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Assessing the quality of early childhood education and care in Australia: Challenges and opportunities

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While access to quality education in early childhood is an international priority, the characteristics of quality continue to be debated. In the Australian context, differing views on the characteristics of quality may be a result of differing stakeholder priorities. Divergent notions of quality may lead to initiatives that emphasize educator practice and frame a dominant discourse that situates responsibility for enactment of quality at Early Childhood Education and Care (ECEC) service room level. Challenges arising from initiatives driving increased access to ECEC coinciding with workforce shortages are addressed. National longitudinal research is needed to determine the impact of participation in ECEC on child outcomes, as is ECEC quality assessment across regions and jurisdictions over time. Prior to this, stakeholder conversations are needed to achieve consensus on the characteristics of quality. This could lead to the development of an instrument for assessing quality that is systemically relevant and could inform evidence-based decision making by ECEC teachers and educators, primary caregivers, regulators, researchers and policy makers to distribute accountability for quality across the ECEC system.

KEYWORDS

early childhood education and care, quality indicators, child outcomes, stakeholder priorities, National Quality Standard, Early Years Learning Framework, access and participation, teacher shortages

Introduction

Access to quality early childhood education and care (ECEC) is an international priority (Council of the European Union, 2019; Blanchi et al., 2022; Fredman et al., 2022). Target 4.2 of the United Nations Sustainable Development Goals states that by 2030, 'all girls and boys have access to quality early child development, care and pre-primary education so that they are ready for primary school' but stops short of describing *indicators* of quality, despite stating that without high quality early childhood education, the associated improved outcomes for children are unlikely to occur (UNESCO, 2017). For ECEC to be a sound economic investment and a sound investment in children and society, services should be 'of high quality, affordable and inclusive' (Council of the European Union, 2019). Indeed, whilst high quality ECEC has been demonstrated to be of benefit to the cognitive, language and social development of children in both the short and long term, participating in low quality ECEC may be a risk factor, particularly for children aged under three years with disadvantaged backgrounds (Melhuish et al., 2015).

Given the consensus on the importance of high-quality ECEC, clarity regarding the characteristics of quality ECEC is a priority. However, this paper shows that differing stakeholder priorities (Siraj et al., 2019) amongst policy makers, regulators, researchers, educators and primary caregivers inhibits a common understanding of quality. It is proposed that tensions surrounding notions of quality in the Australian context in 2023 may, to some extent, be a product of differing stakeholders' quality assessment priorities. Further, we suggest that these divergent notions of quality potentially undermine the alignment and cohesion of the system and leads to an over-reliance on actions and initiatives focused primarily or solely on educator practice, rather than distributing accountability across the various structural components and processes that constitute and govern the ECEC system.

Conceptualizations of quality

Despite apparent consensus on the importance of high-quality ECEC to support children's learning, development and wellbeing, the characteristics of quality emphasized and privileged by different stakeholders differ. Such inconsistency is not merely a reflection of the different perspectives these stakeholders bring to their understanding of quality because of their distinctive viewpoints, but arguably betrays different priorities and aspirations for the ECEC system and the need for improved coherence in the approach to achieving high-quality provision.

It is important to note that there are concerted efforts nationally (e.g., Council of Australian Governments, 2021) within separate jurisdictions (e.g., New South Wales Department of Education, 2022), within independent organizations (e.g., Thrive by Five, n.d.; Torii et al., 2017) and at local levels to strive for high-quality ECEC. A national mechanism to ensure quality standards are upheld under the National Quality Framework (Australian Children's Education and Care Quality Authority, 2020) was established under the Education and Care Services National Law Act 2010 No. 69 of 2010 (2022) and is constituted of a key guiding framework document, the Early Years Learning Framework for Australia (EYLF) (Department of Education Employment and Workplace Relations, 2009) (a revised version of which was released in January 2023 and will be phased in over the course of 2023) and the implementation of the National Quality Standard (NQS) by the Regulator within each jurisdiction. There is little doubt of the commitment to quality ECEC both in terms of rhetoric and increasingly, funding. However, the NQS provides a scorecard (*working toward*, *meeting*, or *exceeding* the NQS) for each *individual* ECEC service in the country and therefore frames a dominant narrative around quality which situates responsibility for the enactment of quality at the setting level.

