

Commentary on the draft supplementary paper, *Children's Outcomes* in the draft Productivity Commission report, a path to universal early childhood education and care

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## Background

This is a rapid review of the review of Draft Supplementary Paper 1, *Children's Outcomes* In the Draft Productivity Commission report, *A Path to Universal Early Childhood Education and Care*<sup>1</sup>

The scope of the review is to provide commentary on general direction and tone as a follow up to the roundtable held on 15 August 2023. The body of this review was provided 22 January 2024 and supplementary text, now incorporated in this document, was added 9 Feb 2024.

## Acknowledgment

Dr. Gordon Cleveland, Associate Professor Emeritus, University of Toronto provided critical friendship in discussing the draft report, including the Draft Supplementary Paper 1, *Children's Outcomes* with me in the preparation of this commentary.

## Commentary

### Overall theme and tone

In general, this is a strong document and fair synthesis of the literature. I think that that overall message, that there is significant opportunity for ECEC programs to have a positive impact on children's outcomes (particularly children from vulnerable backgrounds), is carefully weighed against the cited null and negative findings. It is clear that there has been a good review and update of relevant sections in response to the feedback received during the roundtable discussion in August 2023.

I think there are 3 messages that could be more prominently argued. I think these are implied in the current document but it is left to the reader to draw the conclusions:

Message1: How to interpret findings in the context of the unique Australian system

I think its key to bring to the front that there is relatively little Australian research of the kind that is described later in the document in terms of large scale, long running RCTs (or quasi-experiments) that try and tease-out the marginal benefit of programs that look like current provision in Australia (or manipulating around the margins). One of the challenges is international research is done in a different context: Australia has made significant reform and investments in a particular system/structure, for better or for worse. We are interested, therefore in the impact of a system that:

- Focuses on the aspects of quality highlighted in the NQF
- Only approaches universal provision at age 4-years
- Provides an entitlement to only 15 hours per week (with good evidence that many children get less than this (see e.g., <https://doi.org/10.1177/18369391231219829> and commentary below in *Specific feedback on text*)

There is good evidence that the effect of increased hours (Campbell et al., 2012; Reynolds et al., 2011) and quality (Burchinal et al., 2010; Hatfield et al., 2016) are not linear on outcomes, so it is hard to interpret findings generally. The need for Australian-specific evidence, therefore, is to provide evidence for manipulating the levers available in the unique model of provision in Australia (including a unique NQF, strong focus on play-based and child-led models of practice, as well as policies that promote very specific exposure to program (e.g., 600 hours of preschool in YBS, demand-side subsidy that has resulted in part-week use of LDC programs). There is a

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<sup>1</sup> <https://www.pc.gov.au/inquiries/current/childhood#draft>

specific need for evidence, for example about the efficacy of earlier *first* exposure (e.g., 3yo models), and longer exposure per year/week to preschool (e.g., 1200 hours in YBS and full-week models of LDC, as well as incremental increasing individual quality areas of the NQS.

Take the example of LDC usage in Australia – the part week (full day) model is unique in Australia and there is essentially no evidence base for this.

In addition consider the unique outcomes listed in the EYLF. I argue that we don't have good measure of the kind of social and emotional outcomes (identity, confidence etc – instead we typically rely on measures of social and emotional problems if anything) included in our framework and there is there little to go by – and we risk relying on the overwhelming amount of research that uses cognitive outcomes to assess impact. This is counter to the idea that holistic programs have a wide range of impacts (and presumable require a diverse set of pedagogies to achieve these outcomes)

Lastly, the kind of research we need is not limited to solely teasing out *what works* (though this is important, and a part of this is through RCT or other carefully designed studies), but *how* does it work. The body text points this out, stating that effects vary across different sub-populations and that we have a lot of diversity in Australian ECEC settings. Part of the future research agenda needs to be working out how to apply findings about effectiveness in specific contexts. For example, how do we build excellent leadership and pedagogical practice in location within specific communities and specific needs? This would certainly involve observational research and qualitative research embedded within it.

