This study used 2 existing datasets:

- the First Five Years: What Makes a Difference? (2019) (Australian Government Department of Education), a large-scale national dataset within the Person-Level Integrated Data Asset (Australian Bureau of Statistics). The analysis used the National Quality Standard (NQS) as the measure of quality, and the Australian Early Development Census (AEDC) as the outcomes measure of child development. We also used a range of linked information on children and families, including income, education, health and employment, to adjust for other factors that might contribute to differences in outcomes.

- the Effective Early Educational Experiences (E4Kids) longitudinal research dataset. E4Kids provided more detailed measures of quality and assessments of children's development over time.

The NQS sets a national benchmark for ECEC and outside school hours care services in Australia and is part of the National Quality Framework (NQF). Services are assessed and rated by their regulatory authority against 7 quality areas, and receive an overall rating based on these results. These quality areas are outlined in the following textbox.

## National Quality Standard Quality Areas

### Quality Area 1. Educational program and practice

Educational program and practice of educators are child-centred, stimulating and maximise opportunities for enhancing and extending each child's learning and development.

### Quality Area 2. Children's health and safety

Children have the right to experience quality education and care in an environment that safeguards and promotes their health, safety and wellbeing.

### Quality Area 3. Physical environment

Physical environment is safe, suitable and provides a rich and diverse range of experiences that promote children's learning and development.

### Quality Area 4. Staffing arrangements

Qualified and experienced educators, who develop warm, respectful relationships with children, create predictable environments and encourage children's active engagement in the learning program.

### Quality Area 5. Relationships with children

Relationships with children are responsive, respectful and promote children's sense of security and belonging.

### Quality Area 6. Collaborative partnerships with families and communities

Collaborative relationships with families are fundamental to achieving quality outcomes for children, and community partnerships based on active communication, consultation and collaboration are essential.

### Quality Area 7. Governance and leadership

Effective leadership and governance of the service contribute to quality environments for children's learning and development. Effective leaders establish shared values for the service and set clear direction for the service's continuous improvement.

Services can be rated as:

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To understand whether certain *combinations* of quality ratings are better predictors of children's developmental outcomes than others, we used a data-driven process, identifying 6 distinct patterns of quality ratings into which services can be grouped. This is useful for understanding whether the same patterns of quality observed for overall service ratings are consistent at the quality area and standard level. We found the 6 groups mapped well onto the overall NQS ratings:

- **Group 1.** Exceeding all Quality Areas (18.4% of all services)
- **Group 2.** Exceeding in Quality Areas 1 and 5 (12.5% of all services)
- **Group 3.** Exceeding in Quality Areas 6 and 7 (14.5% of all services)
- **Group 4.** Meeting all Quality Areas (26.6% of all services)
- **Group 5.** Working Towards, more Standards Meeting (19.6% of all services)
- **Group 6.** Working Towards, more Standards Working Towards (8.3% of all services).

Children attending services in Group 1 were consistently less likely to be developmentally vulnerable on each of the 5 AEDC domains than children attending services in Group 6 in 2016 and 2017.[1] Group 1 was also less developmentally vulnerable than Group 3 in the Communication Skills and General Knowledge domain, and Group 5 in both Communication Skills and General Knowledge and the Social Competence domain in both 2016 and 2017. These results indicate that the NQS rating of Exceeding is the marker of the most effective quality to avert developmental vulnerability.

## Quality Areas 1, 3 and 5 were stronger and more consistent predictors of developmental vulnerability than other quality areas

The quality of educational program and practice, physical environments and relationships with children predict children's development at school entry.

We analysed how service ratings in each NQS Quality Area predicted rates of developmental vulnerability in each AEDC domain. We found children who attended services rated as Exceeding NQS in Quality Areas 1, 3 and 5 were consistently less likely to be developmentally vulnerable.

To investigate this further, we drew on the complementary data on quality and child outcomes provided by the E4Kids dataset. Because this dataset has multiple measures of child development, they can point to the 'value add' of ECEC quality. We found ECEC contributed to greater gains in cognitive development among children whose teachers and educators maximised learning time through effective planning, clear instructions and short transitions between activities. Children whose ECEC educators and teachers provided a range of learning opportunities through physical environments and interactions appropriate to each child also had greater gains. Finally, children with better access to spaces and places that can support their learning also saw greater cognitive gains.

Quality Areas 2 (Children's health and safety), 4 (Staffing arrangements), 6 (Collaborative partnerships with families and communities) and 7 (Governance and leadership) were positively associated with children's outcomes, but less consistently so, suggesting that these areas assess aspects of quality less closely related to child development as measured by the AEDC.

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1   The effect for the Emotional Maturity domain was nearly identical for 2016 and 2017, but only statistically significant in 2017.

# Implications

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# Disclaimer

This report uses data from the Australian Early Development Census (AEDC). The AEDC is funded by the Australian Government Department of Education. The findings and views reported are those of the author and should not be attributed to the department or the Australian Government.

The results of these studies are based, in part, on data supplied to the Australian Bureau of Statistics (ABS) under the *Taxation Administration Act 1953*, *A New Tax System (Australian Business Number) Act 1999*, *Australian Border Force Act 2015*, *Social Security (Administration) Act 1999*, *A New Tax System (Family Assistance) (Administration) Act 1999*, *Paid Parental Leave Act 2010* and the Student Assistance Act 1973. Such data may only be used for the purpose of administering the *Census and Statistics Act 1905* or performance of functions of the ABS as set out in section 6 of the *Australian Bureau of Statistics Act 1975* (ABS Act). No individual information collected under the Census and Statistics Act is provided back to custodians for administrative or regulatory purposes. Any discussion of data limitations or weaknesses is in the context of using the data for statistical purposes and is not related to the ability of the data to support the Australian Taxation Office, Australian Business Register, Department of Social Services and/or Department of Home Affairs' core operational requirements.

Legislative requirements to ensure privacy and secrecy of these data have been followed. For access to the Person Level Integrated Data Asset (PLIDA; formerly MADIP) and/or Business Longitudinal Analysis Data Environment data under section 16A of the ABS Act or enabled by section 15 of the *Census and Statistics (Information Release and Access) Determination 2018*, source data are de-identified and so data about specific individuals has not been viewed in conducting this analysis. In accordance with the Census and Statistics Act, results have been treated where necessary to ensure that they are not likely to enable identification of a particular person or organisation.

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