Australian Education Research Organisation

Evidence use in early childhood education and care

National snapshot 2021/2022

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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 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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Background

This national snapshot presents findings on the current use of evidence by educators, teachers and service leaders in the early childhood sector in Australia. We examine attitudes towards and use of different types of evidence, and challenges and enablers in using evidence to inform and improve practice.

Improving practice requires opportunities to learn, try and refine new approaches, as well as access to high-quality evidence (Togher & Fenech, 2020). Evidence can support educators, teachers and leaders to understand which practices work best in different contexts and with different children, and can enable educators, teachers and leaders to tailor their programs and teaching.

The Australian early childhood education and care (ECEC) sector presents unique strengths and challenges when it comes to using evidence in practice. A strength of the sector is its evidence-based architecture for practice, comprising the National Quality Standard (NQS), Belonging, Being, Becoming: The Early Years Learning Framework for Australia (EYLF), My Time, Our Place: Framework for School-Aged Care (MTOP) and other approved learning frameworks. These mainstays of ECEC practice are themselves based on research, as well as ongoing consultation with educators, teachers and leaders.

Challenges arise in ensuring that educators, teachers and leaders can engage with research evidence in ways that are timely, relevant and accessible. Most educators in Australian ECEC services have vocational education and training qualifications, which may give them solid foundations in practice, but involve limited engagement with academic research. Meanwhile, the outside school hours care (OSHC) workforce has diverse qualifications (the requirements for which vary by jurisdiction), often with relatively short tenure in the field. Time to plan, read and reflect is also limited for many educators, and access to professional learning opportunities is highly variable across the sector (Jackson, 2020).

In this context, the Australian Education and Research Organisation (AERO) valued the opportunity to hear from those working in the sector about the place of research and evidence in their professional practice. This report helps to identify where evidence is making an impact already, as well as opportunities to improve engagement with evidence. This will in turn help improve practice and ultimately lift outcomes for all children and families, as well as affirming the professionalism of practice in ECEC settings.

Overview

The AERO evidence use snapshot

This snapshot is based on findings from:

- our evidence use survey
- a rapid review of existing literature on evidence use
- findings from interviews with educators, teachers and leaders.

Our evidence use survey received responses from 413 educators, teachers and service leaders across the early childhood sector. Here, we present survey findings from across all respondents and by role where possible and relevant. In addition, interviews with 13 educators, teachers and leaders working with children aged birth to 5 years provide further insights into how evidence is used.

In examining the use of evidence, we distinguish between:

- **research evidence:** academic research, such as causal research or synthesis research, that uses rigorous methods to provide insights into educational practice
- **educator-and-teacher generated evidence:** evidence generated by educators and teachers through their daily practice. This includes practices described in the NQS and the approved learning frameworks, such as observation, documentation, assessment for learning, critical reflection, and the process described by the Assessment and Planning Cycle (Australian Government Department of Education [AGDE], 2022a; AGDE, 2022b).

Evidence makes a difference when it is rigorous, reliable and implemented well. As such, we also distinguish between:

- **quality of evidence use:** where evidence is engaged with thoughtfully, appropriately, and implemented well
- **using high-quality evidence:** when evidence is rigorous and reliable, and educators, teachers and leaders have the skills and confidence to assess rigor and reliability.

This report provides a snapshot of the current situation of evidence use in ECEC services in Australia. Generalisation of findings from the rapid review is limited by sample size, study design and method of data collection across some of the studies reviewed (for example, qualitative studies or case studies). Despite findings from such studies being context-specific, the literature provides valuable insights into evidence use, as well as enablers and barriers that impact engagement with evidence in the sector. See Methodology for further details on the data and methods of this study.

AERO Evidence use survey

A total of 413 survey responses were received between February and December 2021. Respondents came from:

- long day care (53%, n=218)
- preschool and kindergarten (21%, n=85)
- OSHC (9%, n=37)
- family day care (4%, n=15)
- in home care (2%, n=10).

This distribution is broadly representative of the EC sector (Australian Children's Education & Care Quality Authority, 2022), with an underrepresentation of OSHC. Around 10% of respondents (n=42) did not indicate their service type.

Most respondents were educators, early childhood teachers or nominated supervisors:

- educators (43%, n=176)
- early childhood teachers (18%, n=75).
- nominated supervisors (17%, n=69).
- educational leaders (8%, n=31)
- directors (3%, n=12)

8 respondents indicated "other" and 42 did not state their role.

This national snapshot expands existing knowledge of evidence use in the early childhood sector

The broad features of evidence-based ECEC programs are well understood (Burchinal, 2018; Melhuish et al., 2015; Siraj & Kingston, 2015; Siraj et al., 2019; Tayler, 2017). These are either features of quality related to teachers' and educators' practice or features of quality at the service- and leadership-level.

Important features of quality related to educators' and teachers' practice include:

- warm and responsive adult–child interactions
- educationally-oriented curriculum within play-based approaches
- partnerships with families that support the home learning environment and involve families in educational goal setting (Hamre & Pianta, 2007; Melhuish et al., 2015; Siraj et al., 2019; Tayler, 2017).

Meanwhile, features of quality at the service- and leadership-level identified in the research literature include:

- staff qualifications
- ratios and group sizes that allow staff to engage regularly and deeply with children.
- leadership that supports quality, collaboration and continuity of care
- facilities that support health and safety (Siraj et al., 2019).

Since 2012, the National Quality Framework (NQF) has guided the assessment and rating of approved ECEC services in Australia against the 7 Quality Areas of the NQS, which reflect the broad features outlined above. Under the NQS, approved learning frameworks guide the educational program and practice in ECEC services. These frameworks – EYLF v2.0, MTOP V2.0, and the Victorian Early Years Learning and Development Framework – were developed, validated and evaluated through consultative processes that involved experts and researchers, educators, teachers and sector leaders, and policymakers from the Australian and state, territory governments. These approved learning frameworks draw on a large body of educational and child development theory and research (Barblett et al., 2021; Sumsion et al., 2009) and lay out the principles and practices for working with young children and their families, and the learning and development outcomes against which to assess and plan for children's learning.

NQS assessment and rating data provide a fit for purpose, high-level indication of evidence-based practices in ECEC services, as well as how quality of practice is improving nationally. However, there are more detailed and context-specific features of practice quality that the NQS do not capture, that could be complemented by more granular tools for research purposes (Siraj et al., 2019). AERO's analysis of the NQS Standards and Elements also found that more detailed instruments are required to understand the ways in which educators, teachers and leaders in ECEC settings are using evidence to improve their practice.

This national snapshot of evidence use establishes a baseline for understanding how educators, teachers and leaders in ECEC services are using evidence to deepen their understanding of the practices that the NQS and approved learning frameworks require. It contributes to the evidence base about approaches to improving the quality of practice in the sector, by seeking to understand:

- attitudes to using evidence
- access to evidence
- how confident educators, teachers and leaders are in their ability to evaluate sources
- how educators, teachers and leaders apply evidence in their practice
- enablers of and barriers to evidence use in ECEC services.

AERO will use these findings to support educators, teachers and leaders to implement evidence-based practices:

- to a higher level of quality
- in a way that responds to particular cohorts or contexts
- in a way that is more explicitly informed by evidence about how children learn and develop.

Terminology: Educators, teachers and leaders

In this report, we refer to 'educators, teachers and leaders' to describe the variety of roles that staff working in ECEC settings may hold. Within each of these categories, roles are diverse, especially in 'leader' roles, which include direct contact with children, as well as administrative-only roles. The 'leader' category includes nominated supervisors, educational leaders, and service directors and coordinators. We also use the term 'practitioners' to refer to all educators, teachers and service leaders in ECEC services.

Summary of findings

Educators, teachers and service leaders use educator-and-teacher generated-evidence more often than evidence from research

On average, 77% of all survey respondents reported using forms of educator-and-teacher-generated evidence 'often' or 'very often' in the past year. This included using observations of children's learning or development to change the next day's plan or to determine the effectiveness of a practice. A much lower proportion of survey respondents (on average, 47%) reported using research evidence 'often' or 'very often'. This included using or referring to academic research to:

- trial or refine an instructional practice (36%)
- discuss practices in staff meeting (41%)
- improve their knowledge about the effectiveness of an instructional practice (49%)
- plan an activity (60%).

The much lower proportion of teachers using (as opposed to referring to) research evidence signals a potential area of focus for organisations engaging with educators, teachers and leaders to increase support for applying research evidence in practice.

Most educators, teachers and service leaders identified engaging with colleagues and observing and responding to children as effective ways to gather and use evidence

Given that educators, teachers and leaders more commonly use educator-and-teacher-generated evidence to inform their practice, it is not surprising they also commonly identify activities relating to educator-and-teacher-generated evidence as effective ways to gather or use evidence:

- observing children to determine the effectiveness of a particular practice (93%)
- observing children to compare different practices to decide which is the most effective (85%).