Message 2: The important role the Preschool Reform Agreement (PRA) can play in answering these outstanding questions

Bring forward the current PRA as the central vehicle for progress towards better understanding of the ECEC system. This is a clear opportunity to drive a new research agenda and specifically to seek the Australian evidence that is required<sup>2</sup>. Two goals under the PRA are to establish new state-specific preschool attendance targets (and in turn to measure actual hours attended rather than enrollment) and to develop, trial and evaluate a Preschool Outcomes Measure. Combined with the NQS, this will provide administrative data collections of quality, exposure, and outcomes. The collection of population-level administrative data about attendance and outcomes in preschools, along with existing NQS data (quality), and potential data linkage or new data collection of contextual and background data allows for very powerful analysis of successes and gaps in the current system.

Note this would require a slight backing away from the position currently taken that champions RCTs. Instead a place should be found for excellent population level measurement (including system level monitoring), particularly if it is established as a trend measure (including in the sense that the measures are comparable over time).

Message three: the apparent challenge of taking model programs to scale

There is an issue of taking effective model programs and scaling them to the system level. I don't think it's a coincidence that most of the large effects are found in relatively small interventions or programs (Perry and Abecedarian, for example, are samples of less than 200 children): these are easier to control engagement per-protocol and/or maintain quality and much easier for researchers to overcome barriers to access (transport, price, social exclusion/deprivation etc). We

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<sup>2</sup> Indeed a research agenda is promoted within the PRA:

<https://federalfinancialrelations.gov.au/sites/federalfinancialrelations.gov.au/files/2024-02/Appendix%20A.2%20-%20Preschool%20Outcomes%20Measure%20Trial.pdf>

know in Australia, that the ECEC system has significant equity challenges: the distribution of the availability of programs (spaces) and program quality is unequal (ACECQA, 2020; Cloney, Cleveland, Hattie, et al., 2016; Tayler et al., 2016). This geographic segregation hypothesis also plays out in other countries, including the US (Small & Stark, 2005).

If we really believe that the quality of programs, their ease of access (in the local neighbourhood etc) is important, than this must be a key focus. I agree with your later point that we aren't certain what the exact quality lever is, but I would argue that it depends on the outcomes (there is no single magic pedagogy – if you want to foster social skills that will involve something different (but related and overlapping) than if you want to foster literacy). We try and make the argument in recent publications (Levickis et al., 2023).

Further, I don't think this is the place to open a discussion about trade-offs between quality and availability. I think it is important to speak of aspiration and acknowledge that the process of getting to universal *and* high quality may take some time (for example as we roll out more spaces).

I'd also be against promoting disproportional increases in the availability of for-profit centre child care to rapidly expand availability. This seems like a counterintuitive trade-off<sup>3</sup>.

Lastly I'd be cautious about talking about fadeout as an accepted truth. Yes, it is observed that short term gains are often not sustained, but there are current debates about why this is – including the fact that children who receive intervention often go back into business-as-usual schooling (that is, with strong selection effects, leading to lower quality educational inputs for children from vulnerable backgrounds in Australia). See here for example – the fadeout hypothesis is only supported by one meta-analysis (Whitaker et al., 2023)

#### Specific feedback on text

This section contains some specific recommended changes in text or additional citations to include. Much of this feedback is stylistic rather than substantive and is intended to improve the readability of the paper. I have copied the text verbatim in *emphasis*, and the proposed change is

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<sup>3</sup> This PC draft report recognises that for-profit LDC is driving almost all growth in provision and speculates that it may be an explanation for thin/underserved markets. Quoting the ACCC final report: “*for-profit providers continue to be responsible for almost all the growth in childcare services, while the number of not-for-profit providers has remained largely unchanged. The significant growth of for-profit providers and their presence in Major Cities and more profitable areas may go some way to explaining the existence of under-served and unserved markets in other areas.*”. This is a good reason to think that more of the same is unlikely to move us towards true universal access to good quality ECEC:

- There is Australian and international evidence that for-profit providers tend to produce lower quality programs, controlling for other factors (like geographical location, program type, size, etc)
  - On NQS ratings: <https://www.acecqa.gov.au/sites/default/files/2020-06/OccasionalPaper7.pdf>
  - On CLASS ratings: <https://doi.org/10.1080/10409289.2015.1076674> and <https://doi.org/10.1177/183693911604100403>
  - International <https://doi.org/10.1002/Pam.20440>
  - Consider also structural indicators of quality: “The use of waivers from educator qualification and early childhood teacher requirements has increased ... (and) For-profit services are more likely to hold waivers than not-for-profit services” (ACCC final report)
- There is an unanswered question about how Aus Gov can secure universal ECEC through current demand side markets and patterns of expansion through mostly for-profit LDC. The PC draft report shows that expansion is likely in the most profitable and already served regions (e.g., Figure 3, 7...). Even if providers can be convinced to expand into under- and unserved-markets, what is to compel them not to engage in cream-skimming and prioritise families who can afford to pay higher prices (effectively excluding children who we are targeting).