The dominant narrative around quality is important. Whilst the NQS provides governments with valuable information about the ECEC system in an aggregated manner (Australian Children's Education and Care Quality Authority, 2022), it more importantly provides the basis for interventions where services are underperforming, increasingly forms the basis for differentiating ECEC services in a competitive market, and forms the basis of much of the effort to educate families about the importance of early education. Indeed, the NQF Annual Performance Report (2022) indicates that families' knowledge about the NQS is patchy; just 55% are aware of the quality rating system and less than two-thirds of those (who are aware) know the rating of the service they use. Understandably, and as reported in earlier research (Cloney et al., 2016), many families focus on pragmatic concerns (e.g., location, cost) when choosing a service. Notwithstanding the relatively low importance families place on the quality rating system itself, they do show some sensitivity to important indicators of high-quality services provision, such as the presence of highly skilled educators and a high-quality early learning program, which receives equivalent weighting in families' decision-making process to their pragmatic concerns; but it should be noted that the basis on which families judge such indicators of quality is unclear (Australian Children's Education and Care Quality Authority, 2022).

A survey (1,143 respondents) and focus groups/interviews with parents and caregivers, within the state of NSW prior to COVID-19 (NSW Department of Education, n.d.), suggested that parents are concerned about quality, but they have only vague notions or broad conceptions about what *aspects* of quality matter; privileging the relationship between their child and the staff (68%) and their child's learning and development progress (65%). Predominantly, parents indicated that they saw the development of social skills (64%) and school readiness (60%) as the most important benefits of attending ECEC. Further, while most parents were aware of the qualifications of the room leader of their child's service (79%), many indicated that they value skills, life experience and commitment over qualifications. This government study is limited in scope but nevertheless illustrates some important divergence between the priorities and notions of quality held by parents, and the NQS. In so far as we have evidence, families prioritize pragmatic concerns as well as their children's relationships (with educators and other children) and learning and developmental progression, with a view to school readiness. But it is not clear that families link these priorities to educator qualification or other aspects of quality as defined and regulated within the NQS.

Given the centrality of the NQS (and the EYLF) to each early childhood service in the country, it is necessary first to explore conceptualizations of quality as set out in the NQS. Thereafter, structural and process quality, the growing emphasis on access to ECEC, the implications of teacher shortages for ECEC quality, and the challenges and opportunities associated with research-driven assessments of quality are addressed.

The National Quality Standard

The establishment of the National Law and Regulations, its enactment through the regulatory authorities and the development of the NQS, has meant that many features of a high quality ECEC system are implemented at service level, and regulated with fidelity by trained authorized officers who assess ECEC quality against benchmarked NQS quality areas: educational program and practice, children's health and safety, physical environment, staffing, relationships with children, partnerships with families and communities, and governance & leadership. These features of a high-quality system are typically linked to outcomes such as children's health and safety and the access to nurturing, responsive environments (Australian Children's Education and Care Quality Authority, 2022).

The NQS is intended to serve multiple purposes. First, it was intended to achieve improved consistency in the provision of ECEC across Australia. Second, ratings are published online and displayed in services, providing the opportunity for primary caregivers to make informed decisions about ECEC for their children, while at the same time providing a service-level monitoring system for jurisdictions and the nation. Furthermore, NQS quality assessment is intended to inform ECEC providers' ongoing efforts to improve the quality of service provision at a local level, and it is actively used as such. At a systems level, therefore, the nexus for quality lies between individual ECEC services and an intermittent regulatory mechanism (typically there are years between NQS ratings) that covers all aspects of service provision, i.e., the *quality areas*.

