



Thinking Through Making: Supporting Children's Inquiry Through Visual Arts in Early Childhood Education

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Received: 16 April 2026 / Accepted: 14 August 2026
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Abstract

Inquiry-based approaches in early childhood education recognise the visual arts as a vital mode of thinking, enabling children to theorise, represent, and make meaning through material and sensory exploration. However, integrating the arts meaningfully within inquiry can be complex, and teachers may find this difficult to navigate. This article draws on findings from a multi-year collaborative research project conducted across six early childhood settings in Aotearoa New Zealand, examining how inquiry-based approaches were interpreted in practice. The study identifies the visual arts and material exploration as multimodal pathways for children's theorising, reflection, and community connection, grounded in relationships with local people, places, and materials. Building on these insights, the article proposes a framework, *Thinking Through Visual Inquiry*, which conceptualises how the visual arts support inquiry as a relational, recursive, and evolving process. The framework includes two articulations, one for infants and toddlers, and one for young children, highlighting how artistic processes function as modes of thinking across phases of inquiry. Rather than a prescriptive model, the framework offers a way of understanding how artistic processes sustain thinking, relationships, and community within inquiry-based learning.

Keywords Inquiry · Visual arts · Early childhood education · Working theories · Multimodal representation · Pedagogy

Introduction

Inquiry-based approaches in early childhood education position children as active meaning-makers who generate questions, theories, and understandings through sustained engagement with people, places, materials, and ideas. Inquiry is not linear; it is iterative and relational, characterised by cycles of exploration, revisiting, representation, and reflection as children test hypotheses, negotiate meaning, and deepen their working theories over time (Probine, 2025; Stacey, 2019). In these contexts, inquiry is grounded in children's everyday experiences, unfolding through embodied, social, and material encounters.

Within inquiry-based pedagogy, the visual arts and material exploration function as tools for thinking. Processes such as drawing, painting, constructing, sculpting, and experimenting with materials enable children to work multimodally, externalise emerging theories, and revisit ideas over time (Brooks, 2022a; Kress, 2010). Rather than discrete activities, the arts operate as integral modes of inquiry through which children explore questions, test hypotheses, and reflect on their experiences, supporting both cognitive

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and social-emotional development as ideas are materialised and meaning negotiated (Brooks, 2022a).

While inquiry approaches position the visual arts as central modes of thinking, they occupy a paradoxical space within early childhood education. Although celebrated for fostering creativity and self-expression, they are often enacted in product-focused ways, with limited attention to the thinking developed through the process (Denée et al., 2024; Lindsay, 2017; Lindsay et al., 2025; Richards & Terreni, 2022; Probine, 2023). When positioned as decorative or end-point products, their capacity to support inquiry, dialogue, and sustained thinking is obscured (Lindsay, 2017).

These tensions contribute to ongoing uncertainty about the role of the visual arts. In contexts where arts practices have been positioned as decorative, tightly controlled, or peripheral, shifting towards inquiry-oriented approaches can be complex and slow (Lindsay et al., 2025). Such shifts require collective reflection and pedagogical repositioning. Teachers, particularly those new to inquiry-based approaches, may find it challenging to discern when and how to integrate the visual arts meaningfully (Burke et al., 2025), a challenge often compounded by limited confidence shaped by prior experiences of art education (Denée et al., 2024).

This article builds on existing scholarship (Probine, 2020; Vecchi, 2010) by offering a conceptual framework for articulating how artistic processes function as sustained modes of thinking over time. It draws on a multi-year collaborative research project conducted across six early childhood settings in Aotearoa New Zealand. The broader research project aimed to examine how teachers conceptualised, enacted, and sustained children's inquiry across diverse early childhood settings. Within this broader study, the present article focuses specifically on how visual arts and material processes supported and sustained inquiry, using these findings to develop the *Thinking Through Visual Inquiry framework*.

Findings demonstrated that the visual arts functioned as central epistemic sites through which children and teachers co-constructed understandings. Visual arts and material exploration operated as multimodal sites for theorising, reflection, and community connection, grounded in relationships with local people, places, and materials. The framework is not linear in nature; instead, it provides language for naming recurring, interconnected processes through which children and groups move as ideas, relationships, and materials evolve. In this way, it functions as an interpretive tool for recognising artistic processes as modes of thinking within inquiry-based pedagogy.

The framework is informed by cognitive science, sociocultural theory, and bicultural epistemologies, positioning thinking as both cognitive and relational, shaped through connection, collaboration, and place. It reflects the context

of early childhood education in Aotearoa New Zealand, where inquiry is relational and place-responsive. Within this context, the framework enters into dialogue with *Te Whāriki* (Ministry of Education, 2017), which foregrounds curiosity, exploration, and relational learning, and recognises the connections Māori, as tangata whenua (indigenous peoples of Aotearoa New Zealand), hold with people, place, and the more-than-human world. These connections position learning as grounded in relationships with environments, histories, and ways of knowing. In offering a conceptual language for understanding visual arts practices as sustained sites of inquiry, the framework contributes to this ongoing weaving and opens further interpretations of how inquiry may be enacted within locally and culturally responsive curriculum contexts. This is reflected in the inquiries presented in this study, shaped through relationships with place.

