

Characteristics of professional development research in Aotearoa New Zealand's early childhood education sector: A systematic literature review

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Teachers' professional learning and development (PLD) is an essential component in the provision of quality education. Through objective 3.6 in the Early Learning Action Plan 2019-2029 (Ministry of Education, 2019a) the Ministry of Education has signalled a need for a managed, coherent system of PLD to support the professional learning needs of early childhood teachers in Aotearoa New Zealand. Over time, research has sought to enhance understanding of PLD in ways that can contribute to more effective PLD programmes. Yet, gaps remain between PLD research, policy and practice. Synthesising extant research is important to identify existing and cumulative knowledge, and reveal research-to-practice gaps. This article reports the results of a systematic literature review, conducted to identify characteristics of PLD research within Aotearoa New Zealand's early childhood education sector. Fifty-six research articles and reports were systematically reviewed. Findings identify that the predominantly descriptive body of research is characterised by a convergence of researchers' and teachers' roles, largely positive outcomes, and a broad content focus with less attention paid to PLD processes.

Keywords: *coaching, PLD, teachers' professional learning, facilitating professional learning*

Introducing the current study

Professional learning and development (PLD) for early childhood teachers is an area of government policy and practice focused on supporting teachers' ongoing development in ways that strengthen outcomes for children and whānau. Under the current government and policy, objective 3.6 in the Ministry of Education's *Early Learning Action Plan 2019-2029* (2019a) is focused on the introduction of a professional learning and development (PLD) programme to support implementation of localised curriculum, aligned with *Te Whāriki* (Ministry of Education, 2017) and responsive to all mokopuna (children). In the Ministry's words, the national PLD programme is to be "sustained and coherent" with all PLD including "a focus on identity, language and culture and the inclusion of children with disabilities or additional learning needs" (2019a, p. 25). Aspirations for a PLD programme that will grow leadership within the early childhood education (ECE) sector are also outlined. In developing the PLD, the Ministry aims to review its current PLD design, delivery and funding (Ministry of Education, 2019a).

If PLD is to effectively support teachers in Aotearoa New Zealand's diverse ECE sector, it will be critical for the Ministry's programmes to be evidence-informed, drawing from national and international research evidence. In particular, if all PLD is to include a focus on

identity, language and culture, national PLD research will be an essential component of the Ministry's review. To better understand the national research base, we conducted a systematic literature review of studies involving PLD in Aotearoa New Zealand's ECE contexts. The purpose of the review was to describe the characteristics of the research and the PLD interventions that were researched. The review was not intended to identify effective features of PLD nor evaluate the research and reporting against quality standards (e.g., American Psychological Association, 2022; Levitt et al., 2018). Reporting is explored, however, specifically in terms of the information provided about the research and PLD. As a component of a wider doctoral project (Clarke, 2021) that investigated coaching as a PLD approach, the systematic review also sought to explore the use of coaching within Aotearoa New Zealand PLD research. Coaching can be defined as a coach–teacher collaboration that includes coaching strategies of observing practice, providing feedback, encouraging reflective thinking and helping teachers plan to improve practice (Kraft et al., 2018; Snyder et al., 2015). Primarily, a focus on coaching was considered important because of the limited application of coaching in Aotearoa New Zealand ECE. Limited application of coaching at the ECE level is surprising given the demonstrated success of coaching interventions in Aotearoa New Zealand secondary schools, where a nationally-developed coaching programme has been shown to promote profound change in teaching practice (Alton-Lee, 2015; Bishop et al., 2009; Bishop et al., 2014). Moreover, a wealth of international research evidences coaching as effective in strengthening teaching practice (Brunsek et al., 2020; Egert et al., 2018; Elek & Page, 2019; Kraft et al., 2018).

This article begins by overviewing the application of systematic literature reviews in educational research. A professional development conceptual framework (NPDCI, 2008), which guided this review, is introduced. The systematic literature review methodology and protocols used in this study are then described. The results of this review are reported and discussed with the intention of understanding the characteristics of the research and the PLD, and identifying pathways forward for future PLD research.

About systematic literature reviews

Systematic literature reviews are conducted using explicit and a-priori designed methods to address specified goals and research questions (Ang, 2018; Newman & Gough, 2020). Systematic reviews are increasingly conducted within ECE research because of their potential to synthesise knowledge, identify research gaps, advance research rigour and application, and meet demands for evidence that can inform policy (Ang, 2018; Page et al., 2021). Although systematic reviews are still emerging as a widely recognised research methodology within educational research, the use of systematic review strategies is not new to Aotearoa New Zealand ECE PLD research. For example, Mitchell and Cubey's PLD Best Evidence Synthesis (BES) utilised methods based on systematic literature review strategies of "having explicit and transparent methods, and being accountable, updateable, and replicable" (2003, p. 4). The BES followed systematic reviewing standards to guide the review, answer specific questions, identify as much relevant research evidence as possible, appraise research quality and synthesise the evidence (Mitchell & Cubey, 2003).

Systematic literature reviews can also be useful to identify characteristics of research, and to reveal bias. For example, Soto-Boykin et al. (2021) systematically reviewed 30 research articles to identify researchers' descriptions of children and caregivers from linguistically minoritised communities. Most descriptions were found to have a deficit view of bilingualism or multilingualism, positioning English as superior by focusing on negative impacts of not

speaking English and/or by describing participants in ways that reinforced monoglossic views (e.g., referring to children as “English learners” or “English language proficient” instead of “emergent bilingual” or “multilingual”). Soto-Boykin et al. (2021) made specific recommendations for the use of strength-based approaches in research, reporting, and practice. Another example is a systematic review of research into challenging-behaviour interventions. Steed and Kranski (2021) reviewed 53 articles that described characteristics of participants in behaviour intervention studies, and found that boys and Black and Latino children were overrepresented. Implications were identified in relation to participant recruitment and culturally responsive interventions. Thus, systematic literature reviews can highlight features and characteristics of socially-situated research, providing important insights to advance the quality and utility of the research base.

While the basic principles of systematic reviews have not changed since they were applied to Mitchell and Cubey’s (2003) BES, new reviews are more likely to be guided by Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) protocols (Page et al., 2021). PRISMA protocols are evidence-informed guidelines that were developed by an international group of experts to support the planning, conduct, and reporting of systematic literature reviews, with the intentions of improving quality and transparency (Shamseer et al., 2015). Initially published over a decade ago, PRISMA protocols continue to be extended and updated to reflect current knowledge (Sarkis-Onofre et al., 2021). Although PRISMA were primarily intended to support reviews of health interventions, the protocols are applicable to a range of research contexts, including educational research (Page et al., 2021).

Within educational research, systematic reviews are increasingly used to address a range of questions related to teachers’ PLD, including examining associations between PLD content and children’s outcomes linked to those content areas (Brunsek et al., 2020), identifying features of successful coaching (Elek & Page, 2019), and identifying characteristics of ECE PLD literature (Snyder et al., 2012)—notably, the literature reviewed in these studies is almost exclusively international research. Fleer et al. (2021) recently noted that “[n]o systematic review of Australian or New Zealand studies could be found into the effective characteristics of Early Childhood PD [professional development] programs for practice change” (p. 3). The current study has sought to describe the Aotearoa New Zealand research base by using PRISMA protocols to identify the characteristics of the ECE PLD research, including research methodology, who was involved, what the PLD involved, and how the PLD was applied.

A professional development conceptual framework

The National Professional Development Center on Inclusion’s (NPDCI) professional development conceptual framework is intended to support the understanding, enactment, and evaluation of professional development in diverse ECE contexts (Buisse et al., 2009; NPDCI, 2008). NPDCI defines professional development as “facilitated teaching and learning experiences that are transactional and designed to support the acquisition of professional knowledge, skills, and dispositions as well as the application of this knowledge in practice” (2008, p. 3). The NPDCI framework comprises: *who*—the characteristics of the participants/teachers, including the contexts and communities in which they work; *what*—the content and intended outcomes of the professional development; and *how*—the organisation, approach, delivery method and facilitation of professional learning experiences. As expressed in the framework, *who*, *what* and *how* fit within a wider context of policies, resources, structural conditions, access, outreach, and professional development

evaluations, all of which should be considered when designing, planning, or providing professional development. The NPDCI framework was developed in American contexts. It is, nonetheless, highly relevant for Aotearoa New Zealand's early childhood sector, where professional learning opportunities are applied in diverse contexts and for a wide range of teachers who have many different PLD priorities (Cherrington & Shuker, 2012). Consideration of PLD's *who*, *what* and *how* as outlined by NPDCI recognises that there is no "one size fits all" solution to PLD; rather, the effectiveness of PLD is contingent on who is learning, what they are learning, and how the PLD is applied.

Methodology

The current study has used the NPDCI framework as a content analysis tool, to support the identification and discussion of characteristics of PLD research in Aotearoa New Zealand ECE. The NPDCI framework was key to navigating the current systematic review, specifically in terms of who was involved in PLD research, what the PLD involved, and how the PLD was applied. Information about the research methodology and outcomes was also examined.