As a national indicator of quality, NQS quality assessment data provide information that informs policy and holds services accountable. However, research has indicated a mismatch between NQS quality ratings and quality when assessed with quality rating scales frequently used in research (Siraj et al., 2019; Kirk et al., 2022; Rankin et al., 2022). Indeed, Siraj et al. (2019) report that NQS quality ratings of *exceeding* the NQS (the highest rating) align with basic levels of quality on average when compared with evidence-based environmental rating scales designed to directly measure elements of curriculum, pedagogy and practice linked to high-quality ECEC provision, i.e., ECERS-E (Sylva et al., 2003) and the SSTEW (Siraj et al., 2015). The same study also demonstrated very high levels of variability in some instances: at times, the same services could be rated as exceeding the NQS but receive low ratings on ECERS-E and SSTEW, or the reverse. One of several possible explanations offered by Siraj and colleagues is illustrated by an example: ECERS-E includes an explicit focus on mathematics and science whereas the NQS has little direct focus on either. It is precisely these tensions and complexities surrounding the assessment of quality in ECEC in Australia, and the differing lenses used to focus on quality and assessment, that we highlight.

While all dimensions of the NQS are essential for ensuring high-quality ECEC services, the relatively equal weighting or status awarded to each quality area does not adequately reflect the potential for variance with respect to which aspects of quality are most meaningful or indeed predictive of child adjustment, wellbeing and learning, and moreover how these may work for different children across different contexts. Indeed, the different quality areas of the NQS are unlikely to be related in simple ways to child outcomes; they refer to quite different aspects of processes and practices within the ECEC context and have differing implications for professional support, capacity building and intervention. Furthermore, evidence to disentangle the ways in which the NQS quality areas contribute to child outcomes is lacking, as is clarity about the nature of the relationship between ECEC participation and consequential child outcomes. Currently, the only instrument that routinely captures early childhood outcomes, the Australian Early Development Census (AEDC) (Australian Government, n.d.), is difficult to meaningfully associate with ECEC participation or quality. These teacher-reported data relating to five key areas of early childhood development are collected every 3 years in children's first year of full-time school and reported for community, state/territory and national levels. Thus, in so far as child outcomes are concerned, the NQS rests on an evidence base that is substantial but somewhat distant from the context in which it is enacted, and the aspirations for a high-quality ECEC system are only poorly linked to any system-level accountability measures or indicators.

What is clear is that some aspects of quality, as defined by the NQS, lend themselves more to regulation or regulatory frameworks than others. A regulatory system like the NQS is indeed effective for regulating children's safety and security, for ensuring environments are effective for early childhood teaching and learning, or that educators hold particular qualifications; areas that classically fall under the construct of *structural quality*.

Standards of the kind embodied in the NQS, alongside the EYLF, can adequately reflect national values and priorities for the ECEC system (Organization for Economic Cooperation and Development, 2021) and tell us that a particular domain or need is being met or achieved, which is highly appropriate for many aspects of both education and care. High quality *pedagogy*, however, is enacted by ECEC professionals and teams, is reflected in their beliefs, skills, and knowledge, and is cultivated through their professional growth (e.g., Connors-Tadros et al., 2021).

It would be a mistake to confuse the standards that constitute the NQS with developmentally informed early learning standards that are developed through a consultative process, informed by the Australian cultural, political, and socioeconomic context, and linked systematically to curriculum, assessment and planning for learning. To drill down into notions of quality in this regard, it is necessary to address the symbiotic nature of process quality and structural quality.

Process quality and structural quality

The EYLF guides pedagogy and practice with children from birth to 5 years of age in Australia. The 2009 version includes five guiding principles intended to 'underpin practice that is focused on assisting all children to make progress in relation to the Learning Outcome(s)' (p. 13), namely *Secure, respectful and reciprocal relationships*, *Partnerships*, *High expectations and equity*, *Respect for diversity*, and *Ongoing learning and reflective practice*. After being in revision from 2020, the revised EYLF was released in January 2023 and the transition to the EYLF V2.0 (Australian Government Department of Education, 2022) will take place over 2023. It was widely anticipated that the revised document would add two further principles of practice: one that focused on sustainability, and a second that focused on Aboriginal and Torres Strait Islander perspectives on ECEC. The EYLF V2.0 has indeed introduced these practice principles as well as a third new principle entitled *Collaborative leadership and teamwork*. In addition, an existing principle entitled *Secure, respectful and reciprocal relationships* has been updated to include relational pedagogy (Australian Children's Education and Care Quality Authority, 2023).

