

Our findings and outputs 2010–2014

E4Kids data collection commenced in 2010 and continued as the research team's major activity until December 2012. Smaller, focused data collection continued throughout 2013 and into 2014. Communication of our findings has been undertaken through newsletters, research bulletins, published articles, presentations at conferences and other public events and internal reports to the Partner Organisations. The audited outputs as at December 2014 are summarised in this bulletin, along with a summary of analytic work in progress for release in the next 12-18 months. Some outputs include the examination of different trends of the use of early childhood education and care (ECEC) according to child and family risk factors and the issue of sleep time in early childhood settings. In 2015 we are able to access NAPLAN results for the children participating in the study. This will enable the major analyses that are needed to answer our research questions, including the impact on children's learning and development to age 8 of their participation in early childhood education and care programs. We look forward to this 2015 work - a period where the E4kids study can make a key contribution to our understanding of the part played by varied levels of quality within the ECEC system on children's learning and development.



E4Kids website

The E4Kids website is the central channel of communication about the E4Kids study. Information reviewed in this bulletin is available at:

<http://e4kids.org.au/>

Our site is hosted by the Melbourne Graduate School of Education at The University of Melbourne. For more information, you can send us an email at:

e4-kids@unimelb.edu.au

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To subscribe to E4Kids mailing list for future issues, please visit our webpage at www.e4kids.org.au/mailling_list

Research Bulletins

The research bulletin series is our way of communicating the progress on the study to the major stakeholders – including the study participants, governments, the early childhood sector and Australian families. The bulletins address the policy drivers of the study, research questions, research methods and summaries of the data collected. The Bulletins mainly report descriptive data, and more complex data analyses focusing on the study's research questions are reported in journal papers and the Final Study report to the Partner Organisations and the Australian Research Council.

The content of each of the five research bulletins is summarised below. They are available in the 'Resources' section of the E4Kids website.

Newsletters: the *E4Kids Express*

The E4Kids Express newsletters kept the participating families informed about the study. The content of these newsletters includes:

- the progress of the study and early findings, including the content of Research Bulletins and other publicly available information
- profiles of individual E4Kids staff members
- activities for parents to do with their children
- notification of winners of book vouchers
- invitations and reminders to families to complete an annual survey, and to let us know of any change in contact details.

Bulletin number and title	Month/year of publication	Description of content
1.E4Kids: Effective Early Educational Experiences for Kids Study	December 2011	Covers the rationale for the study, funding structure, project design and research methods (including a list of research instruments) and identification of main stakeholders
2.Assessing the quality of Australian child care and kindergarten	January 2012	Provides a discussion of why quality is important, what quality consists of, and the National Quality Framework approach to promoting quality. It also presents 2010 data on quality, using the Classroom Assessment Scoring System (CLASS) and planned further analyses.
3. Children and their families	July 2012	Presents what we know about the study participants, their family circumstances and an analysis of parents' hopes and expectations for their children and perceived influences.
4.Usage patterns of formal and informal education and care	May 2013	Discusses how the study adds value to our current understanding of patterns of use of formal ECEC programs and informal care arrangements, data collected on usage patterns, the analytic approach to examining the data, key findings and future planned analyses.
5.Measuring children's learning using tests from the Woodcock Johnson III	August 2013	Outlines how children's learning is measured in the study, the specific instruments used, study findings on patterns of children's cognitive abilities and achievements and further planned use of this data to answer key study research questions.

E4Kids Published or 'in press' articles and papers

1. Cloney, D., Gilley, T., & Tayler, C. (2014). E4Kids: what do we know about early learning quality? *Insight, Issue 9: Vulnerable Children*.

What effect do child care and kindergarten have on learning, development, and social inclusion of Australian children, particularly those from disadvantaged backgrounds? Dan Cloney, Tim Gilley and Collette Tayler report on the landmark E4Kids study.

2. Cohrssen, C., Tayler, C., & Cloney, D. (2014). Playing with maths: Implications for early childhood mathematics teaching from an implementation study in Melbourne, Australia. *Education 3-13: International Journal of Primary, Elementary and Early Years Education*, DOI:10.1080/03004279.2013.848916.

The EYLF for Australia governs early childhood education in the years before school. Since this framework is not a curriculum, EC educators report uncertainty regarding what mathematical concepts to teach and how to teach them. This implementation study, positioned within the broader E4Kids study, explored the enactment of a suite of play-based mathematics activities by five early childhood educators in different settings over a seven-month period. The educators' approaches to incorporating the activities are discussed in light of the reported implementation frequency and the duration of activities. A regression analysis predicted significant changes in children's Fluid Intelligence/Reasoning associated with attending high-implementation programmes. Recommendations are made for further investigation of the enactment of mathematics activities in early childhood settings and for the provision of professional learning opportunities that focus on supporting children's concept development as well as their mathematical skills.

3. Cohrssen, C., Church, A., & Tayler, C. (2014). Purposeful pauses: Teacher talk in early childhood mathematics activities. *International Journal of Early Years Education*. DOI: 10.1080/09669760.2014.900476.

This paper describes how early childhood teachers' incorporation of pauses raises the quality of talk-in-interaction during play-based mathematics activities. Responses of both children and teachers are shown to be more contingent and expansive when conversations include protracted pauses than during interactions in which pauses are largely absent. Pauses provided children with opportunities to initiate topics and facilitated more equitable access to discourse moves for children. By pausing before responding to a child's conversational gambit, teachers

gained opportunities to assess children's demonstrated numeracy-related skills and understanding, and could thus provide authentic, individualised scaffolding. Pauses were not necessarily silent: a pause in an interaction with one child could be used strategically to model the learning interaction with a second child before returning to the first child in order to continue the discourse sequence.