Most respondents (84%) also identify practices that children like as an effective use of evidence. This reflects the importance of child-centred curriculum in ECEC services (NQS Element 1.1.2), where children's interests provide important opportunities for extending their learning and development supported by intentional teaching.

Discussing practices in staff meetings is considered an effective way to gather and use evidence by 85% of respondents. Again, this reflects the practices in the EYLF and NQS, which emphasise the importance of allowing children's interests to provide opportunities to extend their learning and development, and the importance of collegial critical reflection as a way of sharing knowledge and improving practice. NQS Element 4.2.1 requires that educators, teachers and leaders 'challenge and learn from one another'.

Academic research is more often used for affirming than challenging practices

Two-thirds (63%) of respondents report that research on effective practice confirms what they already know about what works in their service. More respondents are likely to advise a colleague against a practice based on evidence they collected from their service (63%) rather than research evidence (55%).

Educators, teachers and service leaders also use academic research to address gaps in practice and support conversations with parents and other professionals

Some respondents reported looking to academic research when they recognise the need to change or improve practices. Just under half of respondents (49%) consulted academic research to improve their knowledge about the effectiveness of a practice, and 35% trialled or refined a practice based on recommendations from academic research.

Educators, teachers and leaders use a combination of research evidence and evidence generated from their service to support their conversations with families regarding children's development and learning. In addition, some educators and teachers described using evidence to validate a practice or approach they started implementing, and to support their conversations with colleagues.

Educators, teachers and service leaders appraise quality of evidence based on its impact on children's learning

In interviews, educators, teachers and leaders tended to define the quality of both evidence and evidence use in terms of the quality of the practice that resulted, and whether that practice had a demonstrably positive effect on children.

Findings from AERO's evidence use survey suggest that practitioners are less confident appraising the quality of externally-generated research in its own right, before they attempt to apply it to their practice:

- 80% of respondents are confident to use observations of children's learning or development to determine the effectiveness of a practice
- Only 59% are confident to change or refine their practice based on recommendations from academic research
- Only 48% are confident to determine whether academic research is rigorous or of high quality.

This finding suggests that practitioners' limited use of academic research may also be driven by a lack of confidence in their ability to appraise its quality.

Lack of resources is a key barrier to evidence use in ECEC settings

Resources – primarily time and money – are barriers to evidence use in ECEC settings. For example, workload pressures to produce and document evidence for regulatory purposes may contribute to limited capacity to engage with evidence in other ways. Moreover, differences in terminology across sectors – for example, ECEC, OSHC and schools – can make it challenging for practitioners working across diverse settings, disciplines and sectors to communicate effectively about evidence.

A culture of evidence use, leadership support, professional learning, and confidence to use evidence are needed for effective use of evidence

In addition to discussions and encouragement to use evidence, support mechanisms need to be in place to increase evidence use. Respondents mostly agree or strongly agree that:

- evidence is used at their service when deciding on policies and programs (84%)
- leaders share and discuss evidence that could improve practices (82%)
- leaders encourage staff to use information related to children's learning and development to determine whether a practice works (87%)
- they discuss with colleagues evidence that could improve their practice (84%).

Despite what seems to be a good culture of discussion and encouragement towards evidence use, it appears that evidence is not yet used to its full potential:

- Only 63% of survey respondents report they will encourage their colleagues to stop using a practice if evidence collected from their service shows it does not work
- Only 56% report they will encourage their colleagues to stop using a practice if evidence from academic research shows it did not work
- Only 48% report their colleagues explicitly encourage them to use evidence to change their practice.

Further support is needed for effective use of evidence, particularly for educators and teachers:

- Only around 62% of educators and teachers report that at their service, coaching is available to help staff use evidence to change their practice, compared to around 75% of service leaders
- Only 70–75% of educators and teachers indicate that their service provides easily accessible information, resources, training or other support to help them use evidence to inform their practice, compared to 80% of service leaders.

Educator-and-teacher-generated evidence is used more often than research evidence

The collection and use of educator-and-teacher-generated evidence occurs daily in ECEC settings (Centre for Education Statistics and Evaluation [CESE], 2020; MacDonald, 2020; Page & Eadie, 2019). Commonly referred to as 'assessment for children's learning' or 'formative assessment', the EYLF describes this practice as the process through which 'information about what children know, can do and understand is gathered and analysed to inform pedagogy and planning' (AGDE, 2022a). This practice contributes to NQS Quality Area 1: Educational Program and Practice, for which assessors will seek evidence through observation, discussion or documentation. Importantly, the NQS does not specify the format educators, teachers and leaders must use to document children's learning.

Some forms of documentation are used more commonly than others. For example, photos and anecdotal written observations are more likely to be used at least once a week, compared to checklists, which are used once a term or biannually (Kishida et al., 2021). The time available for educators, teachers and leaders to plan and use evidence in their planning is context-specific and varies significantly across services and roles. Some educators have access to extra staff to support documentation of child observations in real time, while others have little time away from face-to-face educator responsibilities (CESE, 2020). While data in the shape of observations and photos may be collected to communicate with parents about the progress or daily activities of children, this data is also often used to reflect on practice (Lee-Hammond & Bjervås, 2021).

The frequent use of various types of educator-and-teacher-generated evidence is also reflected in findings from the AERO evidence use survey. A high proportion of respondents commonly use educator-and-teacher-generated evidence to inform their practice:

- On average, 77% report using forms of educator-and-teacher-generated evidence 'often' or 'very often' in the past year:
  - 67% explicitly referenced observations of children's learning or development when discussing practices with colleagues
  - 71% changed the next day's plan based on observations of children's learning or development
  - 84% reviewed observations of children's learning or development before planning an activity
  - 85% used observations of children's learning or development to determine the effectiveness of a practice they used.

Interviews also reflected the high value that educators, teachers and leaders in ECEC services placed on gathering evidence about what works well for children:

> 'It's the difference between whether something is simply ticking boxes on a piece of paper, as opposed to actually looking at what's happening on the ground with the children and how the children are behaving, and then basing what you're doing around what the children are showing you.'

Educators noted that frequent observations and conversations with children play a large role in generating evidence within ECEC settings:

> 'We generate our evidence in lots of different ways. It could be observations of children, how they're using the space, whether or not an environmental layout is working for children. It could be around how children are using particular resources. We could be collecting work samples and working with the children on evaluating their work together, those sorts of things.'

One educator also highlighted the importance of collecting evidence from families as a way of informing their pedagogical decision-making. This form of evidence is used to identify children's learning goals:

> 'I really love to have our community and families involved in what their children are going to be learning about, what that learning will look like. And I do that in different ways. So, I might speak to them on collection and pick up, I might send out information in newsletters, I might send out questionnaires. Previously, I've sent out a letter to families asking them to write what their learning goal is for their child, and why that is their learning goal.'

In contrast, educators, teachers and leaders were less likely to use evidence from outside the service to inform their curriculum and pedagogical decision-making:

- On average, only 47% of all respondents' report using forms of research evidence 'often' or 'very often' in the past year:
  - 36% trialled or refined a practice based on recommendations from academic research
  - 41% referred to academic research in staff meetings when discussing practices
  - 49% consulted academic research to improve their knowledge about the effectiveness of a practice
  - 60% consulted a document that summarises effective practices for children's learning or development when planning an activity.

Furthermore, a higher proportion of respondents seem to consult and refer to academic research (41–60%) than applying it to change their practice (36%). This signals a potential area of focus for organisations engaging with educators, teachers and leaders and evidence use, to increase application of research evidence in practice. Further analysis of our survey data offers greater insight into this contrasting pattern of evidence use, and its implications for informing practice.

Most practitioners identify engaging with colleagues, and observing and responding to children as effective ways to gather and use evidence

Given that educators, teachers and leaders more commonly use educator-and-teacher-generated evidence than research evidence to inform their practice, it was not surprising that when asked for their thoughts about effective ways to gather and use evidence, they most commonly identified activities relating to educator-and-teacher-generated evidence as effective:

- observing children to determine the effectiveness of a particular practice (93%)
- observing children to compare different practices to decide which is the most effective (85%).

Using evidence in these ways is consistent with assessment for learning using the Planning Cycle (Australian Government Department of Education, Employment and Workplace Relations, 2010), required under NQS Quality Area 1, Educational Program and Practice.

Many respondents (84%) also identify practices that children like as an effective use of evidence, and this is uniformly reflected across role types (Figure 1). This reflects the importance of child-centred curriculum in ECEC services (NQS Element 1.1.2), where children's interests provide important opportunities for extending their learning and development, supported by intentionality in play-based learning.

Discussing practices in staff meetings is considered an effective way to gather and use evidence by 85% of respondents. Again, this reflects the practices in the EYLF and NQS, which emphasise the importance of collegial critical reflection as a way of sharing knowledge and improving practice. NQS Element 4.2.1 Professional Collaboration requires that educators, teachers and leaders 'challenge and learn from one another'.