Recognising that inquiry is enacted differently across developmental contexts, the framework is articulated in two age-responsive iterations. For young children, inquiry through the visual arts involves processes such as ignite, explore, revisit, plan, consolidate, and re-ignite, reflecting growing capacities for anticipation, representation, and collaboration. For infants and toddlers, inquiry is experienced through a more distilled set of processes including, ignite, explore, revisit, and re-ignite, emphasising embodied engagement, sensory experience, and meaning-making through repetition (Lewin-Benham, 2023). For these learners, visual arts engagement is relational rather than primarily representational, grounded in material encounters (Kind, 2014; Kind et al., 2019; Pacini-Ketchabow et al., 2024; Probine et al., 2025). Rather than signalling a simplified version of inquiry, this articulation challenges assumptions about infants' and toddlers' capabilities, foregrounding their capacity to think with materials, peers, and adults, as they engage in sustained cycles of sense-making. While both articulations share commonalities, they respond to the distinctive ways inquiry is lived across early childhood. The following section outlines the research context and methodology that informed the development of this framework.

Research Context and Methodology

This article draws on data from research that examined how teachers conceptualise, enact, and sustain children's inquiry in early childhood settings in Aotearoa New Zealand (Probine et al., 2025). The broader project explored how inquiry-based pedagogies are interpreted and embedded across diverse early childhood settings.

The research was conducted in two phases. Phase One involved a nationwide qualitative questionnaire sent to all 2,139 early childhood settings registered on the national

Database of Early Childhood Education Settings. The questionnaire was directed to centre leaders or curriculum leads and comprised seven open-ended questions examining the pedagogical influences, practices, perceived benefits, and practical challenges associated with inquiry-based approaches. Sixty-three settings responded, and participants could indicate whether they wished to be contacted about the subsequent phase of the research (Removed for review). All settings that expressed interest in further participation were contacted. Six were purposively selected for Phase Two to provide variation in service type, geographical location, size, age groupings, cultural demographics, and philosophical orientation.

A qualitative, interpretivist design was adopted, guided by narrative inquiry (Clandinin, 2014) and informed by socio-cultural (Vygotsky, 1978; Rogoff, 2003) and bioecological (Bronfenbrenner, 1979) theories. Learning was understood as relational, situated, and culturally mediated. Kaupapa Māori theory (Smith, 2017; Heta-Lensen, 2022) shaped the research praxis, emphasising whakawhanaungatanga, the ongoing enactment of relational accountability and collective connection, and ako, a reciprocal pedagogical ethic in which teaching and learning are understood as shared, dialogic processes. The research team comprised seven early childhood education academics working in initial teacher education across six tertiary institutions, bringing varied cultural, professional, and institutional perspectives to the study. [Name removed for review], a Kaupapa Māori researcher, played a key role in shaping the study's engagement with Kaupapa Māori theory and praxis. The team's prior experiences and commitments to inquiry-based and relational pedagogies influenced the questions asked, the relationships developed with participating settings, and what researchers attended to within the data. Through ongoing wānanga and dialogue with participating teachers, these

assumptions and interpretations were critically reflected upon and negotiated collectively.

Prior to data collection, the lead researcher met with each participating setting to discuss the study, explain the research process, and respond to questions. Each site was allocated one or, where possible, two researchers, based primarily on geographical proximity and researcher availability. The researchers worked alongside teachers as co-inquirers, recognising their interpretive and pedagogical expertise.

Phase Two involved 38 teachers and pedagogical or centre leaders across the six settings. Children ranging in age from six months to six years participated through naturally occurring inquiries within their settings. As participation shifted across inquiry episodes and the children did not constitute a fixed sample, an overall number of participating children was not recorded. Data collection at each site involved approximately one week of researcher engagement, configured in response to the context and practical arrangements of each setting. At some sites, this occurred as an intensive block, while at others, an equivalent period of engagement was distributed across recurring visits over several weeks. All six settings consented to being identified by name. Table 1 summarises the characteristics of the participating settings.

Data were gathered through group semi-structured interviews with teaching teams, researcher field notes, photographs, video recordings, field observations, and pedagogical documentation. Each centre contributed artefacts including photographs, project documentation, and children's visual representations, offering further insight into the material and relational dimensions of inquiry in practice. Interviews were conducted at the beginning of site engagement, audio-recorded, and transcribed. Teachers identified the inquiries they wished researchers to observe and,

Table 1 Characteristics of the six participating early childhood settings

Participating setting	Location and service type	Size and age range	Participating teachers and leaders
Daisies Early Childhood Education and Care Centre	Johnsonville, Wellington; education and care centre operating across two adjacent houses	Licensed for up to 60 children from birth to six years, with separate infant–toddler and older-child spaces	11
Kauri Park Kindergarten	North Shore, Auckland; community kindergarten located beside a primary school and bush reserve	Licensed for up to 40 children aged over two years	5
Little Doves Early Learning Centre	North Shore, Auckland; education and care centre situated within the grounds of a private school	Licensed for up to 75 children aged six months to four years	3
Li'l Pumpkins Early Learning Centre	Semi-rural Waikato; small, privately owned education and care centre	Licensed for up to 31 children, including up to eight children aged under two years	8
Pakuranga Baptist Kindergarten	East Auckland; community-based kindergarten	Licensed for up to 40 children aged two to five years	3
Toi Ohomai Early Childhood Centre	Tauranga; education and care centre situated on a tertiary education campus	Provides education and care for approximately 80 children aged six months to six years, organised into four age-based areas	8

in some cases, continued to share documentation as these inquiries evolved. Researchers also photographed existing pedagogical documentation during site visits. Video recordings were transcribed and used as an analytic resource to support close interpretation of interactions and material processes, including by research team members who had not been present at a particular setting; they were not used in the reporting of findings. Interview transcripts, field notes, photographs, video transcripts, and centre documentation were considered in relation to one another to develop contextualised accounts of how inquiry unfolded within each setting.

