Australian Education Research Organisation

Assessment practices in early childhood education and care

Literature review

November 2026



The Australian Education Research Organisation (AERO) is Australia's national education evidence body, working to achieve excellence and equity in educational outcomes for all children and young people.

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Acknowledgement of Country

AERO acknowledges the Traditional Owners and Custodians of the lands, waterways, skies, islands and sea Country across Australia. We pay our deepest respects to First Nations cultures and Elders past and present. We endeavour to continually value and learn from First Nations knowledges and educational practices.

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List of abbreviations

Abbreviation	Full term
AaL	assessment as learning
AERO	Australian Education Research Organisation
AGDE	Australian Government Department of Education
AfL	assessment for learning
AI	artificial intelligence
AoL	assessment of learning
ASQ-3	Ages and Stages Questionnaires Third Edition
ECEC	early childhood education and care
EYLF V2.0	Belonging, Being and Becoming: The Early Years Learning Framework for Australia Version 2 2022
NQF	National Quality Framework
NQS	National Quality Standard
NUMBBA	Numeracy and Mathematics Block-Based Assessment
OSHC	outside schools hours care
PRISMA	Preferred Reporting Items for Systematic reviews and Meta-Analysis
SoE	Standards of Evidence

Glossary

Key term	Definition
Assessment	Assessment is the ongoing process of gathering and analysing information about children's learning over time using a range of strategies to inform planning and support children's progression (Australian Government Department of Education [AGDE], 2022).
Assessment as learning	Used to facilitate children's awareness, contributions and appreciation of their own learning (AGDE, 2022).
Assessment for learning	Assessment for learning, also known as formative assessment. Information about what children know, can do and understand is gathered and analysed to inform pedagogy and planning (AGDE, 2022).
Assessment literacy	Skills and knowledge necessary for effective design, selection, interpretation and implementation of assessment tools or practices.
Assessment models	Conceptual or theoretical frameworks that define the purpose of assessment and guide how evidence of learning is understood and used within pedagogy.
Assessment of learning	Also known as 'summative assessment'. Educators review children's achievements and capabilities at a specific timepoints – for example, mid-year or on transition to school. Educators make professional judgements on children's progress over time to show 'distance travelled' by learners.
Assessment practices	The pedagogical actions and processes through which educators and teachers gather, interpret and use evidence of children's learning in context.
Assessment tools	The artefacts, instruments or resources used to collect, document or measure evidence of children's learning and development.
Documentation	Documentation is the practice of recording, evidencing and making visible children's learning and learning progress.
Floorbooks	A collaborative large-format book that documents children's learning and thinking as it develops through discussion, inquiry and reflection.
Formative assessment	Formal or informal measures of children's knowledge, skills and dispositions, captured to inform the next teaching steps.
Funds of knowledge	The life experiences, cultural practices, skills and competencies that an individual child arrives with to a learning experience.
Holistic assessment	Assessment that takes into consideration the learning and development of the whole child across all domains.

Key term	Definition
Intentional teaching	Any thoughtful or deliberate action educators and teachers take to respond to children with purpose to make pedagogical decisions within environments (AGDE, 2022).
Learning Stories	A narrative description of a learning experience, which may focus on a child's strengths, interests, development or learning in that moment.
Portfolios	A documentary record of a child's learning and development over a period of time. It is an individualised collection of information about a child's skills, knowledge, interests and achievements, and may include work samples or art pieces and family contributions.
Standards-based assessment	Assessment of learning against pre-defined or agreed outcomes or benchmarks.
Standardised assessment	A uniform and consistent evaluation tool, measuring a specific skill, element of knowledge or capability.
Summative assessment	Point-in-time measures of children's learning and development summarising children's progress for a defined period (e.g., a term or semester).
Trissessment	An assessment approach that integrates the perspectives of **children (tamariki), families (whānau), and educators (kaiako)** to create a more holistic and culturally responsive understanding of children's learning and development (Werry et al., 2020).



1. Introduction

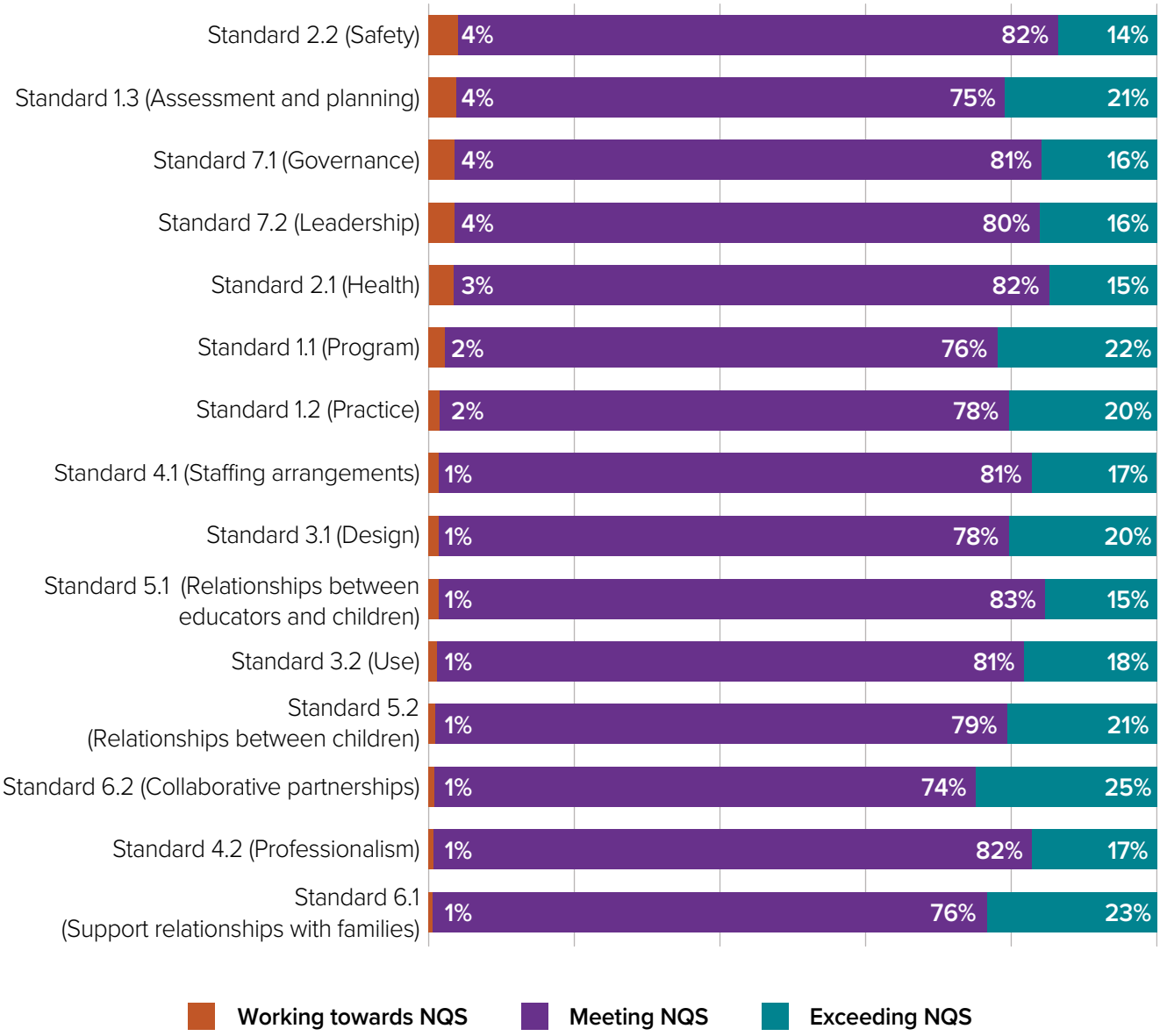
Effective assessment is important for maximising opportunities for children's learning, development and wellbeing outcomes within early childhood education and care (ECEC) settings (Australian Government Department of Education [AGDE], 2022; Elwick et al., 2023; Grimmond et al., 2022; Pyle et al., 2020). It is recognised as a foundational component of high-quality teaching and learning in Australia and is embedded within the National Quality Framework (NQF)[1]. The National Quality Standard (NQS)[2] identifies assessment and planning as central to effective pedagogical practice (Australian Children's Education and Care Quality Authority [ACECQA], n.d.), while Belonging, Being and Becoming: The Early Years Learning Framework (EYLF) for Australia V2.0[3] positions assessment as integral to understanding and supporting children's learning, development and wellbeing (AGDE, 2022).