Consider, how you increase quality and access – can it be done within current structures?

either edited in strike through (deletion) or green highlight (additions) or in the text that immediately follows. Sometimes I offer an explanation or rationale. No page reference is given, but all edits are in the order they appear in the current draft.

1. *Children experiencing vulnerability or disadvantage ~~can~~ have the most to gain from ECEC*

I think this is relatively uncontroversial/accepted

2. *The extent of the benefits that ECEC provides to children will hinge on the quality of the service and the duration of attendance in the program. The magnitude of the benefits is moderated by the characteristics of the home environment and family circumstances.*

3. *The science of early childhood development*

I suggest that this section be re-titled something like “The science of early brain development and child learning and development”. In this section I think you conflate two related issues: the first is the (rapid) development of grey matter/neurons (and I think here you should also cite (Shonkoff et al., 2000) here to connect brain development to later social outcomes) and the second is the emergence/development of essential skills (like oral language including listening comprehension and vocab as well as cognitive skills like attention and memory). The latter, is related to brain development, of course, but I don’t think the rapidity of learning argument can be supported (by what metric can we measure the pace of learning if we don’t have long measures of these domains with interval measurement properties? One could equally say that later learning appears slower because it is conceptually more sophisticated and relies on every greater amounts of earlier foundational learning).

4. *But this approach will not isolate the effects of the ECEC services if any of these differences was not measured but relates to children’s outcomes (Duncan & Gibson-Davis, 2006).*

5. *Box 1.1 – Methodological challenges in using research on ECEC to guide policy*

I take your point here, but I feel that it is overstating the potential for RCTs to be used to tease out the true, unobserved effect of ECEC programs on learning and development outcomes. I say this for two reasons. The first relates to the extent to which you could or would have a true RCT in early education. It is, I suggest, impossible to blind children, families, teachers, schools, and researchers (who all in some sense know if they are getting an ECEC program or not) and this by itself may introduce bias (take, for example, the potential unconscious bias introduced by researchers collecting data relating to their own intervention). Similarly imagine the confounding effect of families who miss out on the intervention who then seek out equivalent educational inputs now that they have read about them in a well-written and convincing Plain Language Statement! Further, how many good (pre-registered protocols specifying methods, measures, power, planned analyses etc) RCTs are there in early education research today? RCTs in education are one way to get an unbiased estimate of a parameter, but I don’t think we should necessarily hold them to some higher standard than other methods. See e.g., (Deaton & Cartwright, 2018). The second relates to the maturity of observational designs. The desire to do things like create very large datasets (like cohort studies – you mention LSAC, but also see NICHD and NLSCY) that can be mined has led to a very well developed literature on how to do

careful (“plausibly causal”) secondary analysis. See e.g., (Duncan & Gibson-Davis, 2006; National Institute of Child Health and Human Development Early Child Care Research Network, 2003; National Institute of Child Health and Human Development Early Child Care Research Network & Duncan, 2003). Overall, I think the message is clear – there are significant methodological challenges to overcome to tease out effects, however, I would accept that carefully designed and implemented observational studies or quasi experiments are a part of this if they are fit for purpose.

6. *But if there is any relevant factor that does not appear in the data, or is imperfectly captured by it, this bias will **may** not be eliminated.*

7. *Perhaps the most prominent evidence on ECEC comes from the Perry Preschool Program and the Abecedarian Project.*

I would also cite the CPCC here as an example of a longitudinal study of similar impact in the literature. This study is much bigger than Abecedarian and Perry but reasonably well controlled for selection (and published in Science) see e.g., (Reynolds, 1994, 2000; Reynolds et al., 2011)

8. *Skills developed in early childhood ... The vast majority of studies on the effects of ECEC examine some measure of cognitive skills or development during young ages, such as school readiness, school test scores, or more direct measures.*