Analysis was iterative and dialogic, involving cycles of inductive coding and collaborative interpretation (Liao & Hitchcock, 2018). Researchers initially reviewed data from their allocated sites individually before bringing emerging interpretations to regular online wānanga for collective discussion, comparison, and refinement. Through these reflective and relational gatherings, grounded in Kaupapa Māori research traditions, the team collectively re-storied episodes of practice, compared interpretations across data sources, settings, and researchers, and reflected on how their professional experiences and assumptions shaped their readings of the data. The re-storied accounts were used to identify cross-case patterns and conceptual threads. This analytic process combined narrative re-storying (Clandinin & Connelly, 2000; Hunter, 2010) with qualitative thematic synthesis (Creswell, 2019), treating meaning-making as interpretive, situated, and relational. Emerging interpretations and written accounts were shared with participating teachers for feedback, clarification, and revision. Teachers were also invited to write their own accounts of the inquiries for the project publication, enabling them to represent and interpret their practice in their own voices and strengthening their positioning as research partners.

The *Thinking Through Visual Inquiry* framework was developed after the formal conclusion of the wider project through a further cross-site analysis led by the lead researcher. Participant-checked narratives and the wider dataset were revisited to identify recurring artistic and material processes. Successive versions, including the two age-responsive articulations, were discussed and refined by the research team and checked against the data.

Ethical approval was granted by the Human Ethics Committee of the lead researcher's tertiary institution. Participating settings and teachers chose whether to be identified by name, and families provided informed consent, including approval for the use of identifiable images. Children's agency was supported through assent processes, and age-appropriate explanations of the research were facilitated by teachers. Researchers exercised professional judgement throughout observations, pausing documentation when necessary to prioritise children's wellbeing. Importantly, the

study sought to document diverse, contextually grounded accounts of practice rather than to produce generalisable claims (Marshall & Rossman, 2014).

Theoretical Foundations: Thinking Through the Visual Arts

Children's inquiry positions young learners as capable thinkers and researchers whose curiosity and meaning-making drive learning (Chard et al., 2017; Stacey, 2019). Drawing on Dewey's (1934) emphasis on experiential learning, Vygotsky's (1978) sociocultural theory of mediated thought, and Māori onto-epistemologies surrounding the learning child (Heta-Lensen 2022; Rameka, 2016, 2021), inquiry positions children as active constructors of knowledge. Within early childhood education, these ideas were reimaged through the work of Loris Malaguzzi and the Reggio Emilia Approach, which conceptualises learning as relational, participatory, and sustained through collaborative investigation (Gandini, 2012; Gardner & Jones, 2016; Vecchi, 2010). Internationally, inquiry-oriented pedagogies have evolved under varied names, including project work and investigations. Through our research, we use the term *children's inquiry* to describe sustained, collective processes through which children test ideas, revisit representations, and build working theories over time (removed for review). Inquiry is thus understood as cyclical and relational, valuing uncertainty, dialogue, and the provisional nature of knowledge (Edwards, 2012; Stacey, 2019).

In Aotearoa New Zealand, inquiry has developed through dialogue between these international ideas and the bi-cultural early childhood curriculum, *Te Whāriki* (MoE, 2017). The curriculum positions learning as occurring through meaningful engagement with people, places, and things, reflecting reciprocal and intergenerational relationships central to Māori worldviews. A key concept is that of working theories (Hedges, 2022), the evolving ideas children construct as they interpret experience and connect imagination, prior knowledge, and culturally situated ways of knowing. These are both social and cognitive, refined through dialogue and representation, and sustained through opportunities for revisiting and reflection (Hedges, 2022). Inquiry therefore has the potential to be at once cognitive, relational, cultural, and place-responsive.

The Visual Arts as a Tool for Mediating Thinking

The visual arts function as languages within inquiry through which children externalise, test, and refine ideas (Vecchi, 2010; Probine, 2020). The Māori term for visual arts, *Ngā Toi Ataata* denotes Māori understandings of visual arts as reflection, expressing the artist's interpretation and

relationship with te taiao, the natural world (Removed for review).

Describing art-making as “poetic thinking,” Vecchi (2010) recognises sensory experience as integral to knowledge construction. From a sociocultural perspective, these processes operate as cultural tools that mediate cognition. While Vygotsky (1978) positioned language as central, later interpretations emphasise the multiplicity of semiotic tools through which thinking is shaped (John-Steiner, 1995). Within this view, drawing and making transform understanding in social contexts (Brooks 2017, 2022a; Miller 2011).