Despite the importance and prominence in frameworks and curriculum guidance, Australian data on ECEC quality highlights that assessment and planning remains an area of challenge for services. Figure 1 presents a ranking of the 15 NQS standards in descending order based on the proportion of services rated as Working Towards NQS for each standard. NQS Standard 1.3 – Assessment and planning has the second highest proportion of services rated Working Towards this standard (ACECQA, 2026a).

This report presents key insights from the Australian Education Research Organisation (AERO)'s systematic review on assessment practices in ECEC. It explains how educators and teachers understand assessment, the practices and tools they commonly use and the support they need to strengthen assessment quality across the sector. It is part of a series of publications drawn from this review.

1 The NQF provides a national approach to regulation, assessment and quality improvement for ECEC and outside schools hours care (OSHC) services across Australia.
2 The NQS forms part of the NQF and includes 7 quality areas that are important to outcomes for children. It sets a national benchmark for ECEC and OSHC services.
3 The EYLF V2.0 is the national approved learning framework under the NQF for young children from birth to 5 years of age in Australia.

Figure 1: Ranking related to Standard 1.3 Assessment and planning



Source: Figure 15: Standard level ratings in NQF Snapshot Q2 2026 by ACECQA (2026, p. 17). Adapted with permission, including recreating in AERO branding.

1.1. Research approach

This report draws on our systematic review of 109 studies published between 2020 and 2025, examining assessment practices in ECEC across Australian and international contexts. Our review was guided by 3 research questions (RQs).

RQ1

How is assessment in ECEC currently conceptualised?

RQ2

What assessment practices and tools are commonly identified in ECEC research?

RQ3

What opportunities exist for future research, policy and practice?

A contemporary synthesis was needed because evidence published between 2020 and 2025 reflects important shifts in ECEC assessment, including the increased emphasis on assessment in the EYLF V2.0, growing attention to culturally responsive and collaborative assessment, expanding use of digital documentation and assessment tools, and renewed policy interest in consistent, evidence-informed approaches to assessing children's learning and development. Further detail on the methodology we employed for our review, including search strategy, screening process, inclusion and exclusion criteria and a quality assessment of included studies is provided in Appendix A.

Our review examined studies of assessment practices in ECEC settings, including the use of assessment practices, tools and digital platforms to understand children's development and inform decision-making. Studies varied in design and setting, with many drawing on non-clinical ECEC populations. AERO's Standards of Evidence (SoE) (AERO, 2020) was used to assess confidence in the evidence base for each study (see Table A2 in Appendix A.8 for more information). Everything else being equal, priority was given to studies involving children from First Nations, culturally and linguistically diverse, low-socio-economic, and medical or developmental backgrounds, with sample mean ages between birth and 5 years.

1.2. Defining the topic

Australia's national approved learning framework for birth to 5, the EYLF V2.0, defines assessment as the ongoing process of gathering and analysing information about children's learning, development and wellbeing over time using a range of strategies to inform planning and support progression in learning (AGDE, 2022). Assessment is therefore conceptualised as an ongoing and cyclical process, rather than a single event.

The EYLF V2.0 (AGDE, 2022) describes 3 types of assessment, conceptualised as assessment models that guide educators' and teachers' assessment practices and decision-making:

- **assessment for learning (AfL) –** an ongoing, formative model in which evidence of children's learning, development and wellbeing is systematically gathered and interpreted to inform pedagogical decision-making (AGDE, 2022). With this model, assessment practices are embedded in everyday interactions, with educators and teachers documenting what children know, can do and understand in context to guide responsive planning.
- **assessment of learning (AoL) –** a summative model in which educators and teachers make professional judgements about children's learning at particular points in time, drawing on accumulated evidence to evaluate progress and development (AGDE, 2022). AoL involves synthesising multiple sources of assessment information to construct an overall understanding of children's achievements, often conceptualised as the 'distance travelled' over time (AGDE, 2022, p. 25).
- **assessment as learning (AaL) –** a participatory model that foregrounds children's active involvement in the assessment process, supporting the development of self-regulation and metacognitive awareness (AGDE, 2022). With this model, assessment practices are designed to enable children to reflect on their learning, contribute to documentation of their learning and develop an understanding of themselves as learners.

Collectively, these 3 assessment models reflect distinct but interconnected purposes within early childhood pedagogy.

Key terms

The glossary at the beginning of this report includes a list of key terms that are important for this review.

1.3. Limitations

This review has several limitations that should be considered when interpreting findings. Firstly, the search was limited to English language literature published between January 2020 and March 2025, restricted screening to the initial 200 results and excluded studies for which the full text could not be retrieved. Consequently, relevant earlier or non-English literature or studies less readily available may have been omitted.

Important gaps in Australian evidence are identified. Research on assessment for children aged from birth to 3 years, First Nations-led culturally responsive assessment, and the implications of digital technologies and artificial intelligence (AI) for assessment practice are identified as areas requiring further investigation.