Both the first and second versions of the EYLF include five learning outcomes for children. These are *Children have a strong sense of identity*, *Children are connected with and contribute to their world*, *Children have a strong sense of wellbeing*, *Children are confident and involved learners*, and *Children are effective communicators*. These are effectively early learning and development standards (ELDS) which guide pedagogical decision making; programs that align their curricula closely with the EYLF could be regarded as achieving high quality ECEC. ACECQA describes the EYLF V2.0 revisions as 'strengthen[ing] the connection between the EYLF (V2.0) and the

National Quality Standard in areas such as transitions, sustainability, theoretical approaches, critical reflection, the importance of Aboriginal and Torres Strait Islander ways of being, knowing and doing, and inclusion' (Australian Children's Education and Care Quality Authority, 2023). However, whilst aligning with important broader societal priorities, the EYLF has expanded from 51 pages to 71 pages and will increase pressure on ECEC teachers and educators to achieve EYLF notions of quality, some of which do not form part of quality assessment under the NQS.

EYLF notions of quality inform values and approaches that need to be incorporated into a service's efforts to deliver high-quality early education and care. However, it is unclear how aspects of the EYLF that inform quality *directly* relate to child outcomes and positive transitions to school. From a pedagogical perspective, a more content-driven curriculum may lead to less *play* in play-based learning. Educators who themselves are in the process of qualifying as teachers may have been appointed to the role of teacher due to ECEC workforce shortages. Play provides opportunities for children to acquire conceptual understanding, to apply these concepts in a range of situations and in this way to contribute to deeper learning (Zosh et al., 2017). In their desire to meet EYLF notions of quality while still learning about play as the vehicle for learning themselves, such educators may rely more on teacher-directed learning rather than achieving the necessary balance in teaching and learning strategies.

Countries differ in the way in which ELDS are structured and as such may be classified as *skills progression documents*, *framework documents* which include curriculum frameworks, *inclusive frameworks* (such as Australia's EYLF), and *general learning goals documents* (Kagan et al., 2013). Australia's EYLF now articulates eight practice principles and five broad learning outcomes and relies on early childhood educators having strong pedagogical content knowledge (Shulman, 1986), acquired in preservice teacher education courses, that equips them to enact the early years planning cycle: observing child behaviors, assessing what the observed behavior indicates the child knows or can do, planning opportunities for playful learning that consolidate or extending knowledge and/or capabilities, evaluating and reflecting on the efficacy of the learning experience, and once again, observing what the child demonstrates they know or can do (Australian Children's Education and Care Quality Authority, 2019).

The Early Years Learning Framework planning cycle has been central to the enactment of the EYLF (Department of Education Employment and Workplace Relations, 2009) and remains central to the EYLF V2.0 (DoE, 2022). Assessment is a critical element of teaching and learning within the planning cycle. In this way, the realization of quality pedagogical practice is primarily linked to assessment processes within ECEC environments. Yet, national data indicate that the Assessment and Planning Cycle (Element 1.3.1) of the NQS continues to be the element most likely to achieve a 'not met' rating (Australian Children's Education and Care Quality Authority, 2020; Australian Children's Education and Care Quality Authority, 2022). Cohrssen (2021) has argued that the provision of learning trajectories would assist early childhood educators to meet NQS QA1.3 (Assessment and Planning Cycle) whilst retaining the focus on child-centric, play-based learning, with pedagogical practice that is attuned to community, family and child priorities. Learning trajectories would thus lend themselves to more consistent access to high quality teaching and learning for all Australian children by supporting ECE teachers and educators.