In early childhood, mediation is inherently multimodal. Children interweave gesture, talk, movement, and image as they construct and re-construct meaning (Wright, 2007), converting external experience into internal understanding (Bodrova & Leong, 2007). Visual representations operate in dialogue with language, expanding semiotic resources for inquiry (Brooks 2022b). As tangible artefacts, drawings and three-dimensional forms render thinking visible and available for shared interpretation, allowing ideas to be revisited and extended over time. Through these processes, children develop higher mental functions which are deliberate, mediated, and reflective capacities that strengthen memory, attention, and metacognitive awareness (Bodrova & Leong, 2007).

The extent to which visual arts mediate thinking is shaped by pedagogy and classroom culture. Interpretations of sociocultural theory that emphasise scaffolding may position the adult as expert, subtly maintaining asymmetries of power (Jordan, 2009). In contrast, co-constructivist approaches position children and teachers as mutually agentic participants in shared meaning-making (Clark & de Lautour, 2009; Rogoff, 2003). Within such contexts, visual representations become shared cognitive resources. As Brooks (2022a) argues, “drawing allows knowledge to exist in a shared state before being assimilated into new perspectives” (p. 39), supporting the internalisation and refinement of understanding over time (Rogoff, 2003).

Materials, Embodiment, and Pre-Representational Inquiry

Building on these ideas, Kind (2014) argues that materials are not simply mediators or tools but active participants within inquiry processes, inviting and responding within children’s explorations. Through embodied and sensory engagement, materials become sites for thinking and experimentation prior to representational expression (Lewin-Benham, 2023). In this way, materials contribute to what Kind (2014) describes as “vibrant social-ecological assemblages” (p. 869), in which humans and non-humans are in constant relation. Children’s encounters with materials therefore constitute inquiry in their own right.

Within Aotearoa New Zealand, children’s engagements with materials are further understood as relational and ethical practices shaped by its bi-cultural context, which recognises the deep relationships Māori hold with the whenua (land) (Wrightson & Heta-Lensen, 2013). Māori concepts such as āta (a practice of deliberate care, attentiveness, and respectful engagement) and whanaungatanga (relationships of connection, kinship, and reciprocal responsibility) frame material exploration as grounded in attentiveness, connection, and responsiveness to place (Wrightson, 2025; Wrightson & Heta-Lensen, 2013). These understandings align with Te Whāriki (MoE, 2017), which positions learning as inseparable from relationships and environment. Attending to these concepts involves working slowly and respectfully with materials, others, and local ecologies, affirming the bi-cultural foundations of the curriculum.

Neuroscientific research further illuminates how relational and sensory explorations support children’s inquiries, particularly for infants and toddlers. Embodied encounters with materials activate attentional and feedback systems that sustain curiosity and exploration (Dehaene, 2020; Lewin-Benham, 2023). For infants and toddlers, whose investigations are primarily sensorimotor and pre-symbolic, these processes are particularly important. Through revisiting familiar materials, children integrate sensory, motor, and emerging cognitive processes, supporting focus, persistence, and

the capacity to generate new understandings (Lewin-Benham, 2023; Probine & Denec, 2025). Inquiry for these learners may centre not on symbolic representation but on discovering what materials can do and their affordances, resistances, and transformations (Pacini-Ketchabaw et al., 2024).

The Teacher as Co-Researcher and Co-Participant in Arts-Based Inquiry

Within children’s inquiry, integrating visual arts requires a pedagogical role that is both responsive and intentional (Brooks 2022a; Removed for review). Research highlights tensions between non-interventionist approaches that prioritise autonomy and more directive practices that can limit creative exploration (Denec et al., 2024; Lindsay, 2017). A sociocultural orientation positions teachers as co-researchers who design environments, listen interpretively, and participate in cycles of dialogue and documentation (Brooks 2022a; Probine, 2020; Vecchi, 2010). Teaching involves introducing provocations, extending questions, and revisiting ideas over time.

Teachers’ self-efficacy shapes how they enact this role, influencing pedagogical decisions and children’s experiences (Denec & Cherrington, 2023; Removed for review).

Reflective identity work and engagement with materials can strengthen this capacity (Denee & Cherrington, 2023; Denee et al., 2024). For infants and toddlers, this involves sensitive attunement and timing, a “dance” of stepping back and stepping forward to support sensory exploration (Probine & Denee, 2025). With older children, teachers may increasingly facilitate representation, dialogue, and collective theorising (Stacey, 2019). Across ages, integrating the visual arts requires teachers to act as designers, interpreters, and active participants in children’s aesthetic and intellectual encounters (Vecchi, 2010).

Together, these perspectives position the visual arts as both method and medium of inquiry—an aesthetic, relational, cognitive, and cultural practice through which children encounter complexity, revisit ideas, and construct meaning over time. Building on these foundations, the following section introduces a heuristic framework for understanding how visual arts processes operate within children’s inquiry.

Thinking Through Visual Inquiry: A Framework for Thinking About the Visual Arts in Inquiry

The *Thinking Through Visual Inquiry* is a heuristic framework for understanding how visual arts processes operate within children’s inquiry. The framework does not prescribe linear stages; rather, it identifies recurring and interconnected processes through which ideas, materials, and relationships are ignited, explored, revisited, consolidated, and renewed over time (Fig. 1).

Across birth to five years, inquiry is enacted differently. For infants and toddlers, it is primarily embodied and relational, unfolding through repeated sensory encounters with familiar materials and people (Lewin-Benham, 2023; Probine & Denee, 2025). Investigations emerge through

touch, movement, and return, with meaning often constructed through material engagement rather than symbolic depiction. The infant and toddler framework therefore foregrounds *ignite*, *explore*, *revisit*, and *re-ignite*, emphasising cyclical and sensory dimensions of inquiry.