2. Conceptualising assessment in early childhood education and care

Despite a growing evidence base, there is currently a lack of consensus in the literature on what, when and why to assess children's learning (McLachlan & McLaughlin, 2022). This section aims to synthesise contemporary evidence on how assessment is currently conceptualised, surfacing insights on key overlapping themes that appear critical for effective quality assessment in today's ECEC services.

2.1. Intersection with play, learning and intentional teaching

Contemporary literature positions assessment as inseparable from pedagogy. Rather than a discrete activity, assessment is embedded within teaching and learning practices, including play-based pedagogies. Several papers we included in our review examined the intersections between play, learning and assessment. This demonstrated that assessment supports understanding of children's learning, development and wellbeing to inform planning and pedagogical decision-making that responds to children's strengths and needs (Grimmond et al., 2022; Guarrella et al., 2023). Assessment can be embedded within play through a range of pedagogical approaches, including observational assessment, intentional teaching and assessment within guided and free play contexts (DeLuca, Pyle, Valiquette et al., 2020; Guarrella et al., 2023; Pyle et al., 2020; Wu & Goff, 2023).

Pyle et al. (2020) developed a framework for assessment in early childhood education in Canada that aligns learning goals (academic, developmental, combination), types of play (teacher-directed, guided or free play), and assessment practices (embedded, observational, withdrawal). The framework illustrates multiple pathways through which assessment can be integrated within play-based learning. Extending this work, Pyle et al. (2022) identify 3 distinct approaches to integrating play and assessment among participating educators and teachers:

- free play with informal assessment
- teacher-directed play with formal assessment
- continuum of play supported by blended assessment practices.

The latter is most closely aligned with evidence-based practice, conceptualising both play and assessment as continua that enable educators and teachers to purposefully select assessment practices and tools suited to the context or type of play and learning intent, thereby supporting a more holistic understanding of children's development. Research in the Australian context reinforces these findings. Wu and Goff (2023), demonstrate how intentional teaching frameworks that incorporate learning intentions and success criteria can be integrated into play-based pedagogy supporting both AfL and AaL by making learning processes visible to children and fostering self-regulation. DeLuca, Pyle and Valiquette et al. (2020) found that although educators and teachers endorsed the principles of assessment as, for and of learning, and valued a play-based learning approach, enacting these models in a nuanced and integrated way requires a high level of assessment literacy (see section 4.2. Assessment literacy on Assessment literacy) and professional knowledge along with significant planning and active decision-making to appropriately capture assessment of all relevant learning outcomes.

Our review also found that a persistent gap exists between educators' and teachers' stated beliefs about assessment and their enacted assessment practices. Across multiple studies, educators and teachers expressed strong endorsement of assessment as an integral component of pedagogy, yet reported challenges in implementing practices in ways that align with these beliefs (Buldu & Şendil, 2023; DeLuca, Pyle, Braund et al., 2020; Grimmond et al., 2022; Guarrella et al., 2023; Lam & Wong, 2020; Pyle et al., 2020).

2.2. Assessment as collaboration

Assessment is increasingly conceptualised as a collaborative process involving children, families, educators and teachers (AGDE, 2022; Varier & Yun, 2023).

Assessment practices can provide important opportunities to connect home and educational contexts, offering families insights into children's learning, while creating space for dialogue about shared aspirations (Kervin et al., 2022; Stratigos & Fenech, 2021). Similarly, engaging children as collaborators in assessment provides children with opportunities to be active contributors in their own learning, aligning with participatory models such as AaL (AGDE, 2022; DeLuca, Pyle, Valiquette et al., 2020). The trissessment approach brings these together. Grounded in Māori worldview, it positions children as central agents in the assessment process, with subsequent contributions from families and educators (Werry et al., 2020, 2021).

The literature also identified collaboration among educators as a means of improving confidence and competency in assessment practice. Research indicates that collaborative engagement with peers and mentors supports educators and teachers in interpreting assessment evidence, summarising data and applying it effectively to inform decision-making (Calo, 2022; Heikka et al., 2023; Shepley et al., 2024; Will, 2022).

However, collaboration is not always fully realised. In practice, children's voices may be underrepresented and contributions from families limited or tokenistic (Alaçam, 2022, 2024; Alaçam & Olgan, 2025; Barblett et al., 2021). Structural and organisational factors in ECEC settings can also constrain opportunities for such collaboration among educators (Heikka et al., 2023; Kishida et al., 2021; Levickis et al., 2025; Williams et al., 2024).

2.3. Culturally responsive assessment

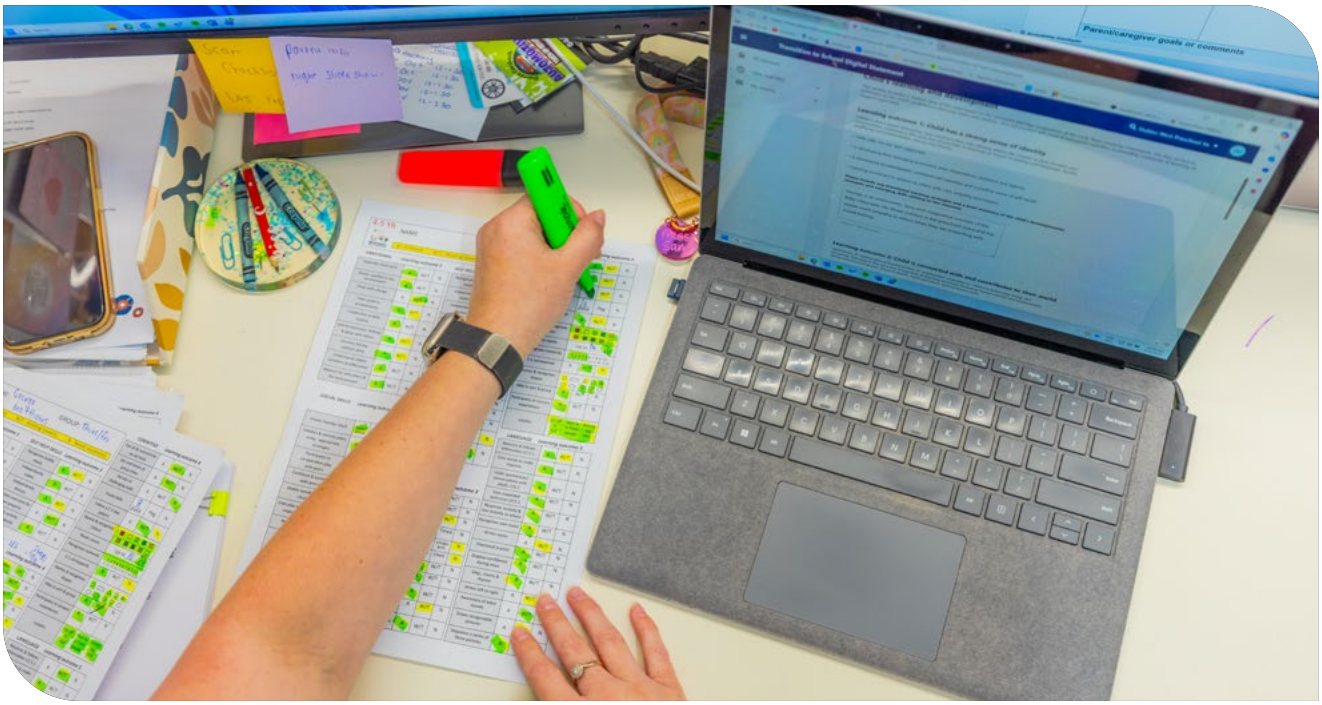
In the Australian context, the EYLF V2.0 (AGDE, 2022) recognises cultural responsivity as a core principle of effective pedagogy that informs every aspect of early childhood practice, including assessment. Notably, the EYLF V2.0 does not provide an explicit definition of 'culturally responsive assessment'. Instead, it offers a guiding framework that invites educators to recognise children's funds of knowledge and co-construct assessment practices within the specific socio-cultural contexts of their local communities. This approach recognises that assessment is not culturally neutral as it reflects underlying assumptions about children, learning and development.