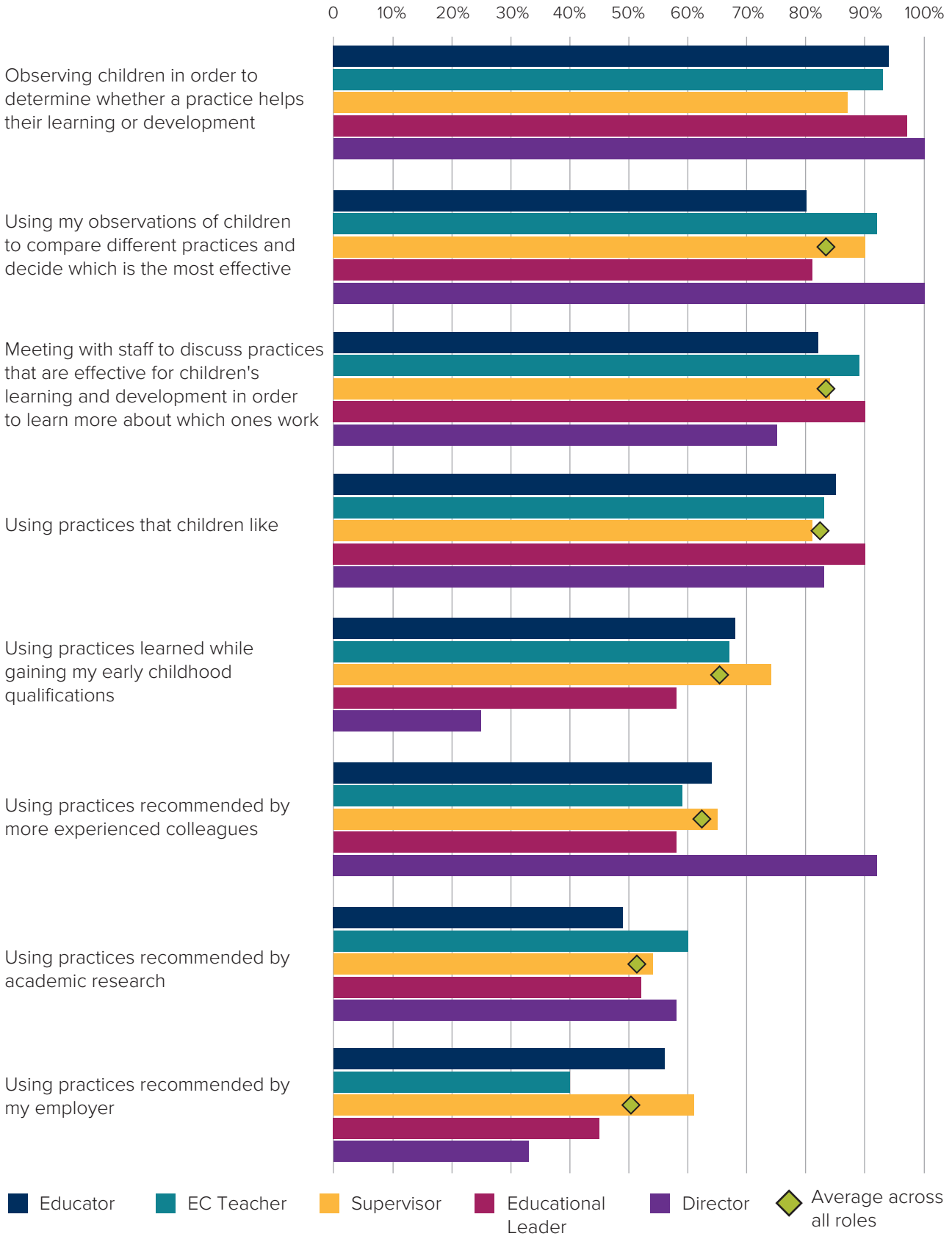
Overall, these findings indicate that educators, teachers and leaders recognise the value of evidence-based practice as it aligns with ECEC standards and frameworks. These day-to-day strategies for informing and evaluating practice were more commonly identified as effective than the evidence that educators, teachers and leaders had gained through their initial qualifications. This indicates a promising trend towards ongoing reflection and practice improvement that extends beyond initial education and training.

Educators, teachers and leaders less commonly believed that effective ways to use or gather evidence came from outside their direct interactions with children and colleagues. Survey respondents least frequently identified practices recommended by their employer (52%) and recommendations from academic research (53%) as effective ways to gather and use evidence. This suggests an opportunity to inject more knowledge from research into ECEC services, to supplement the rich body of educator-and-teacher-generated evidence that educators, teachers and leaders are using.

In interviews, one educator indicated a preference for external sources of evidence:

> 'We do tend to try and rely on evidence-based practice because we believe that knowledge would be more accurate than our own.'

Figure 1: AERO Evidence use survey – Effective ways to gather or use evidence by role



Note: These results are for the survey question 'There is a lot of talk in education about gathering and using evidence to inform practice. AERO wants to learn what it means to do this well. To what extent would you describe the following as an effective way of gathering and/or using evidence?'. The graph displays participants who responded 'A lot'. n=176 educators, 75 early childhood teachers, 69 nominated supervisors, 31 educational leaders, 12 directors.

More typical responses from interviewees tended to define the use of evidence as innately incorporated into their daily practice:

> 'I think I'd go with my gut a lot, but I think I would be surprised how much knowledge there is behind that gut feeling.'

> 'I think that everything we do here is evidence-based. There are so many types of things that we collate.'

These responses point to the dynamism of ECEC practice, in which spontaneous decisions to support children's learning, development and wellbeing are made every day. Educators and teachers must rapidly search and retrieve their mental stores of pedagogical strategies to respond to each moment. The better their access to evidence, the more likely their 'gut feelings' and responses will be driven by deep understanding of practice.

For the most part, survey responses did not vary greatly by role type (Figure 1). However, compared to other respondents, directors[1] were:

- more likely to indicate that practices recommended by more experienced colleagues are a good way to gather evidence
- less likely to indicate that practices recommended by their employer are a good way to gather evidence
- less likely to say that using practices they learned while gaining their qualification was an effective source of evidence, perhaps because more time has passed on average since they graduated, or because their role may involve more responsibilities that were not part of their early childhood studies.

While not explicitly investigated in the survey, informal networks and external professionals and organisations are also seen as sources of evidence (Corr et al., 2014). Not surprisingly, some studies report that the internet (research and professional websites and general web searches) is also seen as a common source of research evidence among educators (Paynter et al., 2017). The internet – including Google and social media – was also mentioned as a method for sourcing evidence by most interviewees. One educator stated:

> 'Googling [is] another thing that I do a lot. Oh, maybe I'll just look it up, good strategies for fine motor development or ways to get children to learn.'

While many good, potentially evidence-based resources exist in the public domain, it is important that educators, teachers and leaders using these resources can evaluate the reliability and relevance of the source. Educators', teachers' and leaders' confidence in appraising the quality of evidence is discussed later in Confidence.

1 Note that responses came from a small group of directors (n=12).

Academic research is more often used for affirming than challenging practices

The emphasis on educator-and-teacher-generated research was further supported by the types of evidence that educators, teachers and leaders reported using to challenge or affirm existing practices – either their own, or their colleagues'.

Two-thirds (65%) of respondents report that research on effective practice confirms what they already know about what works in their service. This indicates they feel they are already implementing practices that are endorsed by the research they have come across. Their confidence in their practice is further reinforced by the data they generate themselves, with 81% of survey respondents agreeing or strongly agreeing they can only be confident a practice works after they have trialled it in their service and observed its effects (Figure 2).

Respondents would more often encourage each other to change their practice based on evidence from practice than from research:

- 63% of survey respondents 'agree' or 'strongly agree' they will encourage colleagues to stop using a practice if evidence from their service shows it does not work
- 55% of survey respondents 'agree' or 'strongly agree' they will encourage colleagues to stop using a practice if evidence from academic research shows it does not work

Interviewees also mentioned the potential for connections between educator-and-teacher-generated evidence and research evidence, especially when it is driven by the interests and priorities of practitioners, families, and children.