PRISMA protocols and the PRISMA-P 2015 checklist (Moher et al., 2015; Shamseer et al., 2015) guided planning, documentation and reporting of the review. A rationale, hypotheses, research question and methods were outlined a priori. As outlined in the updated PRISMA 2020 statement (Page et al., 2021), PRISMA guidelines are appropriate for mixed methods systematic reviews (i.e., reviews that include both qualitative and quantitative studies). In line with PRISMA reporting protocols, the inclusion criteria, search strategies and coding procedures are described below.

Rationale: The rationale for systematically reviewing Aotearoa New Zealand's ECE PLD literature was the importance of understanding existing PLD research, and the PLD approaches that have been researched. Given the potential of coaching as a PLD approach and the apparent lack of coaching in the ECE sector, it was also important to identify the extent that coaching was researched in the New Zealand ECE sector.

Hypotheses: It was hypothesised that the research would be predominantly descriptive and explore a range of PLD topics, approaches and models. Coaching was not expected to be widely researched.

Research question: What are the characteristics of PLD research in Aotearoa New Zealand early childhood education, and how does coaching feature within the PLD approaches used?

Eligibility criteria: To be eligible for inclusion, studies were required to examine or explore PLD in Aotearoa New Zealand's ECE context, with participants being ECE staff. To be included, the stated research objective and/or at least one research question was required to include a reference to examining, describing or exploring a relationship between PLD and teachers' knowledge and practice, or child outcomes related to the PLD. PLD was defined as facilitated teaching and learning experiences designed to support in-service teachers' acquisition of professional knowledge, skills, or dispositions. Action research was defined as PLD, as long as there was some outside facilitation—not solely facilitated by the teaching team. Centres of Innovation (COI) research was included if a report was available online (<https://www.educationcounts.govt.nz/publications/ECE/22551>), and if the COI research had been completed. No restriction was placed on research methodologies, nor publication

status. Published and unpublished research (e.g., theses) was included. Conference papers were excluded. Literature was restricted to a time frame of January 2000 to January 2019.

Search strategies and terms: Searches were conducted between 26 December 2018 and 21 January 2019. To promote comprehensiveness, a sensitive (rather than specific) search strategy was used. A specific search strategy is likely to identify mostly relevant papers, filtering those with less relevance. A sensitive strategy will identify a wider range of studies, including many that are not relevant and that must be screened manually. Search terms are provided in Table 1.

Masters and doctoral theses were sourced through nzresearch.org, along with separate university research repositories, using the search terms “professional development,” “professional learning” and “early childhood education.” Literature was also sourced from Education Counts (<https://www.educationcounts.govt.nz/home>) and the Teaching and Learning Research Initiative (TLRI; <http://www.tlri.org.nz/>).

Table 1

Search terms

Data-Bases and Search Terms	
Discover and Scopus	A+ Education
NZ OR Aotearoa OR Zealand	Zealand
AND	AND
ece OR "early childhood education" OR preschool* OR kindergarten* OR playcentre* OR "kōhanga reo" OR home-based OR "early intervention"	"early childhood education" OR "preschool education" OR "child care centre" OR "kindergarten" OR "early intervention"
AND	AND
"professional development" OR "professional learning" OR "continuing education" OR coach* OR mentor* OR "action research" OR "learning community" OR "community of practice" OR "teacher inquiry" OR "teacher enquiry" OR workshop	"professional development" OR "learning communities" OR "professional continuing education" OR "in service education" OR "mentoring" OR "mentors" OR "teacher improvement" OR "continuing education" OR coaching

Note. Use of the A+ Education thesaurus meant that the search strategy/phrases differed.

As outlined in Figure 1, a total of 1,277 texts were found (636 through database searches and 641 through websites and research repositories). Removing exact duplicates reduced this number to 933 texts, which were screened for inclusion according to the following criteria: published between 2000 and 2019; involved a New Zealand ECE service; and involved PLD as defined for the review. Figure 1 shows that screening identified 120 full texts. Of these, 64 were excluded because closer reading revealed that the studies either did not meet the initial screening criteria, or were a related publication of an already included text (i.e., one study with multiple publications). Eight PLD evaluations were also excluded for this analysis. Fifty-

six studies were included in the final review, meeting the criteria for inclusion such that each study's research objective and/or at least one research question referred to a relationship between professional learning and teachers' knowledge, learning or practice. Appendix A lists the included studies and summarises each study's aims or key research questions.

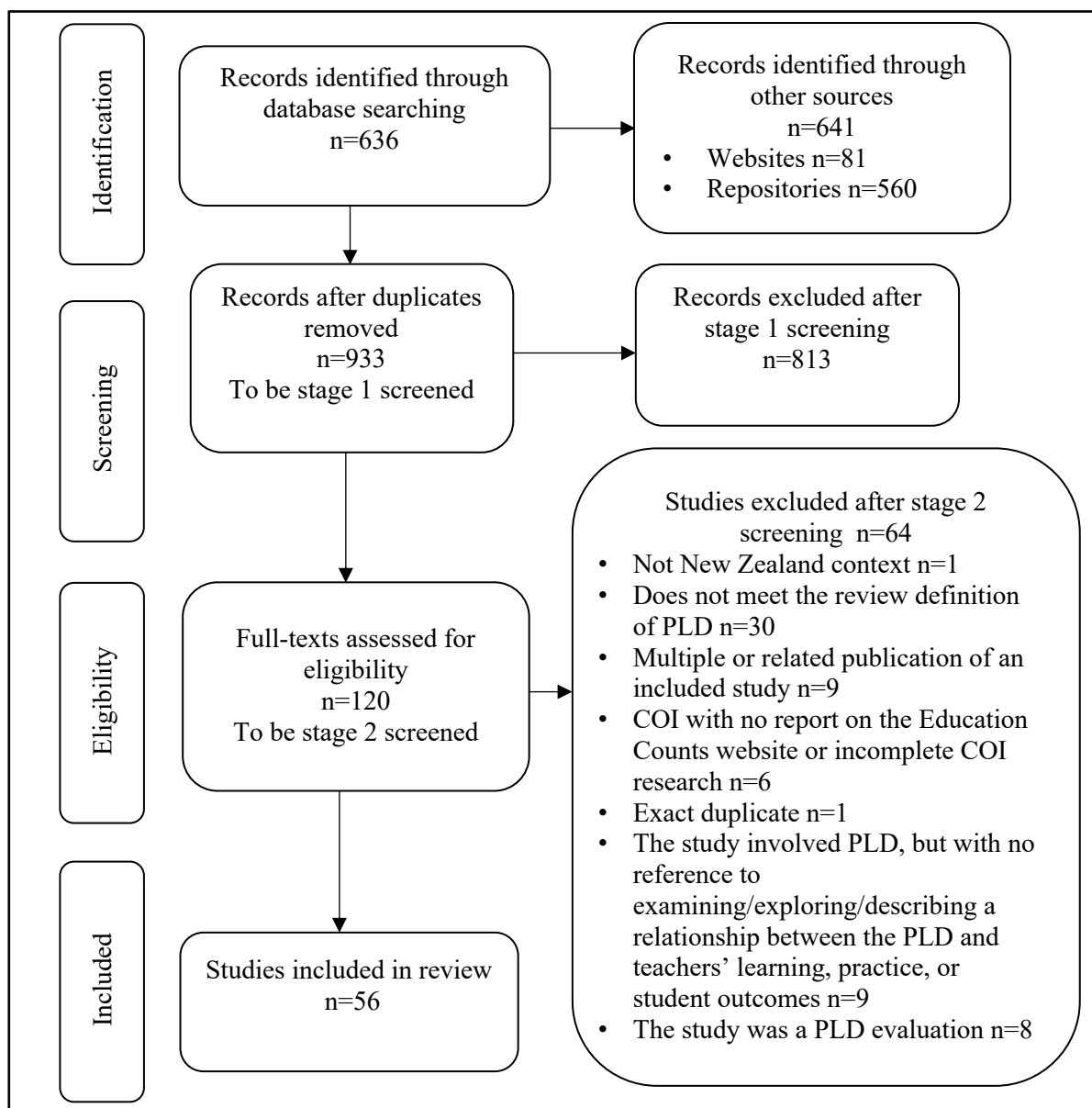


Figure 1. PRISMA Flow Chart of the Literature Search

Coding procedures: A coding manual, inclusive of coding categories, decision rules, operational definitions (i.e., clear and detailed definitions of all relevant terms) and procedures, was developed and referred to throughout the review process. Coding categories addressed three areas: 1) purpose and design of the research; 2) research participants and their contexts; and 3) topic, delivery, and PLD outcomes. A coding form was developed using Qualtrics (<https://www.qualtrics.com>).