The literature reviewed suggests culturally responsive assessment includes centring Indigenous-led assessment frameworks grounded in Indigenous ways of knowing, being and doing, where Indigenous communities define the purposes, processes and indicators of children's learning and wellbeing (Armstrong, 2023). Risks associated with assessment practices and tools that are not culturally responsive surfaced within the literature included deficit-based interpretations of children's abilities and learning, cultural bias embedded in assessment tools and practices, and persistent power imbalances between educators and teachers and families (Barblett et al., 2021).

2.4. Documentation and assessment distinction

In the literature and in policy documents, the terms 'assessment' and 'documentation' are often linked together. These concepts are related but distinct from each other. Documentation can provide the evidence used in assessment and evaluation, but documenting children's learning is not necessarily assessment in itself. Documentation approaches such as portfolios, talking and thinking Floorbooks and collaborative artefacts are particularly supportive for AaL. They are often considered participatory assessment tools as they support children in revisiting and making meaning from their learning experiences (Alaçam & Olgan, 2025; Yılmaz et al., 2023). This aligns with research highlighting the role of documentation in making learning visible and supporting learner identity formation (Albin-Clark, 2021; Sands & McChesney, 2023).

Researchers in Australia have noted increased attention on the documentation of children's learning for compliance purposes, with a subtle shift from pedagogical documentation to inform practice, to documentation that provides evidence of quality practice. They contend that there is a need for educators to critically reflect on the purpose of pedagogical documentation (Barblett et al., 2021). Misunderstandings about the distinctions between and the purposes of documentation and assessment may be contributing to them being seen as interchangeable and a way to satisfy external accountabilities rather than a critical component of high-quality, intentional teaching and learning in ECEC.



3. A range of assessment approaches

The literature identifies a broad range of assessment approaches in ECEC – from holistic and narrative to more structured and standardised. In this review, a little under two-thirds of the identified papers focused on holistic assessment, a smaller number of papers were concerned with targeted assessment designed to assess a particular domain of learning or development and around a fifth of the papers took a combined approach, incorporating both holistic and targeted assessment practices. This section further examines the literature about assessment practices, noting their respective strengths and weaknesses.

3.1. Holistic assessment

Holistic assessment is typically based on natural behaviours during play – individualised, contextualised, strengths-based – and may position children as active participants in assessment (Fabian, 2021; Fabian & Edwards, 2024; Sands & McChesney, 2023). The papers we reviewed on holistic assessment included reference to narrative assessment tools (such as Learning Stories, observations and jottings), with this approach to assessment overwhelmingly preferred by early childhood educators (Fabian, 2021; McLachlan & McLaughlin, 2022; Minson & Nuttall, 2024).

Strengths of holistic assessment include the capacity to capture a wide range of outcomes across social, emotional, physical and cognitive domains, contextualise learning within play and minimise disruption to children's experiences (Fabian & Edwards, 2024). The literature also identifies limitations. Holistic assessment can be highly subjective where explicit criteria are absent, or rely heavily on educators' and teachers' professional judgement, and is rarely supported by systematic moderation processes (Buldu & Şendil, 2023; McLachlan & McLaughlin, 2022). It may also present challenges in assessing progress over time and making comparisons across children or groups. Additional concerns include the time-intensive nature of these practices, variability in implementation and missed opportunities to identify areas where children may be requiring support (Barblett et al., 2021; Guarrella et al., 2023)

Example: Learning Stories

Learning Stories are a holistic assessment tool developed by Margaret Carr (2001). These narrative devices are strength-based, descriptive and observational, focusing on children's learning dispositions, interests, development, thinking and theorising. Learning Stories are characterised by the conversational tone, often being addressed directly to the child and incorporating their voice and, at times, their family's. They can be accompanied by photographs.

Note: **Holistic assessment** adopts a whole-child approach and does not necessarily ensure comprehensive or systematic coverage of all developmental domains.

3.2. Standards-based assessment

Standards-based assessment is linked to defined learning outcomes or developmental criteria. It involves planned and structured assessment activities and supports educators in making judgements about children's learning in relation to defined expectations. Standards-based assessment offers increased objectivity and enables comparisons within and across groups of children, supporting decision-making about learning and intervention (Varier & Yun, 2023). However, the literature also presents challenges. Practices such as 'tagging' (linking by outcome number) learning outcomes often lack descriptive detail, limiting meaningful interpretation of children's capabilities (Kishida et al., 2021). Furthermore, comparison-based judgements may overlook individual context, and deficit-oriented interpretations can emerge when children are assessed against normative expectations (Sussman et al., 2025). Therefore, standards-based assessment should be used as a reference point alongside other assessment tools.

Example: Observation tools mapped to the EYLF V2.0 Learning Outcomes

Teachers and educators use a variety of observation tools to capture children's learning and developmental progress. When these are mapped to the EYLF 2.0 Learning Outcomes, teachers and educators can plan for adult-guided or adult-directed activities to help them assess children's learning and development. This then supports them to make professional judgements about children's social, emotional, communicative, physical and cognitive abilities, which may help identify whether further support is required. There are several observational tools that teachers and educators can use – for example:

- **anecdotal observations –** brief observational notes which detail a specific interaction, event or behaviour
- **running records –** detailed notes of what occurs over a set period, including children's behaviour, interactions, knowledge and skills
- **time and event sampling –** a record of when specific behaviours occur during a set time period or part of the centre environment
- **developmental checklists –** structured lists that identify children's social, emotional, physical and cognitive milestones.