Talking about the need to prove that strategies from research evidence are appropriate to their context, an interviewee explained:

> 'They'll come in with these really great academic theories or ideas of what they think is going to work and then flounder when they're trying to do it in practice because it's not working…'

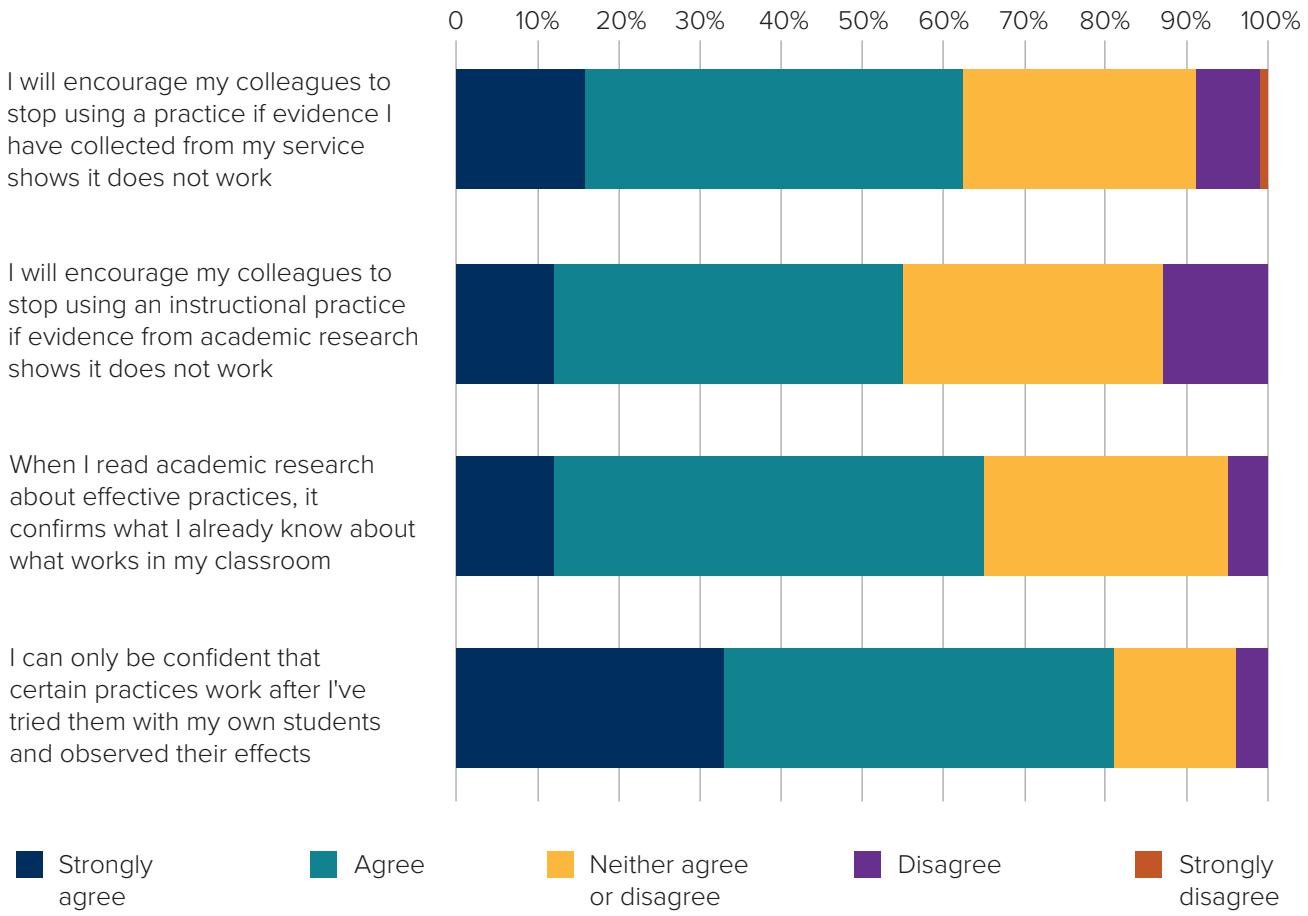
Most respondents highlighted that it is their observations of children that drive their need to search for, and use evidence to improve their practice:

> 'It would just be about the children and noticing how they respond to something. When things are not working for [the children], [it] is a really big clue that we need to do something. We need to go and find some different ideas, some new research.'

Further, a respondent commented on the use of research evidence alongside evidence generated through engagement with parents and observations of children:

> 'We really had a strong message through some consultation with families about wanting to see more diversity in terms of cultures. So, we did some research into culturally responsive pedagogy and came across some research from Irabinna Rigney around [life-worlds]. We tried really hard not to just replicate what we read about, but actually spend a lot of time digesting it and making sense of what a (Centre name) image of that might look like in our practice.'

Figure 2: AERO Evidence use survey – Use of evidence



Note: These results are for the survey question 'In this survey, "evidence" refers to information used to support claims about the effectiveness of a particular practice or activity. Please indicate the extent to which you agree or disagree with the following statements'. N=413 educators, teachers, and leaders.

Educators, teachers and leaders also use research evidence to address gaps in practice and support conversations with parents and other professionals

Educators, teachers and leaders identified other ways that they employed research evidence to increase confidence in their teaching practice and enhance their pedagogy. Some educators described sourcing research evidence to support their conversations with families regarding children's development and learning. For example, one educator talked about seeking out evidence on fine motor development, stating:

> 'I might go looking for research on children's fine motor development, just to give an example to a parent who may not have the knowledge.'

Sourcing research evidence was also discussed to facilitate professional conversations and to support educators' confidence as early childhood professionals:

> 'We have more professional conversations, and then we're more confident to talk to families about any issues that are arising, see what they're doing, support them to be able to do some of those things, and then have more multidisciplinary discussions with others like the OT [occupational therapist] and the speechie [speech pathologist] with more confidence that we know what we're talking about.'

There are some differences in how often educators, teachers and leaders use research evidence, depending on whether they hold a formal leadership role in their service. For example, in terms of using research evidence over the past year (Figure 3), a slightly higher proportion of teachers and leaders compared to educators report they 'often' or 'very often':

- trialled or refined a practice based on recommendations from academic research (40–50% of teachers and leaders compared to under 30% of educators)
- referred to academic research in staff meetings when discussing practices (40–55% of teachers and leaders compared to 30% of educators)
- consulted academic research to improve their knowledge about the effectiveness of a practice (50–60% of leaders compared to 43% of educators).

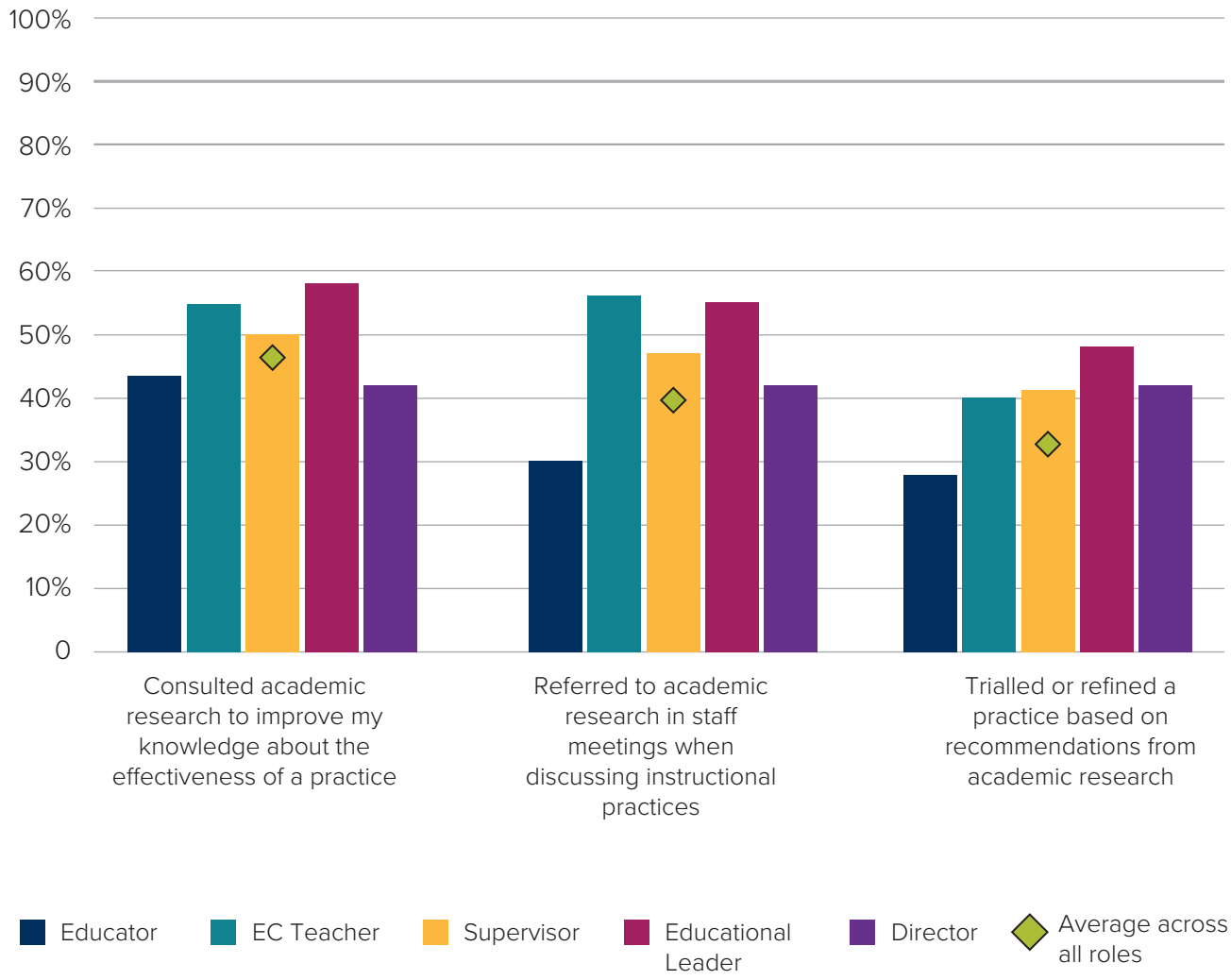
As may be expected, given the diversity of roles and time allocations, not all interviewees appeared to be routinely engaged in searching for research evidence to support their practice. For example, one educator commented:

> 'Something I would never usually do but I'm [doing] now while planning [is] just Google [for example] benefits of easel painting.'