Reliability testing: A secondary coder was trained on the manual and procedures, by meeting with the primary coder and a doctoral research supervisor to discuss and practise the coding

process. A second training session and ongoing support was provided by the primary coder. The secondary coder independently coded 14% (n = 8) studies previously reviewed by the primary coder. Percentage agreements were calculated for each question by summing the number of agreements, dividing by the number of agreements plus disagreements, and multiplying by 100. Agreements ranged from 78% to 100%, with the exception of five questions for which agreements were 35%, 50%, 56%, 67% and 74%. Consensus coding was conducted for these questions. Consensus coding involved two coders working collaboratively to answer the questions for which agreement had been 74% or less. The coders compared answers, discussed disagreements and reached consensus on the most accurate answers.

Analysis: Raw coding data, generated through Qualtrics (<https://www.qualtrics.com>), were exported to SPSS version 28 and analysed using descriptive statistics. Results are reported as frequencies and/or percentages to describe the research designs, and the *who*, *what* and *how* of Aotearoa New Zealand’s ECE PLD research.

Results

The literature and research designs

Of the 56 studies reviewed, 50% were presented in reports, 27% theses, and 23% journal articles. Forty-eight percent of the studies were action research. Other non-experimental research designs featured in 38% of studies and included descriptive research and fusions of designs, including kaupapa Māori research designs. Experimental or quasi-experimental designs featured in only 14% of studies. Data collection strategies used in more than 10% of studies are listed in Table 2, which indicates many of the studies utilised interviews, diaries, meetings and surveys to identify participants’ perspectives.

Table 2

Data collection strategies

Data Collection Strategies	% of studies
Interviews with participants	52
Document analysis	43
Participant diaries/logbooks	41
Hui or meetings	38
Participant survey or questionnaire	36
Video observations	32
Other observations (not tool/scale, photos or video)	27
Interviews with parents/families	23
Photos	21
Anecdotes/conversations/feedback/talanoa from parents, visitors, facilitators or participants	20
Observation tool/scale	20
Parent/family survey or questionnaire	16
Case studies within a wider study	13
Interviews with children	13
Field notes	11

Note. n = 56. Some studies used multiple data collection strategies. Percentages may not total 100.

The “who” of PLD research

ECE services: Table 3 outlines the service types that participated in research. Education and care services and kindergartens were the most researched providers. Of the studies reviewed, 13% reported being conducted in Māori and/or Pacific Island ECE services: Three studies reported being conducted in Pasifika services (Davis & McKenzie, 2017; Mara & Burgess, 2007; Podmore et al., 2006); two in kaupapa Māori services (Pohatu et al., 2006; Tamati et al., 2008); and one study, Rameka et al. (2017), involved Māori and Pasifika services. Another study, Ritchie et al.’s (2010) TLRI project focused on kaupapa Māori approaches and reported the involvement of a range of communities, including Māori communities. The Picking up the Pace literacy project also involved a range of ECE services (and schools) and reported that over 90% of the children in the communities involved came from Māori or Pacific Island families (Phillips et al., 2002).

Table 3

Participating ECE services

Participating ECE Services	% of studies
Education and care (ECEC)	52
Kindergarten	43
Māori and/or Pacific Island services	13
Playcentre	9
Home-based	9
Barnados	2
Not specified	4

Note. n = 56. Some studies were held in multiple settings. Percentages may not total 100.

Children’s ages: Twenty-three percent of the studies involved ECE service(s) where mokopuna were in the age range of 0–6 years; 7% 0–2 years; 5% 2–6 years; 18% 3–6 years; and 2% 4 years. Forty-one percent of studies did not report the ages of mokopuna who were enrolled at the participating ECE service.

Participants’ characteristics: Participant/teacher characteristics of qualifications, teaching experience, gender, ethnicity and age were reviewed. Only 50% of studies reported the teachers’ or participants’ qualifications: 48% of studies involved qualified ECE or primary teachers; 16% involved participants with other qualifications, such as playcentre qualifications; 16% involved participants who were not qualified but in training; and 13% involved participants with no teaching qualification. (In most studies there was a mix of qualifications across participants, thus percentages will not total 100%). The other characteristics (participants’ teaching experience, gender, ethnicity and age) were infrequently reported in the studies we reviewed, therefore, we have simply indicated whether these participant characteristics were reported, as can be seen in Table 4. Table 4 also shows that 47% of studies reported none of the listed characteristics.

Table 4

Reported characteristics of participants

Reported participant/teacher characteristics	% of studies
Qualifications	50
Teaching experience	20
Gender	20
Ethnicity	18
Age	5
None of the above were reported	47

Note. n = 56. Some studies reported multiple characteristics. Percentages may not total 100.

The “what” of PLD research

Topic and content: A wide range of topics was investigated throughout the studies. Table 5 shows categories indicative of topics that featured in more than 2% of the studies. Some topics fell into multiple categories and topics were described in varying detail across the studies, thus the categories listed in Table 5 are indicative. A further indication of topics is available in Appendix A.

Table 5

PLD topics

Topic	% of studies
Supporting children’s working theories, thinking and learning	16
Families/whānau/community	14
Cultural competency, including kaupapa or te reo Māori, identity, language and Pasifika pedagogies	14
Framework (e.g., <i>Te Whāriki</i>)	13
Literacy	11
Emotion/social-emotion	11
Leadership	9
Infant/toddler pedagogy	7
Assessment	5
Music	5
Transitions, including school transition, continuity of learning and/or transitions into and within ECE services	4
Maths	4
Information and communication technologies	4
Drama/storytelling	4
Nature/environment/sustainability	4
Reflective practice	4

Note. n = 56. Some studies involved multiple topics. Percentages may not total 100.

The content of the PLD, or what teachers learned, was often made evident through reported outcomes. Thus, we have conceptualised outcomes as part of the *what* of PLD, as shown in

Table 6. As can be seen in Table 6, nearly all studies reported positive outcomes, with just 14% reporting either inconclusive findings or no change for teachers.

Table 6

PLD content/outcomes

Reported teacher outcomes	% of studies
Teachers' practice:	
Abilities to address stereotyping, bias or exclusion	16
Teachers' interactions with parents	39
Teachers' interactions with children	63
Any other aspect of actual teaching practice	71
Teachers' awareness or knowledge:	
Knowledge and understanding of diversity	21
Pedagogical and topic awareness and knowledge	50
Other attitudes, dispositions and/or beliefs	70
Other:	
Outcomes not met or inconclusive findings	14
Changes to ECE environments or programmes	45

Note. n = 56. Studies reported multiple outcomes. Percentages may not total 100.

Although teacher outcomes were predominantly reported as positive, numerous studies discussed barriers to success. Rather than reporting frequencies of the barriers reported, we have categorised the commonly reported barriers into four areas:

- 1) Some aspects of the PLD were ineffective because they related to particularly challenging issues, or represented complex learning or skills, or because teachers needed extra/different support.
- 2) Challenges arose related to the dynamics of the group of teachers, including tensions, leadership challenges, and varying abilities to engage in critical thinking, open debate or discussion.
- 3) Teaching environments, including conflicting priorities, staff changes, children's attendance, and lack of resources made PLD challenging.
- 4) It was difficult for teachers to apply what they learned to practice, or teachers' awareness or knowledge changed but not practice, or it was challenging to maintain practice without ongoing facilitator support.

The "how" of PLD research

PLD dose: PLD dose refers to the duration, intensity and frequency of PLD sessions or programmes. Across the studies, PLD programme duration ranged from less than a week to four years: 14% of studies did not clearly report the duration. The number of PLD sessions ranged from one workshop to more than 15 sessions or meetings: 41% of studies did not clearly report the number of sessions. Length of sessions, discussions or meetings ranged

from two hours to a full day: 52% of studies did not clearly report session length. The frequency of sessions ranged from less than a week apart to 10 weeks apart: 52% did not clearly report frequency.

PLD models: PLD models (e.g., workshops) are outlined in Table 7. Shared inquiry, which we defined as groups of teachers engaging in PLD with an emphasis on collaborative inquiry and reflection, was the most frequent PLD model. COI research is a form of shared inquiry but, because of the unique nature of the COI programme, has been categorised separately in Table 7. The total percentage of studies that involved shared inquiry, including COI, is 64%. Workshops were most often provided as a series, or combined with other PLD supports, with just one study examining the impacts of a one-off workshop.

Table 7

PLD model and facilitation supports

PLD model	% of studies
Shared inquiry (e.g., learning community, action research)	41
COI: Centres of Innovation research	23
Series of workshops	14
Workshop/s plus facilitated support directly linked to teachers' work with children ¹	9
Shared inquiry plus facilitator visits	4
Workshops plus shared inquiry	4
Facilitated web training or web-based inquiry plus shared inquiry	2
One-off workshop	2
Workshop plus facilitated support directly linked to teachers' work with each other ¹	2
Workshops plus facilitator visits	2

Note. n = 56. Some studies involved multiple PLD models across different groups. Percentages may not total 100.

¹ These types of facilitation supports involved PLD strategies that are associated with coaching, such as observing teaching practice, providing feedback and setting goals.

Facilitators' training: The PLD facilitator's training was reviewed in terms of how clearly or thoroughly it was reported: 43% of studies reported nothing about the facilitator's training, experience or preparation; 25% provided a general description, such as "facilitated by an experienced professional development facilitator"; 32% provided a description that included how much experience a facilitator had, and how much training or support they had received to conduct the PLD, and any areas of expertise.