3.3. Standardised assessment

Standardised assessment is a more structured form of assessment. It involves systematic administration and scoring procedures, often designed to measure academic readiness and achievement or specific domains such as literacy, numeracy or self-regulation (Akaeze et al., 2023). While it provides high levels of objectivity and supports comparison across populations, it is frequently critiqued for privileging narrow developmental constructs and for limited alignment with play-based pedagogy (Keary et al., 2022; Montoya-Fernández et al., 2024). Concerns also include the potential to disrupt children's natural learning environments (Dawson et al., 2020). The literature indicates that educator training for standardised assessment tools often focuses on administration rather than interpretation, limiting the effective use of assessment data (Varier & Yun, 2023). Misinterpretation and unacknowledged bias can impact decision-making and planning (Will, 2022). At the same time, evidence suggests that perceived bias may sometimes arise from educator judgement rather than the tool itself (Sussman et al., 2025).

Example: The Ages and Stages Questionnaires Third Edition (ASQ-3)

The ASQ-3 is a standardised assessment screening tool for development, including social and emotional skills. It screens for strengths and potential support needs (Squires & Bricker, 2009).

3.4. Emerging integrated approaches to assessment

New assessment tools are emerging that enable practitioners to combine holistic and standards-based assessment practices, integrating the strengths of both traditions. This offers an opportunity to provide richer, more valid representations of children's capabilities and demonstrate how integrating assessment practices and tools can strengthen assessment overall (Montoya-Fernández et al., 2024).

Example: Numeracy and Mathematics Block-Based Assessment

Assessment tools such as Numeracy and Mathematics Block-Based Assessment (NUMBBA) combine structured criteria with observational data, enabling educators and teachers to capture both processes and outcomes of learning (Grimmond et al., 2022).

4. Factors shaping assessment in early childhood education and care

Through our review, we surfaced several factors that appear to impact effective assessment enactment in ECEC. Our review also identified some barriers compounded by broader structural and conceptual challenges. Workload, time constraints, documentation requirements and uncertainty about assessment processes can limit analysis and use of evidence (Buldu & Şendil, 2023; DeLuca, Pyle, Braund et al., 2020; Grimmond et al., 2022; Lam & Wong, 2020). A lack of clear and consistent guidelines around assessment practice within policy frameworks has been identified as a significant limitation (Barblett et al., 2021). Educators and teachers seek consistency in guidance, coupled with freedom to flexibly apply assessment practices responsively to context (Alaçam, 2022). This section presents insights on some of the factors shaping effective assessment currently in ECEC settings.

4.1. Assessment workload

Studies that directly investigated teachers' and educators' enacted assessment practices consistently identified workload issues and time constraints as key challenges for implementing effective assessment (Cameron, 2022; DeLuca, Pyle, Valiquette et al., 2020; Grimmond et al., 2022; Kishida et al., 2021; Lam & Wong, 2020; McLachlan & McLaughlin, 2022). The dominance of holistic narrative approaches to assessment (e.g., Learning Stories) in ECEC settings has contributed to concerns around assessment workload burden (Fabian, 2021; McLachlan & McLaughlin, 2022). The literature also indicates that even where educators had a clear understanding of the distinction between documentation and assessment (see section 2.4. Documentation and assessment distinction), they reported challenges in collating and analysing the large amounts of diverse documentation collected for assessment purposes (Alaçam, 2022; DeLuca, Pyle, Braund, & Faith, 2020; DeLuca, Pyle, Valiquette, et al., 2020; İnönü et al., 2025). This suggests that challenges are not limited to generating evidence, but extend to organising, evaluating and using it effectively.

4.2. Assessment literacy

Assessment literacy is conceptualised as more than technical knowledge of assessment processes. It encompasses educators' understanding of assessment purposes, their ability to collect, interpret and use evidence, and their confidence, beliefs, dispositions and professional identity as assessors. Across our review, differences in assessment quality were frequently linked to variation in educators' assessment literacy rather than the availability of assessment tools themselves. Several studies identified challenges in educators' capability to analyse and interpret assessment evidence meaningfully, despite often collecting large amounts of documentation and assessment information (DeLuca, Pyle, Valiquette et al., 2020; Kervin et al., 2022; Will, 2022). Educators reported difficulty selecting appropriate assessment practices and tools, integrating multiple forms of assessment, analysing diverse sources of evidence, and using assessment information to support individual children's learning and development (Buldu & Şendil, 2023; DeLuca, Pyle, Valiquette, et al., 2020; Guarrella et al., 2023). The implication of these findings is the variable application and use of assessment practices in ECEC, which may in turn impact the learning experiences and outcomes of children.

A key contributing factor identified across studies is limited pre-service preparation and professional learning opportunities related to assessment. Deficiencies in initial teacher and/or educator training, coupled with a lack of ongoing professional development opportunities to support effective assessment practice, constrain the development of assessment literacy (Calo, 2022; Elden & Aras, 2024; Shepley et al., 2024; Varier & Yun, 2023).

Professional learning, mentoring, collaboration and high-quality tools can strengthen assessment literacy. Studies of tools such as Observe Reflect Improve Children's Learning (ORICL) and NUMBBA found that structured assessment processes supported educator confidence, interpretation of evidence and understanding of children's learning (Elwick et al., 2023; Grimmond et al., 2022). However, tools are only effective when educators use them purposefully within each teaching and learning context.

4.3 Digital assessment and tools

Our review identified a stream of emerging research about the form and impact of digital assessment in the early childhood sector. The findings around digital assessment trends broadly fit into 2 categories: first, as supporting the enactment of assessment practices, and second, as introducing new risks and limitations.

Digital assessment tools can enhance assessment efficiency, accessibility and collaboration by enabling educators and teachers to capture, share and collaborate on multimodal representations of learning. They can support engagement with assessment, participatory assessment practice and evidence embodied or non-verbal learning that may otherwise be overlooked. In addition, when combined with targeted, evidence-based intentional teaching strategies, digital assessment tools can improve learning outcomes and support instructional decision-making (Alaçam, 2022; Amukune et al., 2022; Bedel et al., 2024; Cowan & Flewitt, 2023; Dawson et al., 2020; Howard et al., 2022; Kervin et al., 2022; Sáez & Irvin, 2022).