Similarly, other interviewees referred to 'happening upon' evidence that supports their use of a particular practice, through the broad use of the internet or social media, rather than actively seeking reliable sources:

> 'I don't often go looking for it, but it does pop up on social media and things like that. I follow quite a few different people and if it's something that interests me or something that we're trying to implement at the service then I'll have a read through it.'

Figure 3: AERO evidence use survey – Use of research evidence by role



Notes: These results are for the survey question 'In the last year, how often did you do the following?'. The graph Displays participants who responded 'often' and 'very often'. n=176 educators, 75 early childhood teachers, 69 nominated supervisors, 31 educational leaders, 12 directors.

Some interviewees also described using a combination of research and educator-and-teacher-generated evidence to validate a practice or approach that they had started implementing:

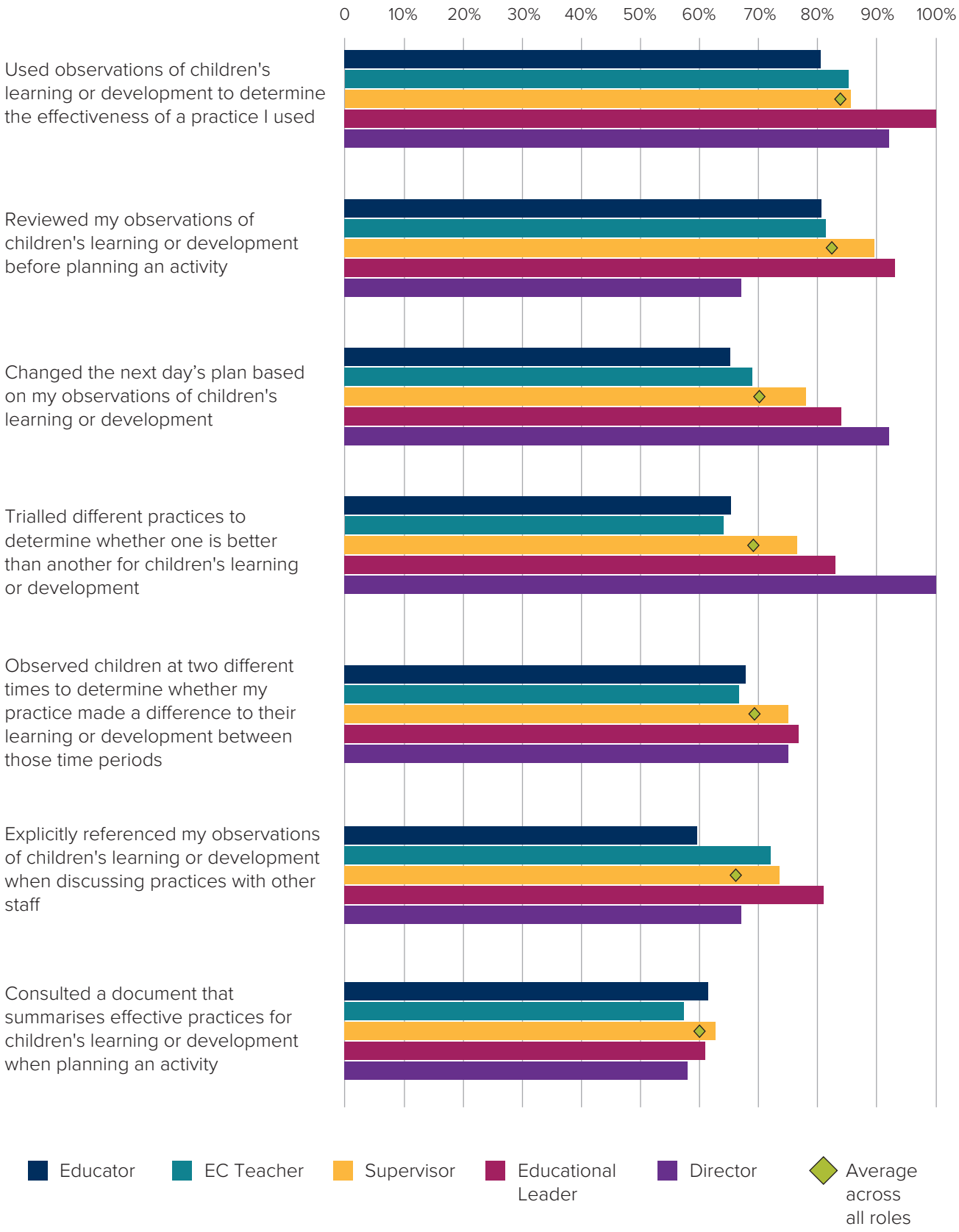
> 'If I'd started using someone's idea, once I trialled it a bit, I might go out and get a bit more supporting evidence.'

Overall, there seems to be little difference in how educator-and-teacher-generated evidence is used across different roles. Interestingly, while teachers seem to be similar to leaders in their use of research evidence (Figure 3), they are more similar to educators in some aspects of how they use educator-and-teacher-generated evidence (Figure 4). For example, a lower proportion of educators and teachers compared to leaders report that over the past year they 'often' or 'very often':

- changed the next day's plan based on their observation of children's learning or development (68–69% of educators and teachers compared to 79–91% of service leaders)
- trialled different practices to determine whether one is better than another for children's learning or development (62–65% of educators and teachers compared to 76–100% of service leaders)
- reviewed their observations of children's learning or development before planning an activity (80% of educators and teachers compared to 90–91% of educational leaders and supervisors).

The reasons for these differences would require further research, but they may reflect differences in the amount of time leaders have to reflect and plan compared to educators and teachers who spend most of their time with children.

Figure 4: AERO evidence use survey – Use of educator-and-teacher generated-evidence by role



Notes: These results are for the survey question 'In the last year, how often did you do the following?'. The graph displays participants who responded 'often' and 'very often'. n=176 educators, 75 early childhood teachers, 69 nominated supervisors, 31 educational leaders, 12 directors.

Educators, teachers and leaders appraise quality of evidence based on its impact on children's learning

Our research also explored the quality of both evidence and evidence use:

- The **quality of evidence use** refers to how evidence is used. For example, is it engaged with thoughtfully and appropriately and implemented well?
- The **quality of evidence** refers to whether the evidence is reliable and rigorous, and whether the educators, teachers and leaders have the skills and confidence to assess rigour and reliability.

In interviews, educators, teachers and leaders tended to define the calibre of both evidence and evidence use in terms of the quality of the practice that resulted, and whether that practice had a demonstrably positive effect on children. For example:

> 'Seeing whether it actually has an impact on the kids or not – that's first and foremost for me [an indication of quality evidence].'

> 'I think the responsiveness of the children is the evidence…'

Findings from AERO's evidence use survey suggest that educators, teachers and leaders are less confident appraising the quality of externally-generated research in its own right:

- 80% of respondents are confident to use observations of children's learning or development to determine the effectiveness of a practice
- 62% are confident to determine whether academic research is relevant or applicable to their situation or context
- Only 48% are confident to determine whether academic research is rigorous or of high quality
- Only 59% are confident to change or refine their practice based on recommendations from academic research.

This finding suggests that educators', teachers' and leaders' limited use of academic and other external research may also be driven by a lack of confidence in their ability to appraise its quality. Interviews provided further insight into the appraisal strategies that practitioners use, indicating a high reliance on professional connections and trusted organisations to curate and share quality findings:

> 'I'm fairly confident, because I've been using it for many years and it's always recommended by professionals such as speech therapists and OTs, psychologists.'

> 'You know something like an AJEC [Australasian Journal of Early Childhood] article is peer-reviewed. It's gone through a really rigorous process. There are the lesser academic style of articles that we also rely on, so things that come out of the Every Child magazine that Early Childhood Australia writes which are more practitioner-written articles. We rely on the fact that we know Early Childhood Australia is our peak body and so they're the experts across our sector and have processes in place to ensure that what they're publishing is reliable.'

Since the survey was conducted, AERO has increasingly been viewed in the ECEC sector as a trusted authority on evidence-based practice, as well as for supporting educators, teachers and leaders to use and appraise evidence confidently. AERO has published a range of resources to guide educators, teachers and leaders in their assessment of evidence.

Use of evidence is facilitated by a culture of evidence use, leadership support, professional learning and confidence to use evidence

Enablers of evidence use are elements that support or facilitate engagement with evidence. We identified a range of enablers of evidence use in Australian ECEC services from:

- published studies
- the AERO evidence use survey
- interviews with educators, teachers and leaders.