Note this is the only subhead that is inconsistent with Table 1.1. Consider reworking this subhead. If I was going to rename it, I would be talking about domain general cognitive skills (fluid reasoning, problem solving, exec function etc), and learning (oral language and literacy, numeracy), and social and emotional skills (emotional regulation, working in groups, sense of identity). These are skill that emerge early, but continue to develop across the life course. For cognitive skills, see for example the implied learning trajectory in WJIII domains:

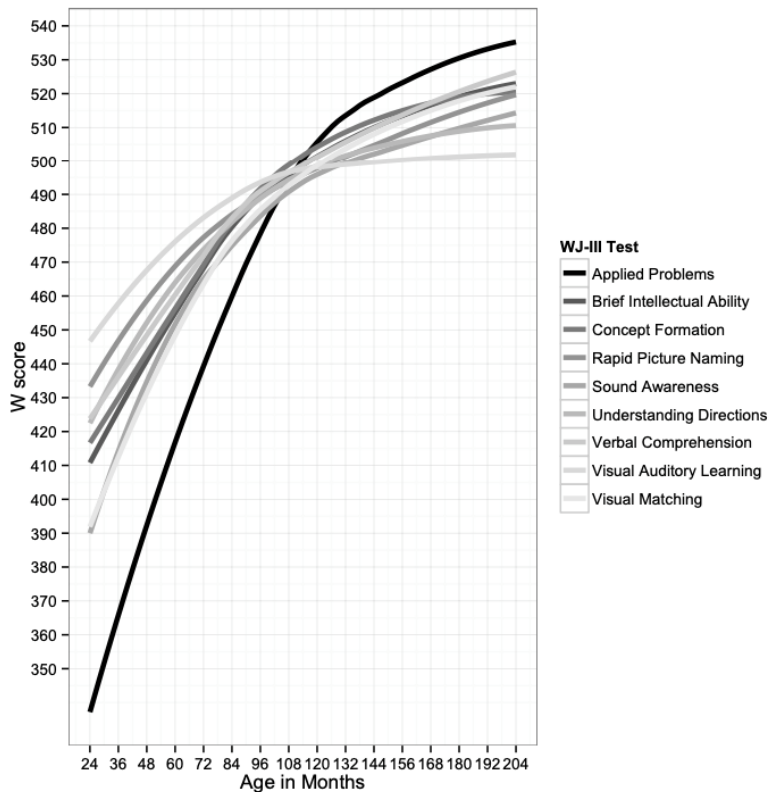


Figure 1. Normative cognitive trajectories for nine sub-tests from the Woodcock Johnson III.

Taken from (Cloney, 2016, p. 39.)

Similarly, skills like oral language and literacy develop across the life course even through the basic skills first emerge very early (arguably they later overlap with academic skills like reading and cross-curricular skills like literacy). The challenge in this space is that it is a very new idea to try and measure these domains over long periods of the life course – most of the measures simply do not have the verticality or length to accommodate this kind of long measurement (they have ceilings and floors).

Also, clarify “more direct measures” – do you mean “other” direct measures (like psychological assessments like the WJIII?). Also clarify is social and emotional skills belongs in here? For example, behaviour or emotional regulation?

9. *Other ECEC programs did not appear to reliably improve cognitive ability or test scores, but nonetheless improved educational attainment and earnings (Gray-Lobe et al. 2023; Havnes and Mogstad 2015).*

This is also a position that has been summarised (using Perry etc) and advanced by the OECD (Shuey & Kankaraš, 2018). Add this?

There are also long-run effects found in the analysis done for the SA Royal Commission: “... statistically significant benefits of three-year-old preschool on children’s language and cognitive skills scores in the Australian Early Development Census (AEDC, a national data collection in a child’s first year of schooling). There are also benefits to children’s National Assessment



Program—Literacy and Numeracy (NAPLAN) scores in the domains of Grammar, Numeracy and Reading in Year 3.

Benefits to NAPLAN scores persist for numeracy and reading through to Year 9 NAPLAN results. Translating the increase in children’s NAPLAN scores into equivalent months of learning, using the estimation approach from the Grattan Institute, results in the estimates in Table i. Overall, the results suggest that the impact of an additional year of preschool on NAPLAN outcomes is relatively sustained over a child’s schooling period.” (South Australia, 2023)

10. *A growing literature examines the mechanisms through which these long-term benefits are realised, and suggests they relate to non-cognitive skills more than the cognitive skill measures that are most commonly examined in ECEC research (Heckman & Kautz, 2012).*

11. *Box 1.2 – Where may some ECEC programs have failed, and why?*

This is a bit inflammatory title (especially to the sector!) – consider changing it to reflect that this section talks about why some programs have not delivered positive effects (rather than have “failed” which implies that ECEC programs have no other success or purpose than measured outcomes. How about, “Box 1.2 – Do all evaluations of ECEC programs show positive outcomes and if not, why?”

