and attuned, to lean towards and respond to children's mark making:

Rather than centring, observing or looking at the child as if the child holds the meaningfulness of the drawing, if we see the child as a participant within an ecology of materials and relations, the focus shifts to looking-with drawing as it unfolds and becomes active within a field of intersecting forces. (p. 39)

Observation and documentation of children's art can also be processes of attention and attunement, the purpose of which:

is not simply to describe, learn about or even know what to do next but to join with and activate the potential so that this dance of attention is not what appears to us in these moments, but also what is still to come, like minor or small gestures that propel us towards something more. (p. 45)

In a chapter from Australia, through a focus on observational literacy tools in a Bush School, we are introduced to hacking as a feminist method of critical inquiry. Hacking is one way to identify, trouble, and disrupt dominant discourses present in developmentally based observational tools, that privilege certain bodies over others, certain ways of knowing over others, and what exists within certain definitions over others. The authors variously describe hacking as an experimental, tactical, strategic, collective response to observation that emerges from "the doing of walking, conversing, grappling, thinking, learning and listening with place, with one another, and with children" (p. 66) and enables expanded definitions of what can be included in observations and shifts the focus of observation towards the relational and collective rather than the individual child.

In the chapter from New Zealand, we are invited to rethink learning stories by troubling the kinds of learning they make visible, why and for whom they are written. We are invited to consider that learning stories and the approaches teachers utilise – gaze, visibilities, cameras, digital documentation, and other methods are not neutral despite their apparent benignness. The pervasiveness of visual evidence such as photographs and digital platforms, and the parameters this sets for what is seen and therefore valued is critically evaluated. Besides resisting the managerial, quantifiable, tag-able, systematic, and accountable aspects of learning stories the potential of learning stories to engage with learning in collective, generative and worldly ways is introduced. Using observational vignettes with infants and toddlers, the authors guide our gaze so we can "attune to what does not get or cannot be 'observed', to notice and recognise what might usually be over-looked or discounted, and to be open to the more than just human actors in a learning story scenario" (p. 87).

In this chapter, and others, we are invited to co-presence, to trust affective responses, to dialogue, to observe "as a means of opening up questions rather than capturing a representation [we desire]" (p. 178). Collectively the authors ask, if "observation is always a process that is connected to, directed towards and/or guided by something else [...] what is that something else?" (p. 99). A something else that "shapes observation as a matter of looking at something, looking for something, and in many cases, looking away from the something else that is also present" (p. 113).

There are plenty of complex ideas in this book, but as readers we are never left alone to grapple with them. The authors invite us to join them in looking at what is easy to put aside, to get on with the job and, with kindness, to look together at the doubts, apprehensions and contradictions of observation that can make us uncomfortable. Most importantly, children are not left out of the conversation, nor are the places we live with. The authors are there with their own doubts and ponderings, carrying examples like presents that we open and explore together. Examples include the children, the books, the pencils and lights and screens and paper, which are so vivid that the whole text comes to life. The book reads as a collaborative effort, like getting together at the end of the term to move a big shelf and finding a trove of mess that is also a treasure hiding behind it. Among the dust were things we had overlooked, maybe even forgotten. Each chapter invites us to think-with these so we learn what can never be learned individually and to kindle a curiosity to make them anew. The beauty of this book resides in its invitation to think again and again. Never arriving at a static truth but, instead, holding provisional understandings to be layered, discarded, rediscovered. A yes, and... kind-of-book full of what ifs and what elses.

List of contributors

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Dr Florian Bednarski is a Research Fellow in the Early Learning Lab. He obtained his PhD in 2024 from Leipzig University in Germany, with a project on the development of agency in infancy. In the Early Learning Lab he develops and organises the collaboration with Soul Machines. He is most passionate about fundamental questions about early cognitive development, and has recently started to work on practical implications building on his basic research.

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Julie Baker started her career in mechanical engineering, working with the physics and engineering branch of the Department of Scientific and Industrial Research (DSIR, now Industrial Research). She then gained a teaching qualification and taught physics and science to Auckland high school students for several years. When the technology curriculum was released, she was contracted by MoE to facilitate its introduction as a new curriculum subject to teachers across NZ. Julie joined MOTAT in 2015 and has since headed the Education team overseeing the introduction of new services including STEAM Cells, online workshops, and Learnables.

Viviana Becker is an early childhood teacher and PhD candidate at the University of Auckland. She grew up in Chile during Pinochet's dictatorship, and her research focuses on democratic ways of living. At the heart of her work is the idea that democracy cannot be taught but co-created, shared, and reflected upon. She has focused on becoming a platform for children's perspectives to facilitate meaningful dialogue in their communities.

Maria Birbili is Professor of Early Childhood Education at Aristotle University of Thessaloniki, Greece. Her current research and teaching interests include dialogic pedagogy, children's play with open-ended materials, assessment for learning, and concept-based teaching. She has taught at different levels and in a variety of contexts in Greece and England and enjoys collaborative action research projects that support teachers, children, and her own critical reflection of her work.

Jennifer Boyd is an experienced early childhood teacher and professional teaching fellow in the School of Learning, Development and Professional Practice at the University of Auckland. Her teaching and research is underpinned by a commitment to more equitable and caring practices for our youngest citizens. Her work utilises critical and posthuman theories. Her recently completed master's thesis reconceptualised the concept of agency with infants and toddlers.