At a system- and service-level, enablers include:

- opportunity for cross-sector and interdisciplinary collaboration to strengthen assessment and planning (CESE, 2020; Kirkby et al., 2018; Page & Eadie, 2019)
- access to tools and resources that align with the NQS and approved learning frameworks, to record practices that are being implemented (CESE, 2020; Page & Eadie, 2019)
- a stable educator workforce with low staff turnover and a supportive team culture (CESE, 2020; Grant et al., 2018).

These enablers were highlighted by some interviewees when asked what supports them to access and use evidence:

> 'Support from regional office to engage head office in actually supporting sites and working with teachers one on one on their practices.'

> 'My director is fantastic…She has a shared vision for [evidence use]. And we want to make that happen.'

> 'When we've implemented something successfully, it's been everyone on the same page doing it.'

At an individual level, enablers identified across recent studies of evidence use in ECEC services in Australia include:

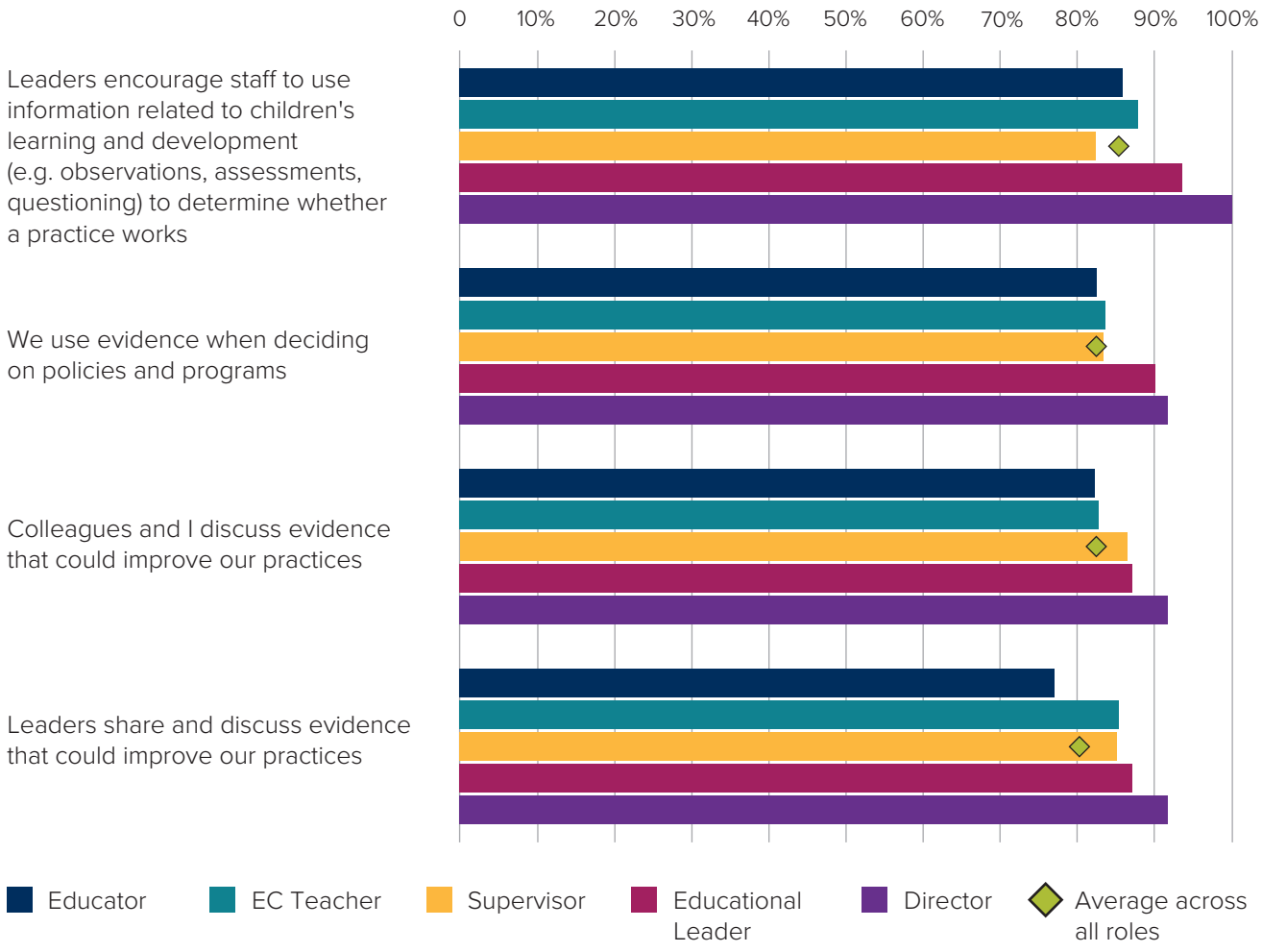
- openness to using evidence-based practices, at educator, teacher and team-level (CESE, 2020; Hedge & Cohrssen, 2019; Houen et al., 2016; Lee-Hammond & Bjervås, 2021)
- understanding the approved learning frameworks (Lee-Hammond & Bjervås, 2021)
- professional qualifications that enrich skills and competencies in evidence use (CESE, 2020; Degotardi et al., 2018; Hadley et al., 2015; Tayler, 2017)
- experiencing children's positive responses during learning (Hesterman & Targowska, 2020).

A high proportion of respondents' report being supported to use evidence at the service-level (Figure 5):

- 87% agree or strongly agree leaders encourage staff to use information related to children's learning and development to determine whether a practice works
- 84% agree or strongly agree that at their service, evidence is used when deciding on policies and programs
- 84% agree or strongly agree that they discuss evidence with colleagues that could improve their practice
- 82% agree or strongly agree that leaders share and discuss evidence that could improve practices.

While a culture of sharing and discussing evidence within services is present, educators, teachers and leaders less frequently report cultures of evidence use where they feel comfortable encouraging each other to change their practice based on evidence from academic research or practice.

Figure 5: AERO evidence use survey – Support available across services by role



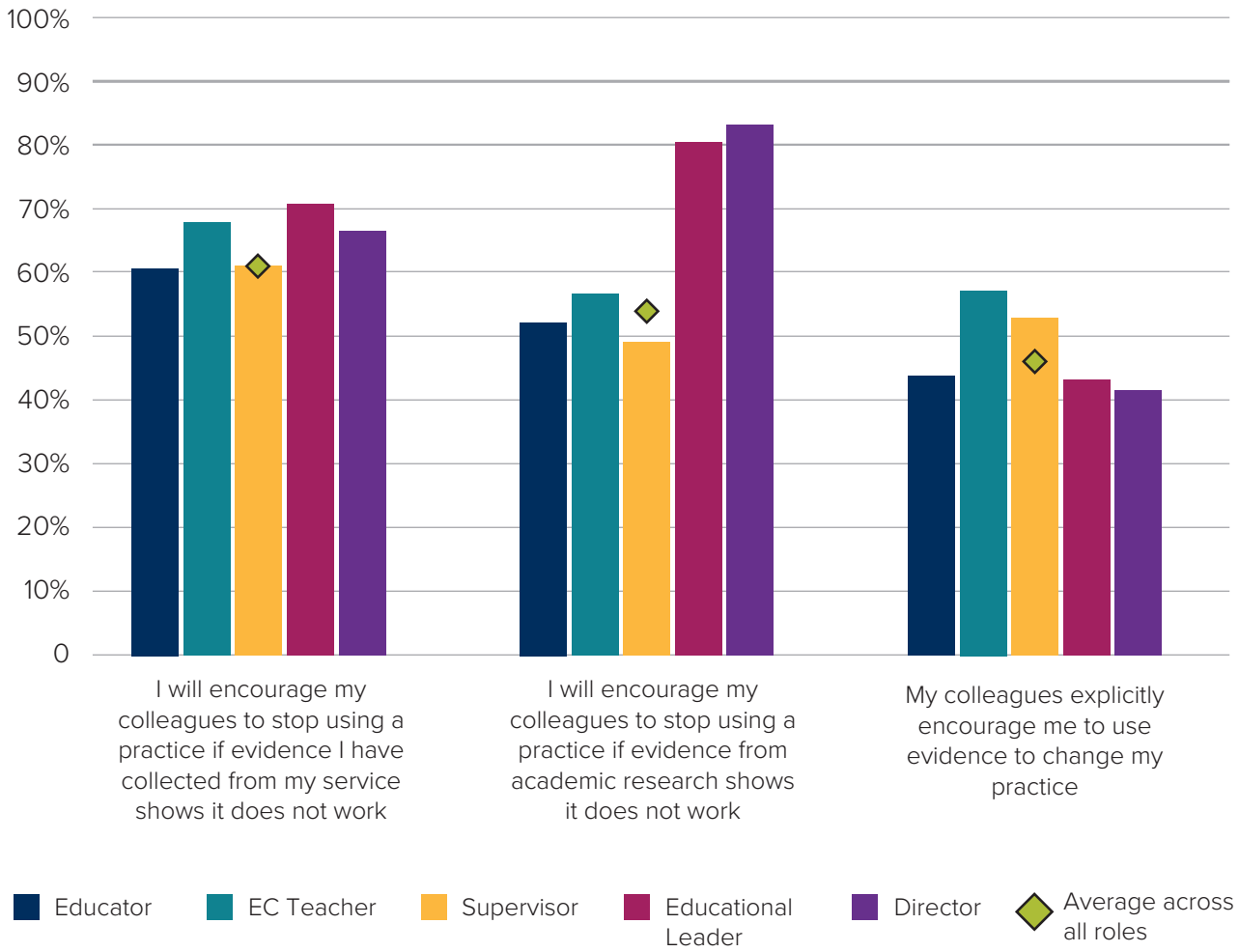
Notes: These results are for the survey question: 'In this survey, 'evidence' refers to information used to support claims about the effectiveness of a particular practice or activity. Please indicate the extent to which you agree or disagree with the following statements. Displaying participants who responded 'agree' or 'strongly agree'. n=176 educators; 75 early childhood teachers, 69 nominated supervisors, 31 educational leaders, 12 directors.