Within the Australian regulatory system, notions of structural quality are assumed to go hand-in-hand with, and be enlivened by, process quality; strength in both elements of quality are necessary to support overall child development (Ishimine and Wilson, 2009). A recent systematic review of studies conducted in 10 countries (which included one Australian study) investigated the impact of adult-child ratios and group size as elements of structural quality on outcomes for children aged from birth to 5 years (Dalgaard et al., 2022). This review tentatively suggests that these characteristics of structural quality are associated with higher levels of process quality, whilst noting that this requires further investigation, particularly with regard to children under the age of 2 years. Dalgaard and colleagues also note that due to the paucity of studies that met inclusion criteria for the systematic review, the effects of adult-child ratio and group size could not be investigated separately. Amongst other limitations, the authors acknowledge that the overall quality of the studies was low, and much of the research was conducted prior to 2000; highlighting the need for contemporary, high-quality research since this predates the introduction of the National Quality Framework in Australia.

In a separate systematic review of research that explored the relationship between adult-child ratios and developmental outcomes of pre-school aged children, Perlman and colleagues report 'few, if any' relationships between ratios and child outcomes (Perlman et al., 2017). However, Perlman and colleagues also caution against using such findings to justify reducing adult-child ratios noting multiple possible explanations such as the number of studies that met inclusion criteria, and the possibility that some children are more affected than others by lower or higher adult-child ratios. There is a clear need for empirical research that addresses how teacher characteristics and behavior are related to child outcomes in ways that take into account important environmental/child characteristics, which includes ratios but also reflects how educators interact with children, and the distinctive children in their care.

Use of the mandated EYLF (Department of Education Employment and Workplace Relations, 2009) and the EYLF V2.0 (Australian Government Department of Education, 2022), along with educator and teacher qualifications and adult–child ratios, are elements of *structural quality*, whereas teachers and educators are key enablers of *process quality*; the back-and-forth interactions that support being, belonging and becoming and enliven structural quality (OECD Data, 2022). Interactions feature prominently in the framework as part of everyday practices: they are listed 19 times in the 2009 version and are listed 32 times in the 2022 version. Enacting responsive pedagogy is an interactive process that involves the child, the teacher, learning environment and broader society; these systems continuously influence and are influenced by each other (Bronfenbrenner and Morris, 2006; Sheridan, 2009). Educators are responsible for initiating high quality interactions that support children's learning and promote respect for diversity, are both individual and collaborative, verbal and non-verbal. Such interactions can be difficult to establish and sustain within ongoing practice (OECD Data, 2022). Nevertheless, despite these uncertainties and challenges, the dominant narrative appears to be that participation in ECEC assures access to high quality ECEC.

An emphasis on access

As noted previously, parents and caregivers' assessments of *quality* may be influenced by pragmatic considerations, such as improved opportunities to (re)join the workforce. Here, the opening hours of childcare facilities and proximity to home may be regarded as characteristics of quality, particularly in contexts where families have less access to ECEC (Ishimine et al., 2009; Cloney et al., 2016). Australian governments increasingly recognize that high quality ECEC benefits children, families, and society more broadly (Beatson et al., 2022) and increased access to ECEC for children is being prioritized. However, research conducted in the United Kingdom suggests that just giving access may not be the answer (Melhuish and Gardiner, 2021).

If access and participation are deemed to address primary caregivers' priorities for their children, Australia ranks lower than other OECD countries, where attendance is around 95% (Organization for Economic Cooperation and Development, 2020) as the number of children enrolled in a preschool program has declined in recent years. According to data from the Australian Productivity Commission (2021), the number of Australian children enrolled in a preschool program in the year before school declined from 92.4% in 2016 to 87.7% in 2019. Across Australian states and territories, the largest drops have occurred in Queensland (from 93.8% in 2016 to 84.8% in 2019) and Victoria (from 98.4% in 2016 to 87.8% in 2019), where families face significant costs for preschool compared with other states and territories (Pilcher et al., 2021). On the other hand, the Department of Education reports that 96% of children were enrolled in 600 h of preschool (the year prior to school entry) in 2019, an enormous increase from 12% in 2008 (Australian Government Department of Education, n.d.). Setting aside the differences in reported enrolment, the Department of Education also acknowledges that enrolment and full participation differ: in 2019, only 72% of the families of children enrolled in preschool used the full 600 h per child, and further reports that attendance rates were lower for Aboriginal and Torres Strait Islander children, and vulnerable and disadvantaged children (Australian Government Department of Education, n.d.). In 2022, both Victoria and Queensland introduced early childhood education packages to support improved access to ECEC and it will be important monitor the impact of such programs, particularly for children described as belonging to 'equity groups' (Australian Productivity Commission, 2021). The Australian Productivity Commission (2021) reports that children from so-called equity groups have lower enrolment rates across Australia. These include children with low SES backgrounds, non-English speaking backgrounds, living in regional/remote communities, children with disability, and Aboriginal and Torres Strait Islander children. In addition, Australian children who experience multiple indicators of disadvantage are less likely to attend ECEC (Wong et al., 2014). The Organization for Economic Cooperation and Development (2020) includes disabilities, ongoing long-term health conditions, or having primary caregivers with asylum seeker status as indicators of disadvantage.