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Dr Rachel Denee is a Lecturer in ECE at Te Herenga Waka, Victoria University of Wellington. Her research has focused on visual arts pedagogy, intentional teaching, professional learning, and leadership in early childhood contexts. Rachel has worked in various teaching and leadership roles across the early childhood sector for 25 years; this practical experience informs her academic research. Rachel is the pedagogical leader for Daisies Early Education & Care Centre in Wellington, NZ, and she is inspired by the excellent infant-toddler teachers there.

Linda Harrison is a Professorial Research Fellow in the School of Education, Macquarie University, a lead researcher in the Centre for Research in Early Childhood Education (CRECE), and Adjunct Professor of Early Childhood, Charles Sturt University, Australia.

Linda's early childhood career began as a parent in playgroups, and a teacher in Occasional Care and Family Day Care, which led to a life-long interest in quality education for children birth to 3-years. Linda co-led the original in 2018 and the 2021-22 Update of Belonging, Being and Becoming: The Early Years Learning Framework for Australia (EYLF V2.0).

Dr Annette Henderson is a Professor in the School of Psychology at Waipapa Taumata Rau The University of Auckland. Since establishing the Early Learning Lab (ELLA), Annette's research has focused among other questions on how do individual and contextual factors influence caregiver responsiveness and joint coordination in parent-infant interactions? Annette also enjoys her contributions as an early childhood advisor on cooperation and developmental science for the AI company, Soul Machines.


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Dr Daniel Lovatt is a qualified early childhood teacher and the Curriculum Leader at Aro Arataki Children's Centre, Auckland. Daniel previously worked as an electrician and electrical engineer but became interested in Early Childhood Education through becoming a parent. His PhD explored young children's development of working theories related to STEM. A recent professional highlight was being an adviser for Auckland's Museum of Transport and Technology's ECE gallery at the new science and technology centre, Te Puawānanga.



Dr Nicola Kemp is a Reader in Education for Sustainable Futures at Canterbury Christ Church University, England. A geographer by background, her research interests are focused on the inter-relationship between education and sustainability across ages and educational phases. Much of her research explores children's relationship with the natural environment. Her current research focuses on outdoor provision for babies and toddlers and the potential of Nature Engaging and Nature Enhancing (NENE) pedagogies.

Ang Mizziebo serves as the Treehouse Director at the Tree House Early Childhood Centre in Auckland. Ang has over 20 years of working with tamariki and their whānau in early childhood education and is a passionate coach and mentor for kaiako in leadership.

Christine Neff: After completing her Graduate Diploma in Early Childhood Education at the University of Auckland in December 2023, Christine started teaching at the infant and toddler centre where she completed her final practicum. Here she offers advice for making a successful transition from student to kaiako in the toddler room.

Michaela Roberts is a Research Assistant in the Research Vaka at Moana Connect. With a background in psychology and Pacific studies, Michaela brings a deep passion and commitment to serving the Pacific community through research at Moana Connect.

Esther Tobin is the Senior Exhibition Developer for Te Puawānanga Science and Technology Centre. She has BFA in Intermedia and a master's degree in Arts Management. Esther has 25 years of experience working in creative industries, 10 years' experience working in museums, and is the mother of two children. Roles she has held include being the Creative Strategy Lead for the Auckland Council and Manager of Interpretive Planning and Development at the Auckland Museum. Esther is happiest working in a creative team developing experiences for children that are playful and purposeful.

Dr Tracy Redman has a wealth of experience in the early childhood sector, including as owner/teaching director of a long day care service for 16 years, overlapping with over 20 years teaching EC students from certificate III to master's degree levels. Tracy has written units for Vocational Education and Training and Higher Education institutes, and EC resources for government and non-government organisations. Her special research interest is in supporting educators' language interactions with infants and toddlers and was the focus of her doctoral thesis. Tracy is a Graduate Research Student member of the Centre for Research in Early Childhood Education (CRECE), Macquarie University, Sydney.

Dr Analosa Veukiso-Ulugia is a senior lecturer, undertaking an HRC (Health Research Council) Pacific postdoctoral research fellowship with Moana Connect and the University of Auckland. A registered social worker, Analosa is committed to the empowerment of Pacific communities, specifically in the area of sexual health and youth wellbeing.

Tamar Weisz-Koves is an experienced ECE teacher, mentor, and lecturer who has worked in Initial Teacher Education for 20 years. In that time, she has taught a range of courses, including courses focused on STEM in ECE at Waipapa Taumata Rau, the University of Auckland. She is currently the ECE Practicum Leader at Te Wānanga Aronui o Tāmaki Makau Rau, the Auckland University of Technology. In addition to STEM in the early years, her professional interests include the practicum space, teacher mentoring, teacher leadership, and funds of knowledge and identity theory. Recent professional highlights include being an adviser for Auckland's Museum of Transport and Technology's ECE gallery at the new science and technology centre, Te Puawānanga, and the Lead Editor of the 2023 issue of *The First Years Journal*.

Elizabeth Wood is Emeritus Professor of Education at the University of Sheffield, England. Her research interests include curriculum and pedagogy in early childhood education; teachers' professional knowledge and practice; policy analysis and critique, and children's play.

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