If evidence from academic research shows a practice does not work, service leaders are more likely than other staff to encourage colleagues to stop using that practice (80% of educational leaders and directors compared to around 50% of educators, teachers and supervisors) (Figure 6). This may be related to the expectations of the role – to guide staff practice within a service – and they may have more time to consider academic research. Interviewees (leaders) noted:

> 'It's part of a position requirement as an educational leader. You need to be keeping abreast of new theories, new evidence-based information that will promote this practice.'

> 'I'll read about that because that level of thinking excites. I like to understand why we're doing what we're doing. What's driving our behaviour.'

Figure 6: AERO evidence use survey – Attitudes and beliefs about types of evidence by role



Note: These results are for the survey question 'In this survey, "evidence" refers to information used to support claims about the effectiveness of a particular approach or practice. Please indicate the extent to which you agree or disagree with the following statements. The graphs displays proportion who 'agree' or 'strongly agree' to each statement. n=176 educators, 75 early childhood teachers, 69 nominated supervisors, 31 educational leaders, 12 directors.

In contrast, between 60% and 70% of respondents across all roles are likely to encourage their colleagues to stop using a practice if evidence from data they collected demonstrates it does not work. This suggests that recommending a change in practice based on evidence may relate to confidence and skills to use that evidence, rather than relating to role expectations. The higher level of confidence in using educator-and-teacher-generated evidence compared to research evidence may relate to all educators, teachers and leaders being coached in how to collect and analyse this data for the purposes of assessment for learning, program planning and collaborative partnerships with families, which are part of meeting obligations under the NQS. There is, therefore, an opportunity to train staff at all levels to understand, assess and use research evidence.

Professional learning opens the door to evidence use

In addition to service-level discussions and encouragement to use evidence, support mechanisms need to be in place to increase evidence use. Coaching, practitioner inquiry, mentoring/networking, in-house training, reflective journaling, attending seminars, undertaking formal qualifications and professional reading are all forms of professional learning valued by practitioners (Corr et al., 2014; Hadley et al., 2015; Nolan & Molla, 2018; Page & Eadie, 2019). Educators and teachers appreciate the opportunity to critically reflect on research (Hopps-Wallis et al., 2016) and learn with others (Hadley et al., 2015; Nolan & Molla, 2018) – for example, through professional networks such as staff meetings, or playgroups with other educators and teachers (Colmer et al., 2015; Corr et al., 2014). In addition, evidence use is supported by the opportunity for individualised and flexible support over time to assist with goal setting and planning (Page & Eadie, 2019).

Interviewees often appreciated having access to professional learning activities that supported their work:

> ‘Access to professional networks and groups where you can be on top of what’s happening in the field.’

In addition, choices around professional learning may reflect a director’s personal knowledge and beliefs (that is, individual versus collaborative/centre-wide approach), with some professional learning activities chosen specifically to promote collaboration (for example, critical reflection, professional dialogue, and exploration of links between theory and practice) over the development of content knowledge (Colmer et al., 2015). Notably, an interviewee emphasised the importance of quality professional learning activities over quantity:

> ‘I’ll go to professional development and hear about lots of great things, and then really putting it into place, sometimes it just doesn’t happen…I’ve been to too many professional development [activities]. So, I did try and cut back on them. [name of program] was so good, it gave me so much I could do for the whole year.’

Interviewees often mentioned high quality professional learning that includes ongoing monitoring to support implementation – such as in-service coaching – as an important enabler of evidence use. For example, coaching from external or system-level providers:

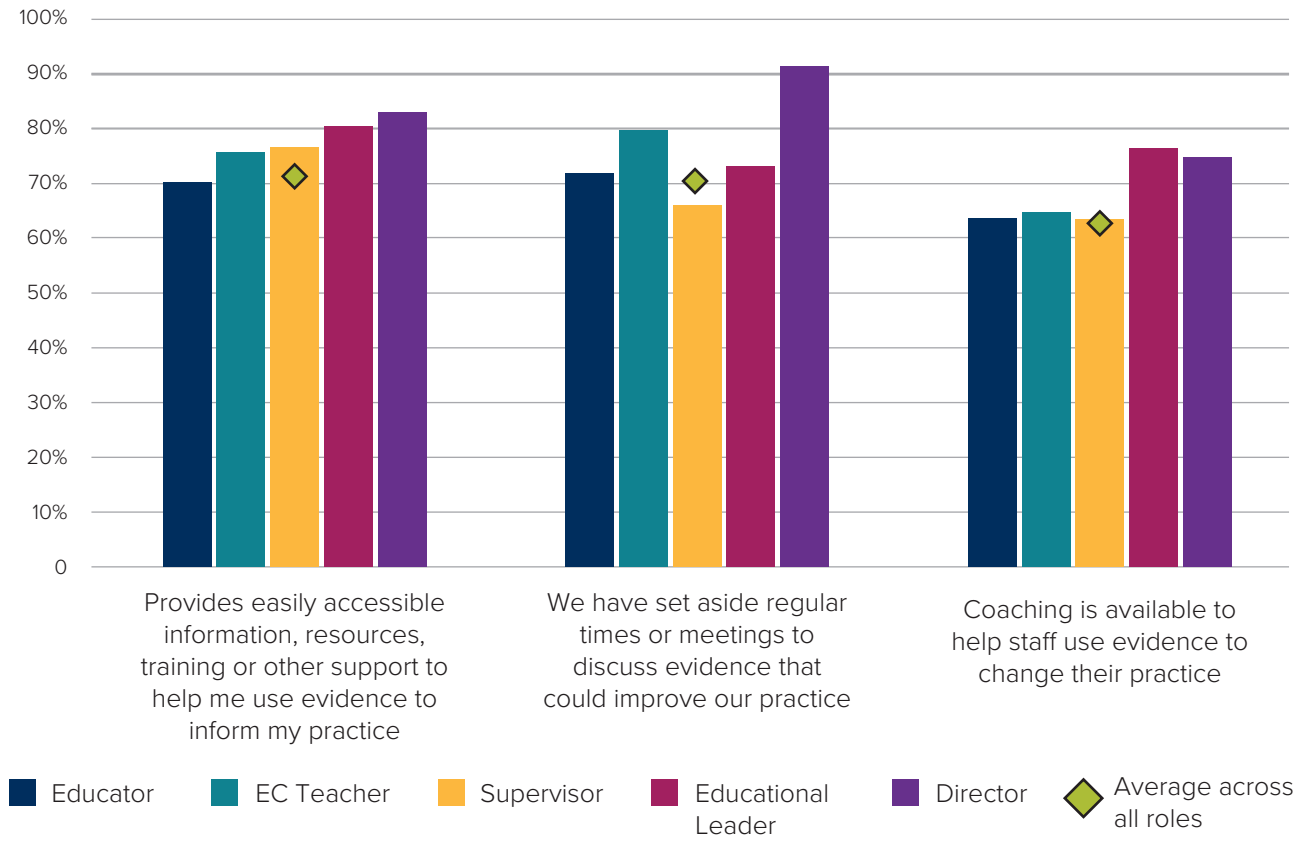
> 'I'm probably changing my practices quite a bit lately, because I've got the support. Head office [is]supporting sites and working with teachers one on one on their practices. Having those people that are third-party, that know where the department are wanting to go has been very beneficial.'

Another educator referred to a strong professional learning community as facilitating evidence-based practice:

> 'I'm particularly blessed in an organisation that has invested over many, many years to build a professional learning community where critical reflection is just part of our practice and the way that we work.'

The proportion of survey respondents reporting the availability of coaching (65%) and time for meetings to discuss evidence (73%) (Figure 7) is well below that of respondents reporting encouragement by their leaders to use evidence (87%) (Figure 5). Similarly, only 74% of respondents report that their service provides easily accessible information, resources, training or other support to help them use evidence to inform their practice. This may indicate that while leaders are aware of the importance of evidence use, and of their role to encourage evidence use, further supports need to be put in place for educators and teachers to access and use evidence to improve their practice.