Facilitation strategies: Table 8 outlines a range of facilitator actions/strategies and the percentage of studies that reported each. Providing feedback directly related to observed teaching practice is an aspect of coaching as it has been defined for this review and was identified as a facilitation strategy in 5% of the studies. Twenty-five percent of studies reported that feedback was provided but described provision of feedback in general terms, not specifying what the feedback entailed. Facilitation actions/strategies were also reviewed

for clarity of reporting: 70% of studies reported the facilitator’s teaching actions clearly or fairly clearly; 30% did not report the facilitator’s actions at all or did so in very limited terms, such as “the facilitator supported the participants.”

Table 8

Facilitation strategies

Facilitator Action or Strategy	% of studies
Supporting participants to investigate pedagogy in the context of their ECE setting	84
Presenting or providing new information e.g., introducing a framework	77
Facilitating/encouraging/supporting participants’ pedagogical or reflective conversations which can include challenging or questioning or providing opportunities for participants to question their views	75
Getting to know participants/building relationships/collaborating	68
Using data: including using data as evidence to support teacher reflection and/or shifts in practice; identifying discrepancies through data; involving teachers in the analysis of data from their ECE setting	43
Observing practice, in any way that is related to PLD (not solely research data collection)	29
Providing general feedback	25
Mentoring and/or coaching, defined/described in brief/general terms or not at all	20
Modelling/demonstrating teaching practice or showing video exemplars	14
Mentoring and/or coaching, with a detailed definition of one or both	11
Providing performance feedback, related to teachers’ practice or actions	5
None of the above	2

Note. n = 56. Some studies involved multiple facilitation strategies. Percentages may not total 100.

The reporting of coaching was reviewed in more detail. We searched for the word “coach” within the studies, and identified when “coach” was used to describe a facilitation strategy, as opposed to use of the word in a literature review or discussion. Because coaching is sometimes conflated with mentoring (Thornton, 2015) we also searched for “mentor” and recorded any definitions or descriptions of mentoring that were provided.

Only 14% of studies (n = 8) used the word coaching (or derivations of) to describe a facilitation strategy and three of these studies provided no description or definition of coaching. In the other five studies, coaching was defined or described in a variety of ways. One study (O’Hare, 2016) clearly described the specific coaching actions used to support teachers’ learning. These coaching actions included video observing, reviewing data, engaging in reflective conversation, asking questions, supporting teachers to make goals and action steps and, sometimes, adapting the process to best support teachers (O’Hare, 2016). Other studies included less detail about the role of the coach; for example Gosteva’s (2013) coaching process was described as the use of bug-in-ear technology to deliver immediate feedback to teachers. Carroll-Lind et al. (2016) described their coaching process as creating a shared space, akin to a zone of proximal development, and emphasised that coaching is a complex

process, involving structured elements such as goal setting and teaching. Coaching was sometimes referred to as part of a wider role; for example, Thornton (2009) associated the word coach with the terms trusted inquisitor, critical friend and facilitator. Tamati et al. (2008) applied the concepts of coaching (and mentoring) to the role of a critical friend, comparing the role of critical friend to that of a tuakana, “an advisor, a mentor, a scribe, a coach and a challenger” (p. 100). In line with international coaching research (e.g., Elek & Page, 2019; Kraft et al., 2018; Snyder et al., 2015), Tamati et al. identified that a key aspect of coaching was “to provide open, honest and non-judgmental feedback” (2008, p. 101).

Thirty percent of studies (n = 17) used the word mentoring (or derivations of) to describe a facilitation strategy, with eight of these studies providing a description or definition of mentoring. Mentoring was connected to the role of critical friend by Hedges (2007), who emphasised key aspects of the critical friend/mentor role as working supportively with teachers to build new knowledge, create an anticipation of change in practice, observe, examine and utilise data with teachers, ask questions and critique. Podmore et al. (2006) described mentoring as more experienced teachers working alongside less experienced teachers, guiding them to extend children’s thinking and conversations, and involving discussions that were analytical and challenging. In each of these examples, the mentoring strategies described are reflective of strategies that are often associated with coaching, including observing, analysing data, working alongside teachers and engaging in critical discussions (Elek & Page, 2019; Kraft et al., 2018; Snyder et al., 2015). In the other six studies, mentoring was described as: a holistic approach, less structured than coaching (Carroll-Lind et al., 2016); a mentor helping a teacher with less experience (Swain & Bodkin-Allen, 2017; White, 2003); an approach to teacher induction (Hooker et al., 2008). Mentoring was also described in terms of mentor attributes, such as a supportive, understanding, skilful guide (Tamati et al., 2008). Tamati et al. emphasised that, in their setting, a mentor would need to have a commitment to and understanding of kaupapa Māori. Bary et al. (n.d.) described mentoring as providing opportunities for professional dialogue and reflection on practice, with the intention of guiding teachers through change and improvement.

Discussion

The findings from the present review identified 56 studies that addressed PLD in ECE settings in Aotearoa New Zealand. Overall, many characteristics of participants, interventions or PLD facilitators were not included or not described with sufficient detail to fully understand the PLD, which limits the utility of the research. Given the shared inquiry nature of much of the PLD reviewed, and the iterative nature of this type of work, lack of sufficient detail to be replicable is not surprising and may be expected. We discuss the characteristics of the reviewed studies, including the *who*, *what* and *how* of PLD research, and how these characteristics relate to current Ministry of Education PLD objectives.

Research methodologies and literature

The process of categorising the literature, specifically deciding whether it was PLD research, highlighted one of the key characteristics of this body of research: that boundaries between research methodologies and PLD interventions were often blurred (Hedges, 2010). Sounding something like the Devil from Kipling’s *The Conundrum of the Workshops* (Kipling, 2017), the question “it is striking but is it PLD?” arose throughout the categorisation of studies. Because this systematic literature review was intended to describe, not assess or analyse, no restrictions were placed on publishing status, standards or research methodologies. Adhering

to the operational definitions, we reviewed 56 studies that met our definitions and involved teachers' professional learning but that explored, described or investigated the PLD in a diversity of ways. For example, in many action research studies, the research itself was essentially a form of teacher PLD. In some studies, topic or pedagogical content knowledge and its relevance for the teachers (the *what* and *who* of PLD) were key foci. Some of the research focused more firmly on whether a PLD approach was effective for purpose (the *how* of PLD). There was a range of studies that had been published for a range of purposes, which can explain why many of the characteristics of *who*, *what* and *how* were not always reported. Yet, moving forward, no matter the motivation or intent of PLD research, understanding details of the PLD intervention and context is valuable to inform PLD that is relevant in a diverse ECE sector and that can meaningfully contribute to building the national research base.

Another notable feature of the literature reviewed was that experimental research methods were rare. Most of the research designs (86%) were non-experimental and utilised qualitative research methods to offer insights into the experiences of participants. As Mutch (2013) points out, qualitative research methodologies may be more appropriate in applied settings. However, future ECE research should not discount research questions that are explored through experimental or quasi-experimental designs, including larger scale intervention studies or comparative designs that enhance our empirical PLD research base (McLachlan et al., 2018). Moreover, data from a wide range of qualitative and quantitative sources are, potentially, powerful tools in informing research and supporting teachers' learning and practice (Clarke et al., 2021; McLaughlin et al., 2020). It may be useful to note that kaupapa Māori research approaches are not at odds with experimental or quasi-experimental designs (Pihama et al., 2015). All high-quality research involves using the appropriate methods to serve the purpose. A robust evidence base will have ample sources of evidence drawn from different methodologies.

Nearly all of the reviewed studies reported positive teacher outcomes. The positive findings may be explained by the nature of the research. In an action research study, for example, PLD is likely to be adapted throughout the project to meet teachers' needs and promote positive outcomes. Nonetheless, it remains important to identify challenges or barriers to success. Barriers to the success of PLD, identified within the reviewed studies, included challenges related to group dynamics and structural conditions; the degree to which the PLD could support diverse participants; and the application of teachers' knowledge to practice. Similar challenges have been identified through Best Evidence Syntheses (Mitchell & Cubey, 2003; Timperley et al., 2007) and PLD evaluations (Cherrington et al., 2013). These challenges point to the importance of matching PLD approaches with participants, contexts and intended outcomes.

In the reviewed studies, teacher report was a common data collection strategy. While teachers' perspectives are important and add to the richness of data, observation is key in identifying practice change. Observational tools, which were used in 20% of the reviewed studies, are increasingly used in a range of international research to support accuracy and reliability of observations, identify effective characteristics of learning environments and pedagogy, and support and evaluate PLD interventions (Halle et al., 2010; Jerald, 2012). Reliable observations that are focused on the teaching practices the PLD is intended to support can be used to identify processes of change related to an intervention, and represent a data collection strategy worthy of more attention in Aotearoa New Zealand ECE research.