For older children, inquiry increasingly incorporates representational, dialogic, and collaborative dimensions. Drawing, constructing, and collective art-making enable children to externalise working theories, negotiate shared meanings, and consolidate learning within community contexts. The framework therefore includes *planning* and *consolidation*. While these configurations differ, both maintain a cyclical logic and position the visual arts as integral modes of thinking. As Vecchi (2010) suggests, the arts function as a kind of glue within inquiries, holding ideas, relationships, and materials in generative tension as understanding evolves.

The vignettes that follow illustrate patterns observed across participating centres. Each inquiry involved multiple artistic modes and processes, however, for analytic clarity, each vignette foregrounds one process. This enables closer examination of how visual arts operate as modes of thinking within dynamic inquiry.

Ignite

Ignite refers to the process through which teachers create conditions that invite new relationships with materials, ideas, or places. Rather than directing outcomes, this process opens space for curiosity and emergent meaning making.

In Aotearoa New Zealand, early childhood curriculum is often described as child-led. However, children’s inquiries are shaped through encounters with people, places, and materials, including those teachers intentionally introduce (Hedges, 2022). From this perspective, teachers play



Fig. 1 Thinking through visual inquiry

a key role in creating conditions for curiosity through acts of provocation and wonder. Stacey (2019) describes provocations, invitations, and proposals as ways teachers engage with children's emerging thinking, including introducing new materials, presenting familiar ones in unexpected ways, or altering the environment to prompt renewed attention (Kaynak-Ekici et al., 2021). Such moments may also arise through sensory encounters in natural environments that nurture place-based ways of knowing (Wrightson et al., 2025) (Fig. 2).

An example of ignition can be seen in an infant–toddler inquiry at one participating early childhood centre. Following children's fascination with painted rocks discovered in their neighbourhood, teachers introduced mosaic as a shared art form. This deliberate pedagogical decision brought children together around a common material and purpose, creating conditions for collective engagement.

Ignition was evident in several ways. Art-making became collaborative, as toddlers gathered materials, arranged fragments, and applied grout. The process slowed engagement, requiring return, patience, and repeated encounters. It also made visible the idea of contribution, one of the strands of *Te Whāriki* (MoE, 2017), as the completed tile was placed near the centre entrance to be shared with families.

In this example, ignition was not simply the introduction of a material but the formation of a relational configuration in which children, teachers, materials, and community became entwined in a shared artistic process. The mosaic opened a collective space for participation through embodied engagement, supporting emerging understandings of contribution and belonging.

Explore

Explore refers to the process through which children test, transform, and extend ideas through sustained engagement with materials. Following an initial provocation, children investigate more deeply, comparing, manipulating, and developing working theories (Hedges, 2022). Visual arts processes support this by making thinking visible as children externalise ideas, connecting prior knowledge with emerging discoveries (McClure et al., 2017).

At one participating centre, this was evident in a toddler inquiry centred on acorns. Children collected acorns from beneath an oak tree and returned to them repeatedly. As their collection grew, so did their working theories. They compared sizes and colours, categorised “baby” and “mummy” acorns, and speculated about what might be inside (Fig. 3).



Fig. 2 Igniting inquiry through mosaic at a participating centre



Fig. 3 Early explorations of acorns



Fig. 4 Toddlers develop repertoires of acorn movements



Fig. 5 Through introducing drawing, stories about acorns emerge

Through repeated tactile encounters, new properties emerged, with acorns described as “rolly,” “spinnny,” fragile, or resistant. Exploration unfolded as a sensory and relational process shaped by material affordances (Kind, 2014) (Fig. 4).

As the inquiry deepened, teachers introduced drawing materials alongside the acorns, extending possibilities for exploration. Children began to represent movement as “twirly whirly,” “jumping,” and “rolling away to see the world,” as marks, gestures, sounds, and narratives intertwined. Drawing bridged sensory exploration and symbolic meaning making, enabling children to externalise movement and develop shared stories. Over time, acorns shifted from objects of investigation to companions in imaginative inquiry. The introduction of visual arts materials enabled this transition by providing new modes through which ideas could be explored and extended (Wynberg et al., 2022) (Fig. 5).

Exploration, as a process within the framework, involves careful observation of how ideas shift through material engagement. Pedagogical documentation supports this by making children’s thinking visible and open to revisiting (Dahlberg, 2012; Rinaldi, 2021), providing a foundation for extending inquiry over time.