Challenges in the accurate reporting of data on access and participation of Australian children may stem from the measurements used to generate such data. The OECD defines participation rates as net enrolment rates, 'calculated by dividing the number of students of a particular age group enrolled in ECEC by the size of the population of that age group' (Organization for Economic Cooperation and Development, 2020). However, according to the Australian Productivity Commission (2021), ECEC participation is defined as follows:

- Children using child care — the proportion of children who are enrolled in Australian Government CCS approved child care services by age group (0–5, 6–12 and 0–12 years)
- Preschool program participation — the proportion of children who are enrolled in a preschool program in the YBFS. To be considered as enrolled, the child must have attended the preschool program for at least 1 h during the reference period, or be absent due to illness or extended holiday leave and expected to return. State and Territory data are based on the location of the child's residence.

The first criterion does not account for families that enroll their children simultaneously in ECEC services that may not be Child Care Subsidy-approved ECEC services (such as kindergartens within private schools). Furthermore, neither measure accounts for children simultaneously enrolled in different types of early childhood services. For example, a child may attend long day care (center-based ECEC provided by professional educators, with children often grouped by age) on 2 days each week and family day care (education and care provided to a small group of children within the carer's home) 1 day per week. Or a child may attend long day care 5 days per week, but leave early to attend a kindergarten program (an education program delivered by a degree-qualified early childhood teacher) two afternoons per week. Further, enrolment data differ from information relating to hours of child actual attendance and frequency of attendance.

To address these challenges systematically, the Commonwealth Government and state and territory governments are pursuing a bilateral reform agenda aimed at increasing preschool enrolment and attendance (Australian Government Department of Education, n.d.). Attendance targets will be set from 2024, and bilateral collaboration is planned to develop, trial and implement a preschool outcomes measure. Further, acknowledging the need to increase the quality of preschool data and to develop a new Preschool Performance Framework, the Commonwealth Government has committed to spending an additional $28.7 million. Information regarding the Preschool Performance Framework is awaited.

Prioritizing preschool enrolment and attendance presupposes a workforce to meet the needs of increased participation. Herein lies a further challenge.

Implications of teacher shortages for ECEC quality

For more than a decade, looming shortfalls of early childhood teachers and educators, and concerns regarding pay and working conditions, have been reported in the media. As 2023 begins, the expansion of ECEC provision in Australia is hampered by shortages of teachers and educators and, by 2024, Australia will need to have recruited 6,800 degree qualified early childhood teachers and over 30,000 diploma- and certificate-qualified educators (Australian Government, 2021). Urgent measures that are currently being investigated will need to be implemented for some time to increase ECEC workforce participation and to upskill diploma-qualified educators to bachelor's degree teacher qualifications.

In the meanwhile, ECEC services that cannot meet staffing requirements (such as having a qualified early childhood teacher on staff) can apply for a waiver as a last resort to continue operation. This reflects the tension between meeting structural quality standards and meeting the access needs of primary caregivers. Here, different types of ECEC are impacted to differing degrees: 15% of long day care services hold a staffing waiver compared with 3% of preschools/kindergartens (Australian Children's Education and Care Quality Authority, 2022). Consequently, many more long day care services are staffed by educators working toward the necessary qualifications, and who may thus not yet possess the pedagogical content knowledge (Shulman, 1986) necessary to enact the EYLF (Department of Education Employment and Workplace Relations, 2009) and thereby support children's learning; at the very least, this sets up inequalities in children's access to high quality programs due to the variability of teacher preparation. This also means that educators employed as teachers under waivers while they complete their teaching qualifications may find themselves asked to supervise students who are also studying to become teachers.