Who: The participants and their work contexts

Proportionately, kindergartens were over-represented in the PLD research: 43% of studies involved kindergartens, yet kindergartens represented just 14% of ECE services in 2019 (Ministry of Education, 2019b). This finding may indicate a need to conduct research within a more representative range of settings. However, while conducting research within a range of settings is important, so is addressing priority areas within Aotearoa New Zealand's diverse ECE sector.

In particular, culturally responsive PLD is essential to meet the needs of all teachers, mokopuna and whānau (Timperley et al., 2007). Culturally responsive PLD includes PLD that strengthens the capacities of all teachers to work effectively with Māori and Pasifika learners and their families. Of the studies reviewed, 13% were conducted in Pacific Island and/or Māori education and care services. Although the contributions of these studies are important, the percentages of Pacific and Māori ECE contexts involved in research are low, given the significance of PLD that is responsive to the needs of Māori and Pacific teachers, learners and communities (Averill et al., 2020; Ministry of Education, 2018, 2019c). The Ministry of Education (2019a) has acknowledged the importance of PLD that focuses on identity, language, and culture, citing *Tātaiako* (Ministry of Education & New Zealand Teaching Council, 2011) and *Tapasā* (Ministry of Education, 2018) as points of reference for the sustained and coherent PLD programme. It is important to note, however, that *Tātaiako* and *Tapasā* are not PLD interventions per se. They are teaching and learning frameworks that could be fostered through effective PLD. It remains critical to ensure there are Māori and Pacific research bases that can inform the delivery of culturally situated PLD, and respond to teachers, learners and communities of Māori and Pacific ECE services.

Although 41% of the reviewed studies did not report the age of mokopuna, our findings suggest less research was conducted with teachers who taught mokopuna in the 0-2 year age bracket. This affirms an ongoing need, identified by Mitchell and Cubey (2003), for research to inform PLD that supports teachers in their work with infants and toddlers. Furthermore, there is a dearth of research focused on PLD that supports teachers' work with mokopuna with additional needs—a research gap also noted by Mitchell and Cubey (2003). Given the Ministry of Education's (2019a) objective to ensure all PLD will have a focus on the inclusion of mokopuna with disabilities or additional learning needs, there is a pressing need for national research in this area.

Most studies reported the type of service in which research was conducted but 47% did not report specific characteristics, such as information about participants' teaching qualifications or experience and information about mokopuna and community. Inconsistent reporting of information across the reviewed studies makes it difficult to describe who was involved in PLD research. It is noted that a reason for inconsistencies in reporting is the diverse range and scope of the research and publications reviewed. Nonetheless, as Aotearoa New Zealand continues to build a research base that can inform our local PLD policy and provision, it will be useful to know the sample characteristics, such as qualifications, experience, ethnicity, age, and work and community contexts of the participants.

What: The PLD content

The present study identified a wide range of topics and content within the PLD research. Topic and content is likely to be influenced by numerous factors, including policy; criteria for funding; new knowledge of child development and effective pedagogy; and updates in curriculum or teaching resources. Based on the reported outcomes, PLD content appeared to

target shifts in teachers' knowledge and beliefs, as well as actual teaching practice. A research focus on PLD content is useful in strengthening understanding of the teaching knowledge, skills and dispositions that may be important to target in a variety of ECE settings. It is also important to focus on how PLD is delivered, or could be delivered, to promote the intended outcomes.

How: PLD delivery and facilitation

The extent to which PLD will be effective depends largely on the match between the PLD approach and the intended outcomes. For example, isolated short-term workshops may be effective if the intended outcome is to impart information but are not likely to result in sustained shifts in teaching practice (Timperley et al., 2007; Zaslow et al., 2010). When there is a desire to have a genuine impact on teachers' beliefs, skills and practice, there is a need for sustained, job-embedded and intensive PLD (Mitchell & Cubey, 2003; Timperley et al., 2007; Zaslow et al., 2010). Yet, workshop models of PLD have long prevailed as a common approach for Aotearoa New Zealand's ECE teachers (Cherrington, 2017; Clarke et al., 2020). Furthermore, the Ministry of Education's recent provision of PLD appears to be trending towards online delivery options with only limited facilitated support (e.g., professional development supports for the social-emotional teaching resource, *He Māpuna te Tamaiti* (Ministry of Education, 2019d) and the updated *Te Whāriki*). This systematic review identified only one study (McLachlan & Arrow, 2013) that examined the impact of a one-off workshop. McLachlan and Arrow found that their workshop, focused on literacy education, did not promote significant changes to teachers' literacy knowledge, nor to literacy outcomes for children. Notably, the systematic review findings highlight a predominance of shared inquiry PLD models, with limited explorations of the impact of PLD that involves intensive support such as observation of teaching and provision of observation-informed feedback. The review findings suggest there is a need for more government investment to generate research evidence about a range of PLD models, including evidence of effective (and ineffective) delivery of PLD in Aotearoa New Zealand's diverse ECE context.

Within ECE PLD research there is a pressing need to pay more attention to the PLD intervention and how it is delivered, including facilitation strategies or actions that were used to support participants' learning and implementation of new skills (Brunsek et al., 2020; Snyder et al., 2012). Reflective of Mitchell and Cubey's (2003) characteristics of effective PLD, the current study identified that key facilitator roles included: involving participants in investigating pedagogy within their own settings; providing information about theory, content/topic, and practice; and supporting reflective conversations. However, specific information regarding what facilitators did was often difficult to find: 30% of studies provided no, or minimal, information regarding the PLD facilitator's actions. Within the 70% of studies that did describe the facilitator's actions, there were varying degrees of detail and clarity.

Only 28% of the studies provided a clear description of the training or supports the facilitator received. Yet, reporting of any relevant training the facilitator has had (or has not had) is critical if an intervention is to be understood—the same applies for information about dose because without knowing the details of an intervention it is difficult to understand what may have affected participants' learning. As Timperley et al. (2007) have already identified, future PLD studies would benefit from clear, detailed reporting of the PLD programme; this includes details of dose, facilitation and the nature and extent of any training the facilitator has received to deliver the PLD.

Structured recording and reporting, of the PLD intervention and acts of facilitation, is important in promoting understanding of what occurred and ensuring that PLD facilitators and their powerful acts of teaching are made visible. Recording the details of a PLD intervention also supports implementation fidelity, the degree an intervention or PLD programme has been delivered as intended (Dunst et al., 2013). For many of those involved with ECE teachers' PLD in Aotearoa New Zealand, structured, detailed recording of the PLD and the facilitator's role may seem unusual, possibly unnecessary. Yet, we cannot know what worked if we do not know what we did. Knowing whether an intervention has been implemented with fidelity (i.e., consistent with the planned and intended steps and processes) strengthens understanding of what is effective and of what may need to be adapted to promote better outcomes for teachers and children.

Coaching: As we had hypothesised, coaching was not widely researched in Aotearoa New Zealand ECE contexts. When coaching was reported, definitions of the term were sometimes not provided, and definitions varied from one study to another. Inconsistent definitions are problematic because when multifarious meanings are attributed to words, understanding of research can be compromised. It is vital to develop shared understandings and to report definitions of terms, including mentoring and coaching. While it wasn't investigated in this review, "critical friend" is another term which may be subject to different interpretations or misunderstandings. Moving forward, given the international evidence that supports coaching as a PLD approach (Brunsek et al., 2020; Elek & Page, 2019; Kraft et al., 2018) and the limited attention to coaching in Aotearoa New Zealand ECE, a worthy research priority will be to investigate the effects and social validity (i.e., the potential relevance and value) of coaching in our unique Aotearoa New Zealand ECE contexts.

Limitations and delimitations

This systematic review has limitations and delimitations that should be noted. Although we utilised numerous processes to support the accuracy of our results, the processes relied on coding that was based on manual-informed judgements. Others using our procedure may not produce exactly the same results. One reason for this is the difficulty in extracting specific, categorical information from research literature that is predominantly descriptive. In particular, the many "blurred boundaries" between PLD and research designs meant deciding whether studies fitted within our inclusion criteria was sometimes challenging. However, the process was checked through consensus and all decisions within the review were supported by operational definitions. There is a possibility that some eligible studies may not have been included in the review, although search procedures and criteria ensured that a wide net was cast over the literature. Furthermore, the literature included in this review is restricted to the time period of January 2000 to January 2019. The nature of the research reviewed also presented challenges. Specifically, we did not always have full or clear information about the *who* and *how* of PLD research. A final delimitation relates to our process of reviewing and reporting the characteristics of the literature largely in terms of descriptive statistics. Our review has not captured (nor was it intended to capture) the rich and valuable narratives and descriptions prevalent in qualitative research.

Summary

The present study employed procedures to conduct a systematic literature review informed by PRISMA standards and protocols (Moher et al., 2015). The systematic literature review has

described Aotearoa New Zealand's ECE PLD research base by identifying key characteristics of the research. The review characterises Aotearoa New Zealand ECE PLD research as a predominantly descriptive body of applied research, focused on helping teachers investigate pedagogy within their own ECE services. Convergence of researchers' and teachers' roles, and of research and PLD, was common. Reported outcomes were largely positive and more concerned with whether teachers' learning occurred, than how it occurred. Coaching was rarely investigated as a PLD strategy and, given the inconsistent definitions or lack of definitions, appears to be misunderstood in Aotearoa New Zealand's ECE sector.