Figure 7: AERO evidence use survey – Support available across ECEC services by role



Note: These results are for the survey question 'In this survey, "evidence" refers to information used to support claims about the effectiveness of a particular approach or practice. Please indicate the extent to which you agree or disagree with the following statements.' The graph displays proportion who 'agree' or 'strongly agree' to each statement. n=176 educators, 75 early childhood teachers, 69 nominated supervisors, 31 educational leaders, 12 directors.

A whole-service approach is important to enhance the use of evidence in everyday practice, with commitment needed from management for resources and staff capacity around engagement and implementation (Colmer et al., 2015; Page & Eadie, 2019). For example, one-off external professional learning events are often chosen in response to individual performance review goals, but may fail to support common goals within a service (Colmer et al., 2015).

Confidence to use evidence

Confidence to use research is a key determinant of whether research is used to change practice. Respondents to the AERO evidence use survey feel more confident to use observations of children's learning and development than academic research to inform their practice. Of greater concern is that some survey respondents may be active users of academic research without being confident about the quality or rigour of the research. Of survey respondents who are not confident to assess the quality and rigour of academic research (n=186 respondents – 52%):

- one-fifth (21%) said that in the past year they 'often' or 'very often' referred to academic research (books, reports, articles, summaries or podcasts based on academic studies) in staff meetings when discussing practices
- one-third (34%) said that in the past year they 'often' or 'very often' consulted academic research to improve their knowledge about the effectiveness of a practice.

To support educators, teachers and leaders, AERO developed an evidence decision-making tool to build their confidence and capacity to assess the rigour of academic research.

Barriers to evidence use

Barriers to evidence use can mostly be seen as the absence of the enablers described above. However, other barriers to the use of evidence in ECEC settings at the system-level and service-level include:

- a lack of a system-wide approach for knowledge transfer (Paynter et al., 2017)
- workforce pressures around recruitment and retention of staff (CESE, 2020; Colmer et al., 2015; Kishida et al., 2021)
- workload pressures to produce and document evidence for regulatory processes (Grant et al., 2018; Grant et al., 2016; Hesterman & Targowska, 2020)
- a lack of opportunities for time release for professional learning during working hours, which is especially challenging in services with vulnerable children, where continuity of care is a high priority (Jordan & Kennedy, 2019)
- differences in service types within the sector leading to:
  - research evidence often being highly contextual and not always relevant to other services (CESE, 2020; Corr et al., 2014)
  - some educators and teachers feeling professionally isolated (Nolan & Molla, 2018) or finding it hard to show evidence of collaboration (Grant et al., 2018)

- differences in terminology and perspectives on assessment and reporting between sectors (e.g., between ECEC, OSHC and schools), contributing to barriers in communication about educator-and-teacher-generated evidence of children's learning (Hopps-Wallis et al., 2016; Lewis et al., 2019)
- the learning environment (both indoors and outdoors) and room quality and its impact on program scope, structure and pedagogical practices (Grant et al., 2018; Tayler, 2017).

An interviewee explained the importance of resources:

> 'It's always resourcing. Whether it's human resources or physical things like access to PD, and budget to purchase items that you might need to implement it.'

At an individual level, barriers include:

- time (CESE, 2020; Colmer et al., 2015; Grant et al., 2018; Grant et al., 2016; Kirkby et al., 2018; Kishida et al., 2021; Lee-Hammond & Bjervås, 2021; Lewis et al., 2019; MacDonald, 2020), particularly time off the floor to document educator-and-teacher-generated evidence and collaborate with others, in addition to other daily responsibilities
- perception of educators' and teachers' roles and responsibilities (Leggett & Newman, 2017) – for example, supervisory role versus intentional teaching
- knowledge, skills and experience (Corr et al., 2014; Kirkby et al., 2018; Nolan & Molla, 2018), particularly understanding the approved learning frameworks and how evidence can apply to a particular context.

Interviewees talked about the importance of aligning ideas and approaches among staff and of a culture of evidence use that supports changing practices in line with evidence:

> 'If [the perspectives, pedagogies and values of other educators] don't line up with mine, that would be a barrier.'

> 'There was quite a lot of resistance [to bringing] in a different view or perspective.'

Recommendations and next steps

This national snapshot of evidence use in ECEC services provides several next steps for organisations that engage with educators, teachers and service leaders, as well as AERO.

In making these recommendations, we are cognisant of the substantial reforms currently underway in the sector including:

- an ambitious National Workforce Strategy (NWS) that contains a range of actions to improve practice
- substantial expansion of the ECEC sector due to national and jurisdictional reforms.

All these recommendations will create opportunities to promote evidence-based practice, and support educators, teachers and leaders to uphold quality practices in the face of significant change. It is also a critical time for advocating for the impact of educator, teacher and leader practice in ECEC settings by making visible the evidence base that underpins it. Table 1 presents recommendations and next steps for AERO.

Table 1: Recommendations and next steps

Recommendations	Next steps for AERO
Promote the ultimate purpose of using evidence – to improve outcomes for children While some educators, teachers and leaders understand how using evidence may improve outcomes for children, there needs to be a broader promotion of how evidence-based practice improves children's outcomes.	• Continue providing accessible and practical information to support evidence use. The AERO website contains a range of accessible and practical information about evidence-based practices. • Make findings widely available to normalise the positive relationship between evidence and outcomes for children. • Conduct or support further research to demonstrate effectiveness of evidence use.
Clarify terminology around evidence use A lack of a common understanding of what constitutes evidence and types of evidence can become a barrier to understanding how evidence is used, risking comparing apples and oranges. Use of different terminology across ECEC, OSHC and schools when discussing evidence can lead to further confusion.	• AERO will use clear and consistent terminology about evidence across published resources for educators, teachers and leaders, and in data collection tools to assist in avoiding confusion around what evidence is and to reduce misreporting use.

Recommendations	Next steps for AERO
Improve the capacity and capability of teachers, educational leaders and directors to understand, assess, use and share research evidence Educators, teachers and leaders are more likely to use evidence they generate than research evidence to inform their practice. This may be an appropriate balance given the moment-to-moment observations of children in which educators, teachers and leaders are engaged. Mindful of the diverse training and qualifications of practitioners across the sector, teachers, educational leaders and directors are well-placed to act as conduits for their colleagues on evidence-based practices aligned with the NQF. Educators and teachers are coached in how to collect and analyse educator-and-teacher-generated data, for the purposes of assessment for learning, program planning and collaborative partnerships with families, which are part of meeting obligations under the NQS. In addition, further research is warranted to understand how frequently educators, teachers and leaders should engage with evidence from research literature, and the landscape of practice-relevant research in Australia including gaps and opportunities. These factors may be influencing practitioner perceptions of the usefulness of research evidence.	• Curate and translate research findings that are easily accessible and trusted by educators, teachers and leaders. • Explore and test accessible, efficient avenues for educators, teachers and leaders to consume and apply research evidence in ways that are compatible with the demands of daily practice. • Develop a range of approaches to improve leaders' access to evidence and their capability to share, embed and sustain evidence-based practice change.
Investigate how professional learning activities can more effectively support the use of evidence in practice Professional learning is critical to increasing evidence use, but also to supporting educators, teachers and leaders to engage in continuous improvement to practise, apply, and deepen their skills as part of their service's quality improvement plan, and in line with the NQF. Educators, teachers and leaders appreciate opportunities to critically reflect on research and learn with others. professional learning that is flexible, targeted, and allows practice in context can further support educators, teachers and leaders to use evidence in their practice.	• Identify effective professional learning mechanisms – that is, the features of professional learning that contribute to change in educator, teacher and leader practice, and improve learning and development outcomes for children. • Provide guidance for effective centre-based professional learning activities, especially to support educators and teachers new to the educational leader role. • Provide guidance on ways to implement what is learnt through professional learning.

Recommendations	Next steps for AERO
Focus on quality evidence and evidence use, to inform quality practice In addition to tracking use of evidence, 2 aspects of quality need to be monitored: • **quality use of evidence** • **use of quality evidence.** 'Quality use of evidence' refers to the need for users of evidence to incorporate it in a thoughtful way that is appropriate for their context and based on a thorough understanding of the evidence. In addition, the evidence should be high quality (reliable and rigorous) and educators, teachers and leaders must know how to assess the quality of research they engage with.	• Expand on current tools and resources to support educators, teachers and leaders to examine the quality or depth of use of evidence.
Identify opportunities to tackle the barriers to better use of evidence in practice While some opportunities to tackle barriers can be tackled at a service or provider level, barriers that can be tackled at a system or sector level provide opportunities to assist larger numbers of services and create greater impact.	• AERO is working with other sector leaders and governments through the NWS implementation process to identify opportunities to tackle the barriers to better use of evidence in practice. • AERO is conducting research on mentoring, induction and professional networks under the NWS which will create additional opportunities for ongoing practice improvement.

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