Findings also indicate that there are risks and limitations associated with digital assessment. Equity and access, privacy, data loss and privileging measurable academic learning, at the cost of broader developmental evaluation, are identified as issues of concern (Amukune et al., 2022; Putri et al., 2025; Stratigos & Fenech, 2021). Digital assessment tools can position children as passive subjects of data collection and reduce families to consumers of information (Amukune et al., 2022; Putri et al., 2025; Stratigos & Fenech, 2021). They can disrupt educator–child interactions, shared attention and reflective dialogue (DeLuca, Pyle, Braund, & Faith, 2020; Stratigos & Fenech, 2021). These limitations are compounded by usability, accessibility and technical capability barriers, resistance where tools appear to conflict with play-based pedagogy, and inadequate professional learning. Effective use therefore depends on educators' and teachers' assessment literacy and their critical, intentional integration of technology within pedagogy (Cowan & Flewitt, 2023; Putri et al., 2025).

The emergence of AI and its contribution to assessment practices at this point remains an under-researched area in ECEC. While this paper does not report on any studies in this area, the use of AI and the intersection with assessment practices is flagged as an important future research avenue.

5. Implications for policy and practice

Assessment is a critical component of effective early childhood pedagogy, expanding opportunities to create differentiated and responsive environments. It supports educators to build an accurate picture of children's learning and development, equipping educators to support pedagogical decision-making and planning for children's needs, strengths and capabilities (Grimmond et al., 2022). Yet it remains an area of complexity, inconsistency and ongoing development. Policy-level guidance – alongside resource access and opportunities for learning through application – has the potential to support greater consistency and depth in assessment practice (Barblett et al., 2021). This section discusses implications for practice and policy.

5.1. Take a balanced and integrated approach to assessment

No single approach to assessment is sufficient to capture the complexity of children's learning. The use of multiple assessment practices and tools in combination is critical to achieving a balanced and meaningful approach (DeLuca, Pyle, Braund & Faith, 2020; Pyle et al., 2020; Varier & Yun, 2023). Despite this, educators and teachers report levels of uncertainty and a desire for clearer direction regarding assessment to ensure it is easily adaptable within ECEC and closely aligned with frameworks of play-based practice (Barblett et al., 2021).

There is much to be gained by exploring how practice guidance, policy and curriculum frameworks can provide greater clarity without becoming overly prescriptive, particularly in relation to integrating multiple forms of assessment.

5.2. Focus on capability, confidence and collaboration

While educators and teachers demonstrate engagement with assessment, there are ongoing gaps in capability and confidence (Buldu & Şendil, 2023; DeLuca, Pyle, Valiquette, et al., 2020; Guarrella et al., 2023). Without a focus on strengthening assessment literacy in ECEC settings, assessment risks becoming fragmented, inconsistent and limited in its capacity to support children's learning.

Professional learning, mentoring, collaboration and high-quality tools can strengthen assessment literacy (Elwick et al., 2023; Grimmond et al., 2022; Pyle et al., 2025) and provide an evidence base for efforts focused on practice improvement. There is also benefit in considering the role initial teacher education and educator preparation programs play in supporting assessment literacy.

5.3. Continued expansion of the evidence base

This review identified emerging areas where additional research is needed, including:

- assessment that supports teaching and learning for children aged from birth to 3
- integrated approaches to assessment (e.g., such as combining holistic and standards-based assessment) – development, adaption, validation and evaluation of tools and practices
- culturally responsive assessment, particularly First Nations-led approaches to assessment that are grounded in Indigenous ways of knowing, being and doing and reflect community-defined understandings of children's learning and wellbeing
- application of digital assessment approaches.

Conclusion

Overall, our review found that high-quality assessment is embedded with pedagogy, supported by the thoughtful integration of multiple approaches, informed by professional judgement and responsive to context. Assessment literacy emerged as a critical consideration, encompassing not only technical knowledge of assessment practices and tools but also educators' and teachers' capacity to interpret evidence, make informed decisions and use assessment to support teaching and learning.



Appendix A: Methodology

A.1. Research questions

This systematic literature review aimed to investigate a range of assessment practices – including various strategies and tools – used in ECEC settings for children aged from birth to 5 years in Australia and internationally. Our review process drew on empirical studies and meta-analyses to investigate the current understanding of this topic. This informed the development of 3 research questions:

- How is assessment in ECEC currently conceptualised?
- What are the commonly identified assessment practices in ECEC research?
- What are the opportunities for future conceptualisations and/or research in ECEC assessment practices?

A.2. Methods

This systematic literature review was conducted based broadly on a Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) model (Figure A1), and follows the guidelines recommended for undertaking systematic reviews (Page et al., 2021)

A.3. Search terms

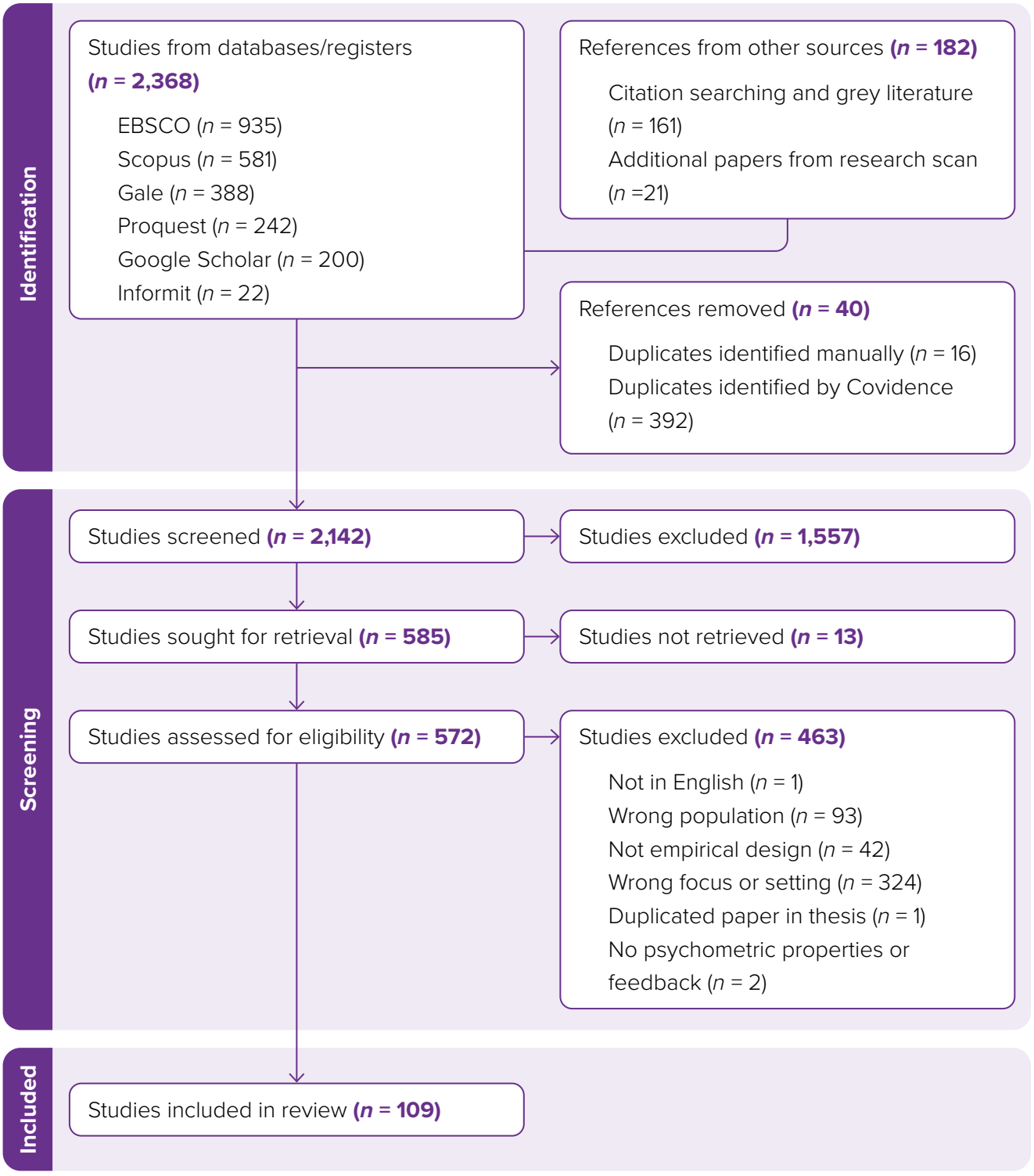
Search terms were developed and informed by existing systematic reviews about early childhood assessment (Isquith-Dicker et al., 2021; Munoz-Chereau et al., 2021; Perlman et al., 2016). A research librarian supported researchers in refining the search strategy. Search terms were refined for specific databases.