In considering future research pathways and PLD programmes, matching PLD topic and content to teachers' needs and the desired outcomes for children is important. Positioning identity, language and culture as the foundation of PLD, no matter the topic, is an important consideration if teachers are to be supported to empower all children to learn. It remains critical to ensure there is a Māori and Pacific research base to inform culturally responsive PLD. To further advance the evidence base, it will be useful to shift from a broad to a more detailed focus—from whether a PLD programme generally works to specific information on how, why, and under what conditions the PLD works (Snyder et al., 2011). Future research would benefit from refined investigation and consistent reporting of specific features of PLD interventions, including dose, delivery, facilitation, and characteristics of the participants and their contexts.

The use of a PLD conceptual framework comprising *who*, *what* and *how* when designing, implementing, and reporting PLD research has the potential to support PLD that is more likely to match facilitated professional learning experiences with teachers' knowledge, skills, dispositions, and desired outcomes. We suggest that a priority for future research should be collaborative development of a PLD conceptual framework that reflects the Aotearoa New Zealand ECE context and comprises critical aspects of PLD, within the wider context of PLD, ECE and national policy structures (Buysse et al., 2009). As well as supporting PLD research, development and delivery, this recommendation would promote shared understandings and common language between PLD providers, researchers and consumers. Although it is possible to utilise an existing framework, as is evidenced through the use of the NPDCI (2008) framework in this systematic literature review, research to develop a national framework would be beneficial on numerous levels. Developing an Aotearoa New Zealand PLD conceptual framework would provide opportunities to share multiple views of PLD and generate knowledge and shared understanding in Aotearoa New Zealand ECE and wider communities. Furthermore, if all PLD is to have a focus on identity, language and culture, it is important to conceptualise PLD through a framework that reflects the language and cultures of Aotearoa New Zealand ECE.

Taken together, the results of the systematic review point to the pressing need for adequate funding to support PLD research and development—funding for research that is clearly focused on PLD interventions, including development and delivery of PLD to support culturally responsive pedagogies and adequately address the needs of teachers and learning communities. Our suggestions for future research and advancement of the research base are not intended to discount the significance of the existing PLD research. Rather, this systematic literature review highlights pathways forward to build a robust national research base that can more powerfully influence Ministry of Education decisions around provision of PLD, supporting a “sustained and coherent” national PLD programme that is also evidence-informed.

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Appendix A. Summary of Studies Included in the Review**Table 1. Summary of Reviewed Studies**

Citation	Summary of the Aims or Research Questions ¹	Summary of the PLD Model
Backshall, B. J. (2016). <i>A culture for science in early childhood education: Where culture meets culture</i> [Doctoral dissertation, The University of Waikato]. The University of Waikato Research Commons. https://hdl.handle.net/10289/10702	Explored science pedagogy, including whether and how enhancing teachers' knowledge of science and early childhood science education enhanced children's learning.	A series of workshops.
Bary, R. L. (2009). <i>Infant and toddler teachers' professional development</i> [Master's Thesis, Massey University]. Massey University Theses and Dissertations. http://hdl.handle.net/10179/8382	Explored changes in perceptions and/or practice of a group of infant and toddler teachers as a result of their participation in a facilitated professional development programme.	A series of workshops, utilising video observation as a reflective tool.
Bary, R. L., Deans, C., Charlton, M., Hullet, H., Martin, F., Martin, L., Moana, P., Waugh, O., Jordan, B., & Scrivens, C. (n.d.). <i>Ako ngatahi: Teaching and learning as one: From leadership to enquiry: Teachers' work in an infants' and toddlers' centre</i> . COI.	In what ways does educational leadership , within a community of practice, impact on infants' and toddlers' disposition to enquire?	COI facilitated action research.
Cardno, C., & Reynolds, B. (2009). Resolving leadership dilemmas in New Zealand kindergartens: an action research study. <i>Journal of Educational Administration</i> , 47(2), 206–226.	Examined dilemmas encountered by kindergarten head teachers. Aimed to develop participants' capability to recognise and resolve leadership dilemmas. Research questions included: How did the [professional development] intervention assist leadership dilemma recognition and attitudes to dealing with such dilemmas?	A programme that introduced participants to dilemma resolution, followed by shared inquiry in the form of action research.
Carr, M., May, H., & Podmore, V. N. (2000). <i>Learning and teaching stories: Action research on evaluation in early childhood. Final report to the Ministry of Education</i> . NZCER.	Implemented an action research trial where teachers used learning and teaching stories and narrative reflections to assess children and evaluate programmes within their own centres.	Shared inquiry in the form of action research.

	Explored how the the process effected changes to improve quality .	
Carroll-Lind, J., Smorti, S., Ord, K., & Robinson, L. (2016). Building pedagogical leadership knowledge in early childhood education. <i>Australasian Journal of Early Childhood</i> , 41(4), 28–35.	Trialled a coaching and mentoring methodology to support pedagogical leaders to engage in "change" conversations with teachers.	Workshops plus on-site coaching and mentoring.
Cherrington, S., & Thornton, K. (2015). The nature of professional learning communities in New Zealand early childhood education: An exploratory study. <i>Professional Development in Education</i> , 41(2), 310–328.	Examined how contextual factors influenced the development of professional learning communities (PLC) , to understand the complexities of nature of ECE PLCs and their development. Each group of participants explored a different topic.	Shared inquiry, in the form of facilitated professional learning communities and teachers investigating their practice through action research.
Citizens Preschool and Nursery Centre of Innovation. (2008). <i>Collaborations: Teachers and a family whānau support worker in an early childhood setting</i> . COI.	Explored the difference that a family and community support worker made to children’s learning and development in an early childhood education centre.	Shared inquiry in the form of COI facilitated action research.
Clarkin-Phillips, J., & Carr, M. (2009). <i>Strengthening responsive and reciprocal relationships in a whanau tangata centre: An action research project</i> . TLRI.	Aimed to identify the processes and practices that enabled a whānau tangata centre to strengthen relationships with the community and to provide new learning opportunities for the children, parents and whānau . Sought to identify strategies that could further strengthen the relationships and learning with the community.	Shared inquiry in the form of action research and academic–practitioner collaboration.
Davies, N. (2002). <i>Number games in early childhood centres</i> [Master’s thesis, Massey University]. Massey University Theses and Dissertations. http://hdl.handle.net/10179/6275	Explored the use of number games in a kindergarten, including (as a secondary inquiry) the effectiveness of a short-term workplace centred professional development in relation to children's number development and game implementation.	Series of workshops.

Davis, K., & McKenzie, R. (2017). <i>Children's working theories about identity, language, and culture: O faugamanatu a fanau e sa'ili ai o latou fa'asinomaga, gagana ma aganu'u</i> . TLRI.	Aimed to support the identity, language and culture of all learners in the research sites, while emphasising improvement for Pasifika learners and those from low socio-economic communities through a cross-cultural collaboration project.	Shared inquiry, through concepts of sister relationships and extended communities of inquiry.
Depree, L., & Hayward, K. (2000). <i>Implementing the Quality Journey resource in early childhood centres</i> . Christchurch College of Education.	A pilot PLD study to support implementation of The Quality Journey . The objective was to identify practices that were changed, consolidated or abandoned as a result of implementing a cycle of quality review .	In-service courses, cluster meetings plus facilitated support to implement a cycle of self-review.
Duncan, J., Irvine, P., Auld, S., Cross, T., Fagan, H., Seiuli, T., Smith, C., Sutton, A., & Weir, S. (2009). <i>Homebased early childhood education (family day care): The visiting teacher's role in improving educators' practices: A summary</i> . TLRI.	Explored how visiting teachers could improve home-based educators' practices and learning outcomes for children , especially related to children's thinking .	Shared inquiry, involving action research.
Glass, B., Baker, K., Ellis, R., Bernstone, H., & Hagan, B. (2009). <i>Inclusion at Botany Downs Kindergarten: Centre of Innovation 2006–2008</i> . COI.	Explored an inclusive environment and how it is strengthened through action research. Topics included: enhancing all children's learning ; using visual communication tools to extend engagement with children and their families ; and exploring how teachers support children's social competence and self-efficacy .	Shared inquiry in the form of COI facilitated action research.
Gosteva, A. (2013). <i>Effects of early childhood teacher delivered play therapy intervention on the social skills of young children: A pilot study</i> [Master's Thesis, University of Canterbury]. UC Research Repository. http://hdl.handle.net/10092/8719	Examined whether children with persistent conduct problems would show improved behaviour following their teachers learning play-therapy strategies.	Workshops plus on-site coaching.
Grey, A. E. (2010). <i>Self-review as practical philosophy: A case study in early childhood education in Aotearoa New Zealand</i> [Doctoral Dissertation, Auckland University of Technology]. AUT	Explored teachers' self-review using an approach of practical philosophy . Examined whether	Shared inquiry in the form of action research and academic–practitioner collaboration.