12. *Physical and mental health*

Australian evidence shows that better mental health outcomes before school (measured at school entry) are associated with better academic achievement at grade 3 (O’Connor et al., 2019). Maybe this doesn’t belong here, but rather in the section “Other ECEC programs did not appear to reliably improve cognitive ability or test scores, but nonetheless improved educational attainment and earnings”.

13. *The children who attended ECEC due to an expansion of access in Norway, after reaching middle age, used more preventive healthcare services if pregnant,*

Reword – seems to imply people are getting pregnant after turning middle-aged.

14. *Social connection*

How to reconcile this section with wider area of social and emotional skills? Either rename this section and include a little more here (see comments above and also the section “What are social skills” in (Cloney et al., 2019) where we try and define where we can see social skills in the EYLF and VEYLDF).

15. *Most credible studies have*

found that the benefits of ECEC are greater for children whose have lower education or income levels – a common indicator of lower relative socio economic status (section 1.3).

16. *The Australian evidence*

This may belong here, or perhaps in the following section about “active ingredients”. It also relates to the issue of going to scale. There is strong evidence that the Australian ECEC system is not organised in way support children from the most vulnerable backgrounds to catch up to their

more advantaged peers. ECEC preprograms in low SES neighbourhoods tend to be lower quality when rated on the NQS (ACECQA, 2020) and on CLASS (Cloney, Cleveland, Hattie, et al., 2016). Families from low SES households tend to attend lower quality programs (Cloney, Cleveland, Tayler, et al., 2016). There is also evidence that children from more vulnerable backgrounds are less likely to get 15 hours per week of preschool, even when they are eligible or even enrolled in programs (note this is a non-representative sample from the mid-north-coast of NSW) (Cloney et al., 2022): "...many children in the region do not receive the universal entitlement to 15 hours of preschool education in the year before school. The reason for this is unknown, however, in this study, more than 30% of children entitled to universal access to preschool did not receive 15 hours of formal ECEC programming per week." See also evidence that 40 per cent of children in low SES communities attended a year before school preschool program for less than four terms, and that on average children attend much less (approx. 480m hours) than the 600 hours entitlement in the year before school. (Harrison et al., 2024)

*17. But most use observational designs and must assume that all relevant factors influencing families' choices about ECEC or ability to participate in it are perfectly captured in their data – an assumption that is difficult to justify*

See previous comments – I think this is an overly negative opinion (or overly optimistic about the potential benefit of RCTs). Certainly these studies need to make a case for measuring factors that are both related to choices about ECEC and related to children's learning outcomes.

*18. Searching for the 'active ingredients' of successful **effective** ECEC programs*

In this section I suggest making the headings more obvious. I think you distill the key things that make up the current debates, but they weren't overly obvious to me – to the extent I was skimming the document saying, "there needs to be a section of hours of attendance"... Consider restructuring a little bit too and collecting the sub-heads under two section: "program, service and policy characteristics", and "child and family characteristics"

- Program, service and policy characteristics
  - o Quality ~~matters, but what is quality?~~
    - Process
    - Structural
    - ...
  - o ~~Children do not generally seem to be at risk of 'too much' ECEC~~ **Hours of program and attendance**
  - o ~~Differences between service types may affect children's outcomes~~ **Service type**
  - o ~~(When) should programs be targeted or universal?~~ **Targeted or universal?**
  - o ~~ECEC market structures can affect service quality~~ **For profit status**
- Child and family characteristics
  - o ~~Benefits are strongest for children experiencing disadvantage, but can be broader~~ **Family SES and disadvantage**
  - o ~~ECEC can produce benefits at all ages, but evidence is stronger for older children~~ (NOTE: I had a particularly strong reaction to this heading as I read it as saying that the evidence was stronger...that children starting at an older age benefited more which is not true and not what you go on to say in the text) **Child age at entry**

*19. centre-based day care, which is provided in dedicated facilities that offer education and care for children below school age (usually aged 0–5), and usually operate five days a week, for at least several hours a day*

Most LDC is open at least 8 hours a day on normal working days for a minimum of 48 weeks per year as a regulatory requirement. Also make it clear that although programs are open 5 days a week, it is typical that children only attend on a few days per week (varies by age, but many children attend one or two days a week).