As accountability increases within education, there has been a movement to more standardized teacher performance assessments (Darling-Hammond, 2014). However, Bird and Charteris (2021) have voiced concerns that such teacher performance assessments are 'high stakes filters that gatekeep who is permitted to become a teacher' (p. 504) and that the introduction of teacher registration in the ECEC sector is not associated with remuneration equivalence with the school sector. It should be noted that both implementing teacher registration and investigating options for improving workforce pay and conditions have been acknowledged as short-term (within 3 years) national priorities (Education Services Australia, 2021). Acknowledging the intent for teacher performance assessments to increase assurance of quality teaching and learning and the importance of graduates being ready to teach, we suggest that placing responsibility on individual teachers to meet such minimum standards is unreasonable. However, if accredited teacher education courses systematically and incrementally equip students with the necessary skills to be ready to teach, and practicum placements require pre-service teachers to demonstrate 'the fluidity and culturally responsive pedagogy' (Bird and Charteris, 2021) that characterizes early childhood education, teacher professional assessments should be achievable and avoid being an exercise in pedagogical reductionism.

By implication, the responsibility for the capabilities of ECEC graduate teachers should be distributed through multiple systems: the Australian Institute for Teaching and School Leadership (AITSL) which determines the Australian Graduate Teacher Standards, the state and territory-level organizations which accredit initial teacher education courses on behalf of AITSL, and institutions of higher education which deliver initial teacher education courses. Nonetheless, whilst a national teacher professional assessment would require graduates to demonstrate their ability to apply academic knowledge to professional practice (Bhatnagar and Sudhakar, 2017; Delamarter and Wiederholt, 2020), permission to hold staffing waivers directly negates the feasibility of introducing a national teacher performance assessment if ECEC services do not have early childhood teachers and operate under waivers.

ACECQA states that, 'A service granted a waiver can still achieve ratings of Meeting National Quality Standard and Exceeding National Quality Standard. This is because the service is taken to comply or not required to comply with the requirements of the National Regulations and elements of the NQS that are covered by the waiver' (Australian Children's Education and Care Quality Authority, n.d.). Research has found strong evidence of the important role played by *qualified* early childhood teachers in achieving overall environmental quality, particularly with regard to program structure, language and reasoning (Manning et al., 2019). Concerns in this regard are not new: discussing workforce challenges nearly a decade ago, Cumming et al. (2015) commented on educators at times being 'promoted beyond their skills, experience and knowledge' (p. 6) and further suggested that without sustained mentoring and without opportunities for professional learning, educators in leadership roles may burn out and resign. In summary, the shortage of early childhood teachers and educators is significant, and research is needed to examine the impact of unqualified teachers on efforts to lift quality standards and support child outcomes.

Research-driven assessments of quality

Research-driven assessments of quality bring a range of differing methodological approaches and thus may identify differing priorities to enable and support high-quality provision in ways that are aligned with the priorities of different stakeholders. This is a complicated issue as the priorities of different stakeholders have diverse sources and foci. For instance, within the Australian ECEC sector and regulatory environment, there is an unwavering focus on maintaining established statutory ratios. However, through a research lens, the issue of ratios is somewhat conflated with child characteristics and the skills or behaviors of educators and teachers (Perlman et al., 2017; Dalgaard et al., 2022). The focus on ratios as a cornerstone of high-quality provision is presumably affected by various issues, including an evidence base established prior to the onset of the NQS (Melhuish et al., 2015) that linked educator qualification to elements of process quality and child outcomes, but also to working conditions and the state of the workforce, which are, at a different level, essential to sustaining a high-quality ECEC system (see Connors-Tadros et al., 2021, for a discussion). Investigating the issue of ratios and quality is further complicated within the Australian context because of regulated uniformity, different models of ECEC provision, and because of a lack of agreement about how high-quality provision is best defined. Nevertheless, clarity on what aspect of quality is to be prioritized (e.g., process quality) and which outcomes are to be privileged (e.g., children's learning and development in specific domains of curriculum) allows for research that can meaningfully contribute to practice (and child outcomes). This could occur, for example, by examining the quality and extent of children's interactions with educators and teachers, and the extent to which such variation is a function of the service-provision model (e.g., program design, staffing norms, etc.), in relation to child outcomes.