Open Theses and Dissertations. http://hdl.handle.net/10292/1021	involvement in the self-review process improved practice.	
Hagan, B., Austin, L., & Mudaliar, M. (2010). What makes a teacher-parent and family partnership? <i>NZ Research in ECE Journal</i> , 13, 137–143.	Described action research to improve parent-teacher relationships at two kindergartens (a research note).	Shared inquiry in the form of action research and academic–practitioner collaboration.
Haworth, P., Cullen, J., Simmons, H., Schimanski, L., McGarva, P., & Woodhead, E. (2006). <i>The flight of our kite: The Wycliffe Ngā Tamariki Kindergarten story</i> . COI.	Explored how learning and teaching could be improved for children a kindergarten setting. Topics included community of learners, language, language acquisition, and how ICT affected parents’ engagement with children’s learning.	Shared inquiry in the form of COI facilitated action research.
Haynes, M., Cardno, C., & Craw, J. (2007). <i>Enhancing mathematics teaching and learning in early childhood settings</i> . TLRI.	To engage early childhood teachers in investigating and improving their expertise in the teaching and learning of mathematics .	Shared inquiry in the form of action research and academic–practitioner collaboration.
Hedges, H. D. (2007). <i>Funds of knowledge in early childhood communities of inquiry</i> [Doctoral dissertation, Massey University]. Massey University Theses and Dissertations. http://hdl.handle.net/10179/580	Aimed to increase teachers’ understanding and enactment of a community of inquiry; interest based curriculum and co-constructed inquiry . Explored the role of the external facilitator in research partnerships to increase coherence between research, practice and professional learning .	Shared inquiry in the form of co-constructed reflective inquiry facilitated by a critical friend (a critical friend is described as a trusted person who critiques, asks provocative questions, provides data to be examined through another lens).
Henson, K., Smith, H., & Mayo, E. (2008). <i>Central character story: Weaving families and their stories into children's learning in early childhood education</i> . COI.	To explore the use of stories, and story characters to support children's learning , and investigate what children, families and teachers learn through story character.	Shared inquiry in the form of COI facilitated action research.
Hooker, T., Peters, S., Biggar, S., & Bleaken, F. (2008). <i>Training on the job: How do home-based co-ordinators support educators to notice, recognise, and respond?</i> TLRI.	Aimed to investigate what co-ordinators do to support educators to notice, recognise, and respond to children’s learning as well as what	Shared inquiry in the form of action research and academic–practitioner collaboration.

	changes educators make as a result and what factors seem to be important in the process.	
Jordan, B. (2003). <i>Professional development making a difference for children: Co-constructing understandings in early childhood centres</i> [Doctoral dissertation, Massey University]. Massey University Theses and Dissertations. http://hdl.handle.net/10179/1809	Explored how children's learning was co-constructed in early childhood centres and what content knowledge and professional development (PD) processes support teaching teams as they learn to co-construct children's learning .	Shared inquiry in the form of facilitated action research and communities of inquiry.
Kelly, J., & White, E. J. (2013). <i>The ngahere project: Teaching and learning possibilities in nature settings</i> . Wilf Malcolm Institute of Educational Research.	Through action research, to explore ECE pedagogy, as an investigation of practice, in outdoors, nature-based environments . Each case had specific research questions.	Shared inquiry in the form of action research and academic–practitioner collaboration.
Lidington, T. (2000). <i>Mat weaving: Factors influencing the implementation of Te Whāriki</i> [Master's Thesis, Massey University]. Massey University Theses and Dissertations. http://hdl.handle.net/10179/5814	Compared three professional development delivery models for assisting early childhood educators to implement the New Zealand early childhood curriculum document entitled Te Whāriki : Draft Guidelines for Developmentally Appropriate Programmes in Early Childhood Services (Ministry of Education, 1993).	Three versions/models of workshops plus on-site visits.
Lines, D., Naughton, C., Roder, J., Matapo, J., Whyte, M., & Liao, T. (2014). <i>Move, act, play, sing (MAPS): Exploring early childhood arts teaching and learning strategies and concepts through community arts interventions</i> . TLRI.	Aimed to nurture a performing arts environment and document emergent concepts and learning pathways in the performing arts in the three case-study early childhood centres.	Workshops plus community artists' on-site visits.
Mackey, G., & de Vocht-van Alphen, L. (2016). Teachers explore how to support young children's agency for social justice. <i>International Journal of Early Childhood</i> , 48(3), 353–367.	Aimed to increase teachers' understanding of social justice issues; encouraging the use of picture books to provoke dialogues between children and teachers about social justice; and supporting	Shared inquiry in the form of academic-practitioner collaboration. Included workshops where teachers shared learning stories, engaged in

	children to see a different or wider perspective on issues.	discussions, and developed presentations.
Mara, D., & Burgess, F. (2007). <i>O a`oa`oga maa`e ma lona a`oa`oina i a`oga amata a le Pasifika: Early literacy: Quality teaching and learning in Pasifika early childhood education</i> . NZCER.	Explored the beliefs teachers held about language acquisition and early literacy . Described the action research process, and the changes that occurred in the teachers' pedagogical practice.	Shared inquiry in the form of action research and academic-practitioner collaboration.
McKean, K. M. (2014). <i>Effects of 'The Teachability Factor' professional development workshop on teachers' perceptions of challenging children in their classroom</i> [Master's thesis, University of Otago]. University of Otago: OUR Archive. http://hdl.handle.net/10523/5900	Examined whether The Teachability Factor PLD programme improved teachers' perceptions of challenging children in their classroom. Aimed to provide teachers with confidence to approach challenging students in more appropriate and effective ways.	Series of workshops.
McLachlan, C., & Arrow, A. (2013). Promoting alphabet knowledge and phonological awareness in low socioeconomic child care settings: A quasi experimental study in five New Zealand centers. <i>Reading and Writing</i> , 27(5), 819–839.	Examined whether professional development could improve teachers' knowledge regarding facilitating alphabetic and phonological awareness in 3–5 year old children. Also examined if children's alphabetic and phonological awareness could be enhanced over an 8 week period.	One-off workshop.
McLachlan, C., Smith, J., McLaughlin, T., Ali, A., Conlon, C., Mugridge, O., & Foster, S. (2017). Development of teachers' knowledge and skills in implementing a physical education curriculum: A New Zealand early childhood intervention study. <i>International Journal of Early Childhood</i> , 49(2), 211–228.	Assessed how teachers' knowledge and skills changed as the result of a 10-week physical activity intervention programme (Jumping Beans) and participation in a related professional development programme.	Workshops plus onsite visits in which Jumping Beans staff gave suggestions to teachers and delivered physical activity sessions to children, with teachers encouraged to participate in the sessions.
Meade, A., Grey, A., Depree, L., & Hayward, K. (2002). Quality improvement in early childhood services in New Zealand using The Quality Journey resource. <i>Early Childhood Folio</i> , 6, 2–6.	Described pilot studies where professional development facilitators introduced The Quality Journey to ECE services	Series of workshops to support self-review using the Quality Journey framework.

<p>Mitchell, L. (2010). Shifts in thinking through a teachers' network. <i>Early Years</i>, 23(1), 21–34.</p>	<p>Aimed to support ways in which teachers and parents/whānau worked together to enhance children's learning and wellbeing.</p>	<p>Shared inquiry in the form of action research involving a teacher network, academic–practitioner collaboration, and the use of pedagogical documentation to critically analyse and reflect on practice.</p>
<p>Mitchell, L., Haggerty, M., Hampton, V., & Pairman, A. (2006). <i>Teachers, parents, and whānau working together in early childhood education</i>. NZCER.</p>	<p>Explored PLD to support teacher-family relationships to enhance children's wellbeing and parent/whānau, and factors that helped or hindered teacher and parent/whānau partnerships.</p>	<p>Shared inquiry in the form of facilitated action research including teachers' use of data to analyse, challenge and critique their own interactions and attitudes.</p>
<p>O'Hare, M. (2016). <i>Changes in New Zealand early childhood teachers' use of strategies to facilitate children's emergent literacy development</i>. [Master's thesis, University of Canterbury]. UC Research Repository. http://hdl.handle.net/10092/13443</p>	<p>What changes are seen in teachers use of strategies to support emergent literacy, in response to Teacher Talk combined with video coaching; in the use of strategies to promote the development of code based skills; and in the use of strategies to promote the development of meaning-related skills?</p>	<p>Workshops plus video coaching.</p>
<p>Phillips, G., McNaughton, S., MacDonald, S. (2002). <i>Picking up the pace: Effective literacy interventions for accelerated progress over the transition into decile 1 schools</i>. Ministry of Education.</p>	<p>To examine the effects on children's literacy achievement of providing professional development to teachers in early childhood centres and to teachers of children in their first year of school. And to identify whether the professional development could result in an increased number of children in decile 1 schools achieving at expected levels for their age at school entry and at 6 years.</p>	<p>A series of sessions informed by and responsive to observations of teachers' practice and teacher-provided examples of their literacy teaching.</p>