The broad keyword terms – based on key concepts from the existing literature – were:

- early childhood education and care
- assessment
- practice
- teaching and learning outcome.

The detailed search terms for each key concept are listed in Box A1.

Figure A1: PRISMA flow chart for assessment practices in early childhood systematic literature review



A.4. Databases

The selected key databases were Scopus, EBSCO, Gale OneFile, Informit, ProQuest and Google Scholar. Google Scholar results were restricted to the first 200 based on relevance as determined by Google Scholar filtering.

The searches were conducted from late February 2025 to early March 2025. The initial search terms were refined for each database to meet the requirements of the database search engines (for example, truncation is not allowed in Informit, and there is a character limit in the Gale OneFile search form). Box A1 provides details of the search terms used for each database and process.

Box A1: Final search strings

Early childhood education and care

ecec OR ecce OR ece OR "early childhood" OR "early years" OR preschool OR "pre-school" OR kindergarten OR childcare OR "child care" OR "long day care" OR "family day care" OR "family child care" OR "day care" OR daycare OR "early education" OR "occasional care" OR playgroup* OR creche* OR "year before school" OR "pre-K" OR "pre-kindergarten" OR nursery OR infan* OR toddler* OR "birth to 3" OR "birth to three" OR "3 to 5 years" OR "three to five years" OR "birth to 5" OR "birth to five" OR "young children"

Assessment

"early childhood assessment*" OR "formative assessment*" OR "formative learning*" OR "formative teach*" OR "assessment for learning" OR "diagnostic assessment*" OR "formative evaluation*" OR "mastery learning" OR "progress monitoring" OR "learning progress assessment" OR "teacher feedback" OR "learner feedback" OR "informed pedagogy" OR "informed practice" OR "ongoing cycle" OR "critical reflection" OR "reflexive practice" OR "summative assessment*" OR "summative evaluation*" OR "assessment of learning" OR "assessment as learning" OR "inclusive assessment*" OR "assessment for inclusion"

Practice

tool* OR questionnaire* OR checklist* OR scale* OR measure* OR test* OR instrument* OR "scoring system*" OR "rating system*" OR "learning progression" OR "classroom questioning" OR feedback OR performance OR framework* OR "assessment system*" OR practice* OR strateg* OR process* OR method* OR approach* OR "effective assessment*" OR "assessment tool*" OR reliability OR validity OR psychometric* OR accuracy OR advantage* OR disadvantage*

Teaching and learning outcomes

educat* OR teach* OR learn* OR development OR wellbeing OR "well-being" OR "well being" OR efficacy OR effective* OR impact* OR benefit* OR outcome* OR success* OR confidence OR competenc* OR "self esteem"

A.5. Inclusion and exclusion criteria

The inclusion and exclusion criteria presented in Table A1 were determined by the researchers and refined during the screening process. During discussions between the research team, amendments were made to the inclusion and exclusion criteria to reflect changes in understanding of evidence related to assessment practices relevant to ECEC settings (see section A.6. Screening process for details).

Table A1: Inclusion and exclusion criteria

Inclusion	Exclusion
Australian and international literature published from January 2020 to March 2025	Literature published before 2020
Published in English	Literature published in other languages
Quantitative, qualitative and mixed-methods studies Systematic reviews and meta-analyses, scoping reviews (reviews conducted systematically)	Theoretical reflections, methodological reflections, comments and traditional literature reviews that did not mention methods of the review
Peer-reviewed journal articles and relevant grey literature, including book chapters, master's and PhD theses, and reports	Textbooks, guidelines, principles, magazine and news articles
Children aged birth to 5 years Children from priority cohorts including: • First Nations, with medical and developmental conditions, from culturally and linguistically diverse backgrounds, and from low socio-economic backgrounds • Children aged birth and older than 5 years old, if there are specific aggregated findings for children aged 5 and below	Studies that did not include children aged 5 and below Studies of children from birth to older than 5 with no specific findings or differentiation of findings about children birth to 5 years
Studies that examined assessment strategies or tools in ECEC Studies that included the psychometric information or feedback on the strategies or tools	Studies that did not examine early childhood assessment strategies or tools Studies that did not provide instrumental psychometric properties or feedback on the strategies or tools
Studies where the full text could be accessed	Studies where the full text could not be accessed
AERO Standards of Evidence (SoE) Level 2 and above – Medium to high level confidence evidence	AERO SoE Level 1 – Low confidence evidence (does not provide data to substantiate claims of positive effects)

During the screening process and with researcher collaboration, some exceptions were determined:

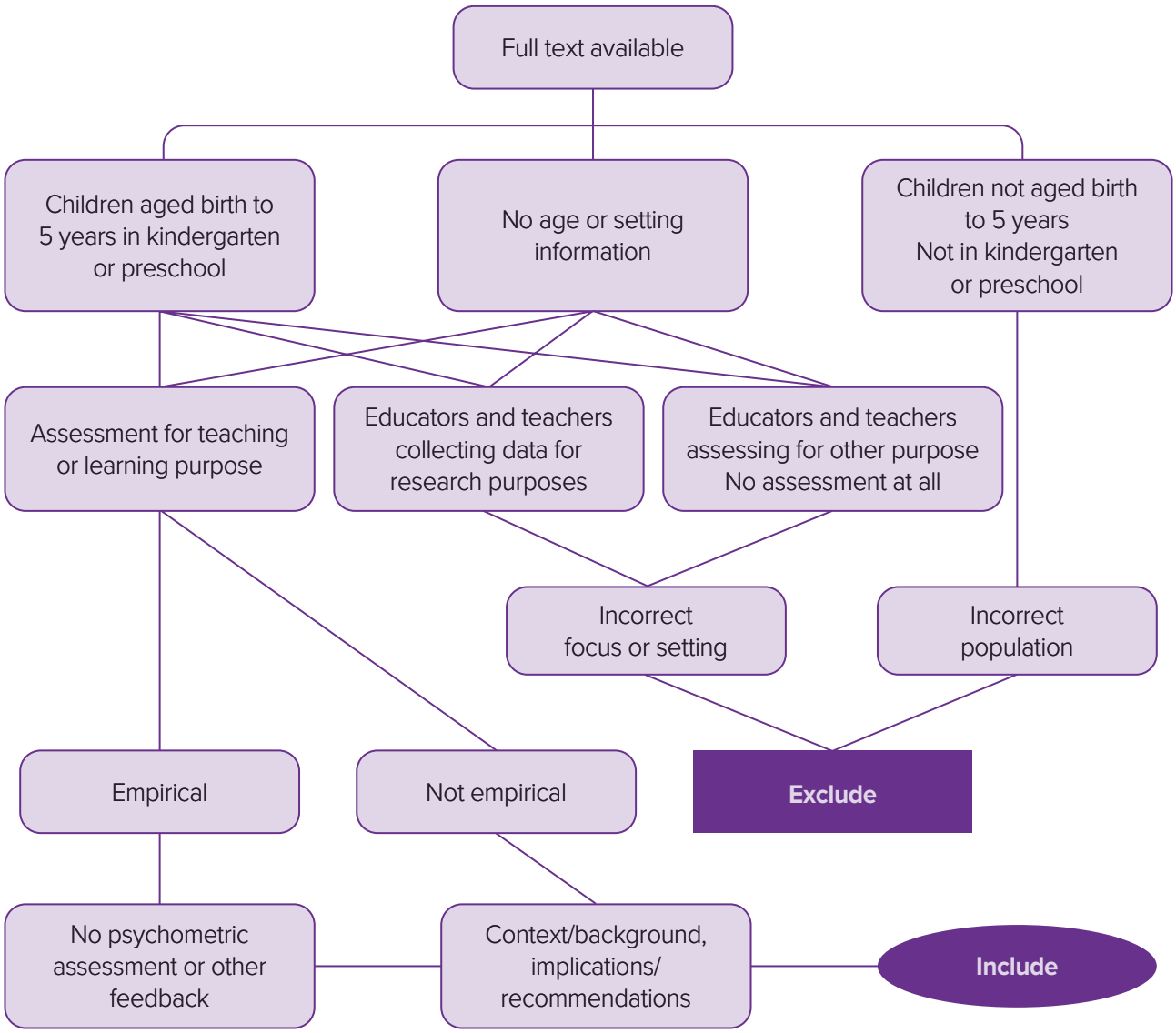
- types of studies – studies without empirical methods that provided useful findings about early childhood assessment were included
- quality assessment – studies that did not meet criteria but provided context or were considered emerging research were included.

A.6. Screening process

To follow a systematic approach to screening and establish agreement between reviewers, data screening and extraction was undertaken using a 3-stage process in Covidence. The search results (*n* = 2,368) and references from other sources (*n* = 182) were imported into Covidence and a check for duplicates was conducted. Figure A1 shows the PRISMA flow chart for this process.

For full-text screening and review, the exclusion and inclusion criteria adopted by our reviewers were applied to the abstracts in Covidence. Two reviewers blindly reviewed the abstracts and decided on which ones to include for the full-text review. Figure A2 presents the full-text review process via Covidence.

Figure A2: Full-text review process via Covidence



The exclusion criteria used during full-text screening was:

- **no access to full text –** could not be retrieved (including conference papers without available full text)
- **incorrect population –** did not include children birth to 5 years
- **incorrect focus or setting –** did not examine early childhood assessment strategies and tools, did not focus on teaching and learning, did not indicate that the strategy or tool was used by educators and teachers, assessment was conducted at children's home or a clinical/health setting rather than in an ECEC service
- **non-empirical –** did not include collection of or analysis of data, based in theoretical or methodological reflection, was not published in a peer-reviewed journal (including literature reviews, theory building and opinion pieces)
- **no psychometric properties or feedback –** did not include quantitative psychometric information such as reliability and validity or other qualitative feedback of using the assessment strategies/tools, advantages and disadvantages, contributions or barriers/limitations of using the assessment strategies/tools
- **not in English** – full text not available in English
- **duplicated paper in thesis –** publication already included in thesis.

A.7. Searching and screening additional papers

A back-and-forward tracking strategy was conducted to identify additional relevant literature. In the first round of full-text review, 2 researchers identified 170 papers that were relevant, which were used to identify additional papers. Two researchers checked the references and citing literature of included full-text papers, and relevant papers were recorded in an Excel spreadsheet for screening (n = 161). Non-relevant papers were excluded directly. Additionally, papers were checked using Google Scholar to confirm where they were cited. Specific peer-reviewed journals focused on early childhood were reviewed to identify other papers for review (n = 21). These journals included:

- Australasian Journal of Early Childhood
- Journal of Early Childhood Research
- Early Childhood Education Journal
- Early Childhood Research Quarterly
- European Early Childhood Education Research Journal
- International Journal of Early Years Education.

In total, the search identified 182 additional papers. These papers were uploaded for title and abstract screening in Covidence and followed the screening process for inclusion.

A.8. Quality assessment

The quality of the (*N* = 109) papers was assessed based on AERO's SoE, as presented in Table A2. Papers that met Level 2 (Medium confidence), Level 3 (High confidence) and Level 4 (Very high confidence) were included in the final review. Papers that met Level 1 and emerging research were also summarised, but caution should be used when interpreting the evidence provided by these studies. Three researchers engaged in the quality assessment, and the full research team discussed any conflicts of quality to reach consensus.

Table A2: Number of included papers for each confidence level

Level	n	Percentage
Emerging research	3	2.8%
Level 1	40	36.7%
Level 2	60	55.0%
Level 3	6	5.5%
Level 4	0	0.0%

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