A further challenge within the Australian context is the need for quality assessment across multiple regions or jurisdictions over time using instruments that are research informed [such as CLASS (Mashburn et al., 2008), RIFL (Sokolovic et al., 2021), ECERS (Clifford et al., 2010), and SSTEW (Siraj et al., 2015)], and have established associations with practices or outcomes that we know to be beneficial for children. Representative data of this kind are necessary in order to accurately determine the impact of measures intended to raise quality in its various manifestations. By way of example, while ECERS is

implemented in over 48% of states in the United States with Quality and Improvement Systems (Reinke et al., 2018), such large-scale quality assessment in the Australian context is rare. Acknowledging that ECERS has received much criticism for creating standardization of early childhood education (Reinke et al., 2018) and reducing early childhood programs to a set of universal criteria (i.e., the same standards applied across all early years settings for structural and process quality monitoring), ECERS is designed to value three basic needs that all children should have: 'Protection of their health and safety, the facilitation of building positive relationships and opportunities for stimulation and learning from experience' (Clifford et al., 2010). Environmental rating scales are not perfect and are not as predictive as people might assume of links between high-quality ECEC and positive child outcomes, but they have been shown in some cases to measure quality in a way that does predict child outcomes (Melhuish and Gardner, 2021) and they are designed to focus on those elements of curriculum, pedagogy and practice that have been shown, in independent research, to predict positive child outcomes.

Within Australia, there is an opportunity to establish a uniquely Australian research-driven assessment of quality that draws from accumulating international empirical evidence that characterizes a high-quality learning environment as one in which educators establish and maintain positive relationships, provide safe environments and support learning experiences that encourage children's cognitive and socioemotional development and their wellbeing (Melhuish et al., 2015; Taggart et al., 2015; Slot et al., 2018). With this opportunity comes a challenge: to arrive at shared notions of quality which *distribute accountability* for achieving quality across stakeholders within the ecological system within which individual children learn and develop (Bronfenbrenner and Morris, 2006).

Conclusion

Nearly 10 years ago, Ishimine and Tayler (2014) described the need for a valid, reliable measure that assesses quality at both room and educator level in the diverse ECEC contexts that characterize the sector in Australia. If there is agreement that quality needs to shift, then the reflexive response within the current system is to put further pressure on the shoulders of directors, educational leaders and educators, and to use quality assessment as accountability. In this paper, we acknowledge the contribution of the NQS, whilst distinguishing between regulatory-based assessments of quality and research-based assessments of quality, noting that ECEC system stakeholders have differing priorities and that these differing priorities are manifest in differing perceived quality characteristics. All are relevant.

What is needed, however, is a process to arrive at co-constructed characteristics of quality that considers the various priorities of all stakeholders (policy makers, regulators, researchers, educators, and primary caregivers). Further, any instrument for assessing quality needs to be *systemically* relevant: data generated should be useful to ECEC professionals to inform initial teacher education, in-service practice and professional learning. Data should be useful to primary caregivers to support informed decision making and should be appropriate to inform evidence-based policy making. Finally, data should be relevant to independent researchers seeking to assess the impact of quality characteristics for child learning and development and to test the efficacy of the measure itself.

Determining the impact of participation in ECEC requires national, longitudinal research. Such nationally representative research should gather data on dosage in the form of ECEC attendance, participation percentage rates, and child outcomes, but first of all, consensus on measures of quality is needed. At a time of national consensus on the importance of high quality ECEC, increased investment and workforce upheaval, it is time to engage in conversations and processes that address the differences between stakeholders' assessments of quality in ways that distribute accountability for achieving improved outcomes for all children through high quality ECEC systems. Preliminary indications are that we have not yet begun this process.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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