Phillips, J. G. (2014). <i>The effects of a brief in-service course on teacher's skill in building cooperation in three to five year old children</i> . [Master's thesis, University of Canterbury]. http://hdl.handle.net/10092/9585	Aimed to examine the effects of training early childhood teachers in the effective use positive teaching strategies to increase children's appropriate behaviour and decrease inappropriate behaviour.	Workshops plus facilitated on-site support that involved providing feedback to teachers.
Podmore, V. N., Te One, S., Dawson, L., Dingemanse, T., Higham, J., Jones, J., Matthews, K., & Pattinson, S. (2008). <i>Nurturing a culture of care for infants and first-time parents: The SPACE Programme at Te Marua/Mangaroa Playcentre</i> . COI.	Explore how a programme for infants and their parents (SPACE) fosters learning and supports participation and collaborative relationships with the playcentre.	Shared inquiry in the form of COI facilitated action research.
Podmore, V. N., Wendt Samu, T., & A'oga Fa'a Samoa. (2006). <i>O le tama ma lana a' oga, O le tama ma lona fa' asinomaga: Nurturing positive identity in children</i> . COI.	Explored what helps learning and language continuity as children make transitions within and from the A'oga Fa'a Samoa, and how to implement those key approaches that help learning and language continuity.	Shared inquiry in the form of COI facilitated action research.
Pohatu, H. R., Stokes, K., & Austin, H. (2006). <i>Te ohonga ake o te reo: The re-awakening of Māori language: An investigation of kaupapa-based actions</i> . COI.	Aimed to identify changes and actions that would enhance te reo Māori learning, strengthen Māori identity and prepare children for success, within a kaupapa Māori framework.	Shared inquiry in the form of COI facilitated action research.
Rameka, L., Glasgow, A., Howarth, P., Rikihana, T., Wills, C., Mansell, T., Burgess, F., Fiti, S., Kauraka, B., & Iosefo, R. (2017). <i>Te whātu kete mātauranga: Weaving Māori and Pasifika infant and toddler theory and practice in early childhood education</i> . TLRI.	Aimed to support each of six services—three Māori, one Samoan, Tokelau, and Cook Islands—to develop their own locally constructed understandings, theory, and practices of infant and toddler care and education.	Shared inquiry in the form of action research.
Ramsey, K., Breen, J., Sturm, J., Lee, W., & Carr, M. (2006). <i>Strengthening learning and teaching using ICT: Roskill South Kindergarten</i> . COI.	Aimed to strengthen children's learning using information communication technology .	Shared inquiry in the form of COI facilitated action research.

<p>Ritchie, J., Duhn, I., Rau, C., & Craw, J. (2010). <i>Titiro Whakamuri, Hoki Whakamua. We are the future, the present and the past: Caring for self, others and the environment in early years' teaching and learning</i>. TLRI.</p>	<p>Aimed to contribute to research about early childhood education pedagogies and an ethic of care, from kaupapa Māori and Western perspectives. Participants engaged in a process of collective inquiry that involved changing their philosophies, policies, and practices to emphasise ecological sustainability.</p>	<p>Shared inquiry in the form of a community of inquiry and academic-practitioner collaboration to build a research community of practice.</p>
<p>Simonsen, Y., Blake, M., La Hood, A., Haggerty, M., Mitchell, L., & Wray, L. (2009). <i>A curriculum whāriki of multimodal literacies: Wadestown Kindergarten's Centre of Innovation research</i>. COI.</p>	<p>Aimed to explore different literacy modes in children's communicative competence and examined how literacy modes are mediated by people, places and practices in the kindergarten, home and wider community.</p>	<p>Shared inquiry in the form of COI facilitated action research.</p>
<p>Swain, N., & Bodkin-Allen, S. (2017). Developing singing confidence in early childhood teachers using acceptance and commitment therapy and group singing: A randomized trial. <i>Sempre: Society for Education, Music and Psychology Research</i>, 39(1), 109–120.</p>	<p>To increase teachers' singing confidence through either a group singing approach, or a talking approach, based on Acceptance and Commitment Therapy.</p>	<p>Two groups, each receiving a different intervention through a series of workshops.</p>
<p>Tamati, A., Hond-Flavell, E., Korewha, H., & the whānau of Te Kōpae Piripono. (2008). <i>Centre of Innovation research report of Te Kōpae Piripono</i>. COI.</p>	<p>Aimed to enhance whānau development, explore the ways the Māori worldview is framed and phrased in contemporary language and incorporated into the structure, practice, and processes of the whare kōhungahunga.</p>	<p>Shared inquiry in the form of COI facilitated action research utilising a kaupapa Māori approach.</p>
<p>Taylor, L. (2007). <i>Re-imagining professional learning in early education</i> [Doctoral dissertation, The University of Melbourne]. The University of Melbourne Minerva Access. http://hdl.handle.net/11343/37364</p>	<p>Explored how professional development can be expanded for individual and social change.</p>	<p>Shared inquiry, discussions, critical inquiry, and debate.</p>

Taylor, L. (2013). Lived childhood experiences: Collective storytelling for teacher professional learning and social change. <i>Australasian Journal of Early Childhood</i> , 38(3), 9–16.	Aimed to trouble identity by critically examining and re-defining how children and adults understand themselves and others .	Shared inquiry, using collective storytelling and critical discussions.
Thornton, K. (2009). <i>Blended action learning supporting leadership learning in the New Zealand ECE sector</i> [Doctoral dissertation, Victoria University of Wellington]. Victoria University of Wellington Te Herenga Waka: Doctoral Theses. http://hdl.handle.net/10063/996	Explored the use of information communication technology (ICT) to support leadership development, utilising a blended action learning approach to professional development.	Shared inquiry in the form of facilitated action learning that blended face-to-face meetings and online interactions.
Thornton, K., & Cherrington, S. (2018). Professional learning communities in early childhood education: A vehicle for professional growth. <i>Professional Development in Education</i> . 45(3), 418–432.	Aimed to identify factors that influence the development of sustainable professional learning communities (PLC). Aimed to identify how involvement in a PLC supported changes in teaching practices, as well as the organisational, structural, relational and interpersonal factors that influence the sustainability of PLCs.	Shared inquiry in the form of professional learning communities engaging in action research (initially) and later through self-review and academic–practitioner collaboration.
Ulloa, M., Evans, I., & Jones, L. (2016). The effects of emotional awareness training on teachers' ability to manage the emotions of preschool children: An experimental study. <i>Escritos de Psicología / Psychological Writings</i> , 9(1), 1–14.	Examined the effects of emotional competence training for teachers on their abilities to respond to children's emotions during a contrived play activity.	A series of sessions that included connections to participants' own ECE settings and teaching, and role play.
van Wijk, N., Simmonds, A., Cubey, P., Mitchell, L., Bulman, R., Wilson, M., & Wilton Playcentre members. (2006). <i>Transforming learning at Wilton Playcentre</i> . COI.	Investigated pedagogical approaches, especially related to schemas, learning and teaching stories , children's learning progress, continuity and quality across playcentre sessions and between home and playcentre, parent engagement, and sustaining a community of learners .	Shared inquiry in the form of COI facilitated action research.

<p>Wansbrough, D. (2003). <i>Pioneering The Quality Journey: A case study of a childcare centre undertaking their first review</i> [Master's thesis, Victoria University of Wellington]. Victoria Wairētō. https://viewer.waireto.victoria.ac.nz/client/viewer/IE923390/details?dps_dvs=1619657984903~605</p>	<p>Investigated the usefulness of The Quality Journey, how teachers used the resource, and the role of an outside facilitator.</p>	<p>Workshops plus on-site visits.</p>
<p>White, E. J. (2003). <i>In search of quality: A journey for family daycare</i> [Master's thesis, Victoria University of Wellington]. Victoria Wairētō. https://viewer.waireto.victoria.ac.nz/client/viewer/IE922967/details</p>	<p>Investigated the role of The Quality Journey/He Haerenga Whai Hua in constructing definitions of quality in a family day care network. Participants were introduced to quality review and supported to use the resource in an investigation of relevance to their work.</p>	<p>Shared inquiry, in the form of cluster groups undertaking self-review.</p>
<p>Wright, J., Ryder, D., & Mayo, E. (2006). <i>Putting identity into community: Nurturing an early childhood learning community through visual art and project work in the curriculum</i>. COI.</p>	<p>Explored ways in which visual arts and project work contributed to building a community of learners.</p>	<p>Shared inquiry in the form of COI facilitated action research</p>
<p>Wright, L. (2000). <i>Three caregivers' perceptions of how learning about young children's thinking influenced their practice: An action research project in a family daycare setting</i>. Victoria University of Wellington.</p>	<p>Explored whether caregivers perceived any difference in their practice as a result of increasing their understanding of children's learning and thinking strategies, and making connections with prior knowledge.</p>	<p>Workshop, plus a series of shared inquiry meetings in which the participants discussed their practice related to an action research question.</p>

Note. ¹Key words related to topic or content are in bold font.