*20. can also be offered in CBDC*

The majority of preschool provision is provided in LDC/CBDC. Stand-alone/sessional preschool is a minority provider. Clarify here or above.

*21. It is plausible that CBDC and preschool could have different effects on children’s outcomes, given potential differences in pedagogy, group sizes, educator-to-child ratios and access to an early childhood teacher.*

Australian research has found differences in the quality of service type, after controlling for auspice, and characteristics of community, family and children (Cloney, Cleveland, Hattie, et al., 2016; Tayler et al., 2013). There is also significant variation in average NQS ratings by service type (with FDC tending to be the lowest). Taken together it is very likely that there are differences in the relative effectiveness of program type – but more work is needed to disentangle it from other effects.

*22. While family day care has a quite different model to both CBDC and preschool*

See above.

*23. and for-profit ECEC providers often have a clear commercial incentive to underinvest in quality*

This is particularly true in thin markets – something likely to be observed in Australia (Cleveland & Krashinsky, 2009). Not for profits are rated higher on CLASS than for-profits in Australia (holding a number of factors constant) (Cloney, Cleveland, Hattie, et al., 2016).

*24. A research agenda for ECEC*

This section could be strengthened to reference the current PRA more explicitly. The PRA is driving both the preschool outcome measure and a measure of attendance – see comments in section above (*Overall theme and tone*) and this provides an opportunity for a system-level research agenda that aligns quality (NQS ratings) along with individual record of attendance and outcomes. If this can be linked with contextual and background information (or suitable data collection can be undertaken) this will provide population level insights into the effectiveness of the system along with evidence about gaps/selection effects.

To do this, strong trends would need to be produced and maintained – this would require the preschool outcome measure and attendance measure (and the NQS ratings) to take account of this in the cycle of data collection – this is not the case for the NQS, where the 2018 revision led to declines in the proportion of services rated Exceeding (see “Figure 3: Proportion of services rated Exceeding NQS or above by overall rating and quality area” (Australian Children’s Education and Care Quality Authority (ACECQA), 2023)). Therefore part of any research agenda

must be a shift to thinking longitudinally about monitoring trends – see examples in the trend in school outcomes maintained by ACARA in NAPLAN, or trends in studies like PISA.

## Recommendations

Overall I offer two recommendations for the final version of the paper:

1. Highlight in the front matter the key messages of:
  - a. The need for Australian-specific evidence given the unique model of provision in Australia (including a unique NQF, strong focus on play-based and child-led models of practice, as well as policies that promote very specific exposure to program (e.g., 600 hours of preschool in YBS, demand-side subsidy that has resulted in part-week use of LDC programs). This is unique when compared the what are typically considered “similar” systems in the US, UK, and Canada. There is a specific need for evidence, for example about the efficacy of earlier exposure to preschool (e.g., 3yo models), longer exposure to preschool (e.g., 1200 hours in YBS), full-day and dull-week models of LDC etc. in addition to the model global agendas of the effect of improving quality, qualifications, etc.
  - b. The significant opportunity for the current and future PRA to drive a new generation of evidence about the efficacy of the Preschool systems as well as the equity gaps or levers. The collection of population-level administrative data about attendance and outcomes in preschools, along with existing NQS data, and potential data linkage or new data collection of contextual and background data allows for very powerful analysis of success and gaps in the current system.
  - c. Taking programs to scale remains a persistent challenge. I don’t think it should be undersold that many of the largest positive effects of ECEC are found in model programs that are easier to control and maintain and much easier to overcome equity issues or barriers to access. The challenge is to think about how we can build evidence of the barriers to access and progress towards more equal access to programs and program quality. Part of this may also involve being more savvy about the causal process between practice and outcomes: there is no one single practice that will increase all outcomes. For children to flourish is many domains, many separate (but related) and deliberate approaches will be required.
2. Work through the suggested edits in the section above (*Specific feedback on text*) and consider adding additional citations offered and clarifying or amending text as suggested.

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