Revisit

Revisit marks the point where children return to earlier work, materials, and ideas. Through revisiting, children re-enter their thinking, remembering, revising, and transforming what they once understood. Stacey (2019) describes this as a process of consolidation, while Carr and Lee (2019) note that revisiting learning artefacts supports children to recognise themselves as capable learners whose ideas evolve

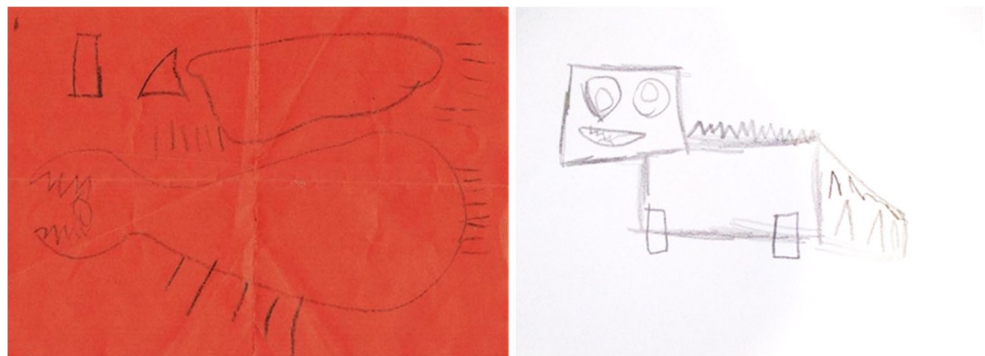


Fig. 6 Traces of the nature man inquiry support children to revisit previous thinking

over time. Teachers play a key role by inviting children to return to artworks, constructions, drawings, and documentation. These traces prompt recognition of earlier thinking and open space for new interpretation. Pedagogical documentation is particularly significant, functioning not only as a record of learning but as an active participant in inquiry, holding ideas in view long enough to be reconsidered and extended (Dahlberg, 2012).

At one participating kindergarten, revisiting was evident in an inquiry that began when children discovered a garden during an Outdoor Explorers walk and asked, “Who made this garden?” This question developed into a sustained investigation, with children theorising about a mysterious caretaker they named Nature Man. Through drawing and discussion, they explored who he might be, where he might live, and what he might look like. As ideas circulated, children returned to earlier drawings and conversations, revising and extending their theories. Nature Man took clearer form as children added features, debated possibilities, and compared their ideas, transforming individual imaginings into a shared narrative. These evolving theories extended into new forms of representation, with children constructing papier-mâché figures and developing a collective story about Nature Man and his role in caring for the garden (Fig. 6).

Fig. 7 Children adapt their plan in response to the materials they are working with



This example illustrates how revisiting enables children to hold ideas over time, returning to and reshaping them through multiple forms of representation. Revisiting earlier representations also supported children to deepen their thinking and connect imaginative constructions with lived experience when they eventually met the gardener.

For infants and toddlers, revisiting often occurs through repeated encounters with familiar materials and experiences. Each return offers new sensory feedback, supporting the consolidation of emerging theories (Lewin-Benham, 2023). Across ages, revisiting enables connections between past and present thinking, with visual arts functioning as a memory device that holds ideas for further transformation.

Plan

Plan refers to anticipatory thinking within inquiry, describing how children and teachers imagine what might happen next and how ideas might be tried out, made, or tested. However, it is important to acknowledge that visual arts explorations do not always begin with explicit planning. They may instead involve spontaneous, process-driven engagement with materials for its own sake, with ideas or intentions emerging through making rather than preceding it. When planning does occur, it involves externalising intentions, considering possibilities, and making provisional decisions that enable individual or collective action. Visual arts processes are particularly significant at this stage because they allow ideas to be represented before they are realised. Drawings, in particular, act as mediating tools through which possibilities can be explored symbolically (Brooks 2022a). By placing ideas into visual form, children create artefacts that can be discussed, compared, and revised together, making planning a social and material process (Fig. 7).

At one participating kindergarten, children developed theories about what might exist beneath the water in a local estuary. When teachers shared the pūrākau (Māori traditional narrative) of the taniwha Moko-ika-hiku-warū, a guardian associated with the local area, children’s imaginations were captured. They began drawing what they thought

Fig. 8 The group works to construct the Taniwha, referring thoughtfully to their plan



the taniwha might look like, comparing ideas and discussing differences. As interest deepened, one design was selected as the basis for constructing a large taniwha in the kindergarten environment.

When the children moved to the carpentry area, the available materials prompted further reconsideration. The agreed design included curved shapes, yet the available wood was square and rectangular. This constraint required adaptation. Through experimentation, children modified their design in response to the properties of the materials (Fig. 8), demonstrating how planning unfolds through interaction between ideas and material conditions.

In this example, planning functioned as a bridge between imagination and realisation. Through drawing, children externalised and negotiated ideas, while construction required them to respond to material possibilities and limitations. Planning remained open and dynamic, enabling children to collaboratively revise ideas as the inquiry progressed. In this way, visual arts processes supported planning not simply as preparation for action, but as a shared mode of thinking.

Consolidate

Consolidate refers to the process through which learning within an inquiry becomes collectively articulated and shared. Ideas that have been ignited, explored, revisited, and planned are brought together in ways that make thinking visible within the life of the centre. Consolidation is not simply the completion of a project, but a moment in which thinking becomes communal.

The Reggio Emilia approach is closely associated with this process. Vecchi (2010) argues that when artistic processes culminate in acts of sharing, the arts function as languages through which relationships and ideas are communicated. In this sense, consolidation is an act of connection rather than an endpoint. This aligns with *Te Whāriki* (MoE, 2017), particularly *Mana whenua* (Belonging) and *Mana tangata* (Contribution), as children's participation is recognised within a collective context. Through acts of sharing and display, inquiry is positioned not as individual achievement but as relational accomplishment.

At one participating early childhood centre, the creation of a quilt illustrates this process. At the conclusion of an inquiry into community and belonging, children collaboratively designed and constructed a textile artwork inspired by *tivaevae* (Cook Islands appliqué quilts) (Fig. 9). Each child contributed stitched or collaged elements, which were assembled into a unified piece. The quilt became both a record of the inquiry and a symbol of collective identity.

This shift was also evident in children's evolving understandings of community. Early responses to the question "What is community?" were tentative, including "not sure" and "watering the plants," while later responses reflected more relational thinking, such as "a group," "everyone together," and "looking after people and not yelling when they're trying to communicate." These changes illustrate



Fig. 9 The textile artwork inspired by *tivaevae*

the consolidation of shared meanings developed through sustained inquiry. The public display of the quilt further extended this process, communicating children's thinking to families and the wider community. As Carr and Lee (2019) note, making learning visible supports the development of learner identities grounded in participation and contribution. Through the visual arts, consolidation supports recognition of learning while honouring the collaborative processes that make it possible.

Re-ignite

Re-ignite acknowledges the recursive and non-linear nature of inquiry, where interest may wane, ideas feel resolved, or uncertainty emerges as children and teachers consider what might come next. Teachers often describe these as “muddy” or “grey” spaces, where direction is unclear (Burke et al., 2025). Stacey (2019) conceptualises such moments as disequilibrium, when existing understandings no longer hold and new possibilities begin to surface: “disequilibrium is the edge, the tipping point... between assimilation—maintaining the status quo—and accommodation—landing at a new, larger, meaningful place” (p. 42). These moments are not signs that inquiry has ended, but are integral to its evolution.

Re-ignition involves careful pedagogical decision-making, where teachers consider how thinking might be extended or reoriented. This may involve re-offering materials, returning to earlier ideas, or introducing new possibilities that invite children to see differently. Materials play a generative role, as their properties can disrupt existing understandings and open new lines of inquiry (Bjerknes et al., 2024).

In this way, re-ignition redirects and extends ideas in response to people, materials, and context. This can be seen in the Nature Man inquiry, where revisiting led to the creation of an illustrated book. When a child suggested Nature Man needed a theme song, the inquiry shifted direction, with teachers introducing new materials and modes of expression (Fig. 10). This shift illustrates how re-ignition emerges from earlier thinking, as new possibilities are taken up and developed. The inquiry was not simply extended but transformed, as new lines of curiosity emerged.

Discussion: Recentering the Role of the Visual Arts Within Children's Inquiry

This study demonstrates how the visual arts are integral to how inquiry is generated, sustained, and transformed over time with infants, toddlers, and young children. In this study, artistic and material processes became shared sites for thinking, enabling children to externalise ideas, revisit and refine working theories, negotiate meaning, and



Fig. 10 Ephemeral art materials offer a new mode of expression

construct knowledge collectively (Removed for review). In this way, the visual arts operate as a central mode through which inquiry happens.

Situated within Aotearoa New Zealand, these findings also highlight the importance of relational and place-based approaches to inquiry. Consistent with the principles of *Te Whāriki* (MoE, 2017), inquiry emerged through children's relationships with people, places, and things. Visual arts processes supported this relationality by bringing children and teachers together in shared acts of meaning-making, fostering whanaungatanga (relationships of connection, kinship, and reciprocal responsibility) and collective engagement with ideas. Engagement with visual arts materials further grounded inquiry within local contexts, connecting children to their environments, lived experiences, and the stories of their local place. In this context, place-based inquiry created opportunities for children and teachers to engage with mātauranga Māori in ways grounded in their local environments, supporting more authentic and relational approaches to bicultural practice (Wrightson et al., 2025). This is significant in that it positions engagement with mātauranga Māori not as an added component of the curriculum, but as something that emerges through children's relationships with place, supporting more meaningful and contextually grounded engagement with indigenous knowledge. In this sense, inquiry can be understood not as individual knowledge acquisition, but as relational knowing, shaped through interaction with others, with materials, and with the wider world, with the visual arts playing a central role in mediating these relationships (Ministry of Education, 2017; Wrightson et al., 2025).

In alignment with these ideas, Vecchi (in Gandini, 2012) suggests that the arts invite complexity and openness to other perspectives, arguing, “The connections and interweavings among different disciplines with the languages of the atelier

often produce, in our projects, a shift in established points of view and favour a more complex approach to problems” (p. 317). This perspective resonates strongly with the findings of this study. The visual arts did not function as a vehicle for illustrating pre-formed ideas, but as a generative space in which thinking could be extended and reconfigured. As children worked with materials, their ideas were slowed down, made visible, and opened to reinterpretation, creating opportunities to consider multiple possibilities and shift perspectives beyond language alone. In this sense, the findings challenge more limited constructions of the arts within early childhood education, where they may be positioned as expression alone or as product-oriented activities (Lindsay et al., 2025). Instead, artistic processes enabled ideas to be made visible and revisited, contested, and extended over time. In making thinking visible, the visual arts create conditions for ideas to be shared, debated, and reinterpreted, resisting fixed or singular understandings of knowledge and instead embracing “otherness” and complexity (Dahlberg et al., 2013). Recognising the agency of materials further contributes to this openness, as their affordances, resistances, and transformations can disrupt and reconfigure emerging ideas (Kind, 2014; Pacini-Ketchabaw et al., 2024). Such possibilities are significant within contemporary contexts characterised by uncertainty, diversity, and complexity, where education must support learners to engage with difference and navigate multiple perspectives (Dahlberg et al., 2013; Zhao & Watterston, 2021).

The *Thinking Through Visual Inquiry* framework offers a way of making this complexity more visible for teachers. Previous research has identified that teachers can experience uncertainty about how to sustain inquiry over time, particularly when they are committed to centralising children’s ideas and avoiding predetermined outcomes (Probine, 2023; Stacey, 2019). This framework responds by providing a conceptual tool that supports more intentional and reflective engagement with the visual arts in inquiry. It highlights ways in which visual arts processes can support inquiry as it evolves, enabling teachers to make considered pedagogical decisions about how to extend and deepen thinking. Across these dimensions, the visual arts sustained continuity within inquiry, enabling connections between past, present, and emerging understandings over time. As Vecchi (2010) suggests, artistic processes function as a thread running through the inquiry, supporting children to revisit and transform ideas over time. In this sense, the framework contributes not only a way of describing inquiry processes, but also a means of supporting them in practice.

An important consideration emerging from this study is the positioning of materials as active participants in inquiry. Materials were not neutral but instead influenced the direction and possibilities of inquiry through their particular affordances and constraints (Kind, 2014). Encounters with

materials generated new questions and prompted children to revise and extend their thinking. For example, as children at one participating kindergarten worked together to create a taniwha, the shift from drawn designs to working with wood required them to reconsider and adapt their ideas. Similarly, in the acorn inquiry at one participating centre, teachers intentionally selected large sheets of paper and responsive drawing materials such as charcoal and markers, inviting collaborative engagement and enabling children to make immediate, satisfying marks. This reduced technical demands, allowing a focus on emerging ideas and supporting sustained engagement in the ongoing development of thinking. These examples illustrate how materials give rise to moments of disequilibrium, disrupting existing ideas and opening new possibilities (Stacey, 2019). Edwards (2012) terms such moments “cognitive knots,” highlighting their potential for hypothesis testing and deeper understanding. Recognising these moments as generative requires careful pedagogical attention, where teachers notice and respond. As Edwards (2012) explains, the teacher’s role is to “notice these knots and help bring them to centre stage for further attention – launching points for next activities” (p. 173). Recognising the agency of materials, alongside moments of cognitive tension, shifts inquiry from a purely cognitive process to one that is relational, embodied, and materially situated.

These findings also point to a set of pedagogical conditions that enabled inquiry through the visual arts to be sustained over time. Central among these was a commitment to time, with inquiry understood as an iterative process in which ideas are revisited, extended, and brought to points of temporary resolution rather than rushed toward predetermined outcomes (Keifert & Stevens, 2019; Probine, 2020). Importantly, this was not simply a matter of individual teacher practice, but was collectively constructed through collegial dialogue, shared reflection, and leadership decisions that protected time and created space for inquiry to unfold (Clark, 2023; Denée & Cherrington, 2023; Probine & Denée, 2025). Within these conditions, the visual arts functioned as a mode of knowing through which ideas could be returned to, reworked, and extended over time (Keifert & Stevens, 2019). This was supported by a stance of attentive listening and openness to uncertainty, positioning teachers and children as co-participants in the development of knowledge (Rinaldi, 2012). Pedagogical documentation and the intentional selection and re-offering of materials further enabled ideas to remain in circulation, supporting reflection and collective meaning-making (Dahlberg, 2012; Oliveira-Formosinho & Peeters, 2019). These conditions suggest that integrating the visual arts within inquiry is not only the result of pedagogical decision-making, but also of the careful construction of pedagogical environments in which time, relationships, and shared thinking are actively cultivated.

Positioning the visual arts at the centre of inquiry requires more than the inclusion of artistic experiences; it involves rethinking how knowledge is constructed, shared, and sustained within early childhood education.

Conclusion

This study highlights the role of artistic and material processes in making thinking visible, open to interpretation, and available for collective negotiation, supporting children to engage with ideas as provisional, relational, and evolving. In this way, the visual arts offer a means for working with complexity, enabling children and teachers to encounter multiple perspectives and remain open to uncertainty within inquiry. The *Thinking Through Visual Inquiry* framework contributes a conceptual language for recognising and sustaining these processes in practice, supporting teachers to make intentional pedagogical decisions in contexts where inquiry can be difficult to navigate. While this study is grounded in a small number of early childhood settings within Aotearoa New Zealand, the framework may offer insights for educators seeking to sustain inquiry-oriented approaches through the visual arts in other contexts. However, it is offered as a flexible conceptual resource rather than a universally applicable model, and would need to be critically adapted in relation to the particular cultural, social, and historical context, local knowledge systems, communities, and guiding curriculum documents.

More broadly, these findings position young children as capable participants in knowledge construction. Positioning the visual arts as integral to inquiry creates conditions in which children's ideas can be made visible, revisited, and taken seriously within the learning community. In this way, the arts offer a means through which teachers can support children to exercise their right to think, contribute, and participate in the co-construction of knowledge. In doing so, inquiry is repositioned as a shared, material, and relational practice through which knowledge is continuously negotiated, extended, and enriched through multiple perspectives.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Declarations

Ethics Approval Ethical approval for this study was granted by the Manukau Institute of Technology ethics committee.

Consent to Participate Informed consent was obtained from all participants involved in the study.

Competing Interests The authors declare that they have no conflict of interest.

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