4. Cohrssen, C., Church, A. & Tayler, C. (2014.) Pausing for learning: Responsive engagement in mathematics activities in early childhood settings. *Australasian Journal of Early Childhood*.

The importance of responsive engagement in early childhood education and care is well established and is a fundamental tenet of framework documents that guide early childhood practice in Australia. How to achieve this responsiveness in practice is less established and often not detailed in professional resources available to early childhood educators. This paper presents detailed transcripts of interactions between children and teachers during play-based mathematics activities in five different early childhood education settings in Melbourne, Australia. Extracts from transcriptions of interactions during the activities demonstrate that when educators paused prior to responding to children, or after children had responded, their contingent responses were more sensitively attuned to the children's contributions. Attuned responses following a pause facilitated higher quality emotional support. This evidence demonstrates the importance of pausing to promote relationships that are responsive and respectful, and that enable children to engage in learning.

5. Pattinson, C. L., Staton, S. L., Smith, S. S., Sinclair, D. M., & Thorpe, K. J. (2014). Emotional Climate and Behavioral Management during Sleep Time in Early Childhood Education Settings. *Early Childhood Research Quarterly*, 29660-668. doi:10.1016/j.ecresq.2014.07.009

The majority of children cease napping between three and five years of age yet, internationally, the allocation of a sleep time during the day for children of this age remains a practice in many early childhood education (ECE) settings. These dual circumstances present a disjuncture between children's sleep needs and center practices, that may cause conflict for staff, increase stress for children and escalate negative emotional climate in the room. Testing this hypothesis requires observation of both the emotional climate and behavioral management used in ECE rooms that extends into the sleep time. This study was the first to apply the Classroom Assessment and Scoring System (CLASS) Pre-K (Pianta, La Paro, & Hamre, 2008) to observe the emotional climate and behavioural management during sleep time.

6. Cloney, D., Page, J., Tayler, C., & Church, A. (2013). Assessing the quality of early childhood education and care. *Policy Brief: Translating early childhood research evidence to inform policy and practice*, No. 25 July 2013.

The purpose of this Policy Brief is to consider the implications of current research and the role of quality assessment in delivering the National Early Childhood Development Strategy vision. Specifically, the Brief discusses the ECEC policy environment in Australia and outlines international evidence regarding the impact of ECEC quality components related to adult-child interactions and relationships.

7. Cohrssen, C., Church, A., Ishimine, K., & Tayler, C. (2013). Playing with maths: facilitating the learning in play-based learning. *Australasian Journal of Early Childhood*, (1), 95.

EC professionals have different opinions about intentionally teaching mathematics to young children. Not only is the appropriateness of teaching mathematical concepts to children in early childhood settings contested but what to teach is subject to debate. A review of the literature, however, demonstrates that children are better equipped for success if they master basic mathematical concepts before entering formal education, and that these skills can be developed in play-based activities, where teachers actively engage in maths talk. This paper argues for the purposeful integration of mathematics teaching and learning in ECE curricula, and the need for early childhood educators to have sound pedagogical content knowledge and clear learning objectives in order to support and extend children's emerging understanding of mathematical concepts.

8. Tayler, C., Ishimine, K., Cloney, D., Cleveland, G., & Thorpe, K. (2013). The quality of early childhood education and care services in Australia. *Australasian Journal of Early Childhood*, 38(2), 13-21.

This paper reports conclusions about the quality of ECEC services from E4Kids. A little more than 250 preschool classrooms had complete data in 2010; two measures of ECEC quality were applied—the CLASS and selected subscales of the ECERS-R. Overall, Australian ECEC averaged in the medium range on most measured components of quality, with the exception of personal care routines and instructional support. We found evidence that average quality in ECEC in the E4Kids study varies systematically across the type of service, with kindergartens having significantly higher quality than long day care centres. Australian ECEC quality was found to be broadly similar to that in the US and UK: slightly weaker in terms of the developmental appropriateness of classroom practices assessed through ECERS-R, slightly stronger than the United States in the areas of classroom organisation and instructional support.

9. Tayler, C. (2012). E4Kids study on the quality of early childhood education and care services. *Preschool Matters*, Term Two 2012

With the introduction of the national quality framework on 1 January 2012, the spotlight is currently on quality in the provision of early childhood education and care services nationally. *Preschool matters* recently spoke to the director of the e4kids study, Professor Collette Tayler from the University of Melbourne.

10. Mashford-Scott, A., Church, A., & Tayler, C. (2012). Seeking Children's Perspectives on their Wellbeing in Early Childhood Settings. *International Journal Of Early Childhood*, 44(3), 231-247. doi:10.1007/s13158-012-0069-7

Interest in children's wellbeing has been steadily increasing across political, social and educational contexts. While the importance of children's wellbeing—particularly in relation to learning and development—is undisputed, there are conflicting perspectives on what 'wellbeing' actually is, let alone how to measure and promote it. The purpose of this paper is to examine the context, complexities and challenges associated with understanding children's wellbeing—specifically children's perspectives on their wellbeing in the early childhood setting. This paper argues that in order to support children's wellbeing in early childhood settings, we need to know how young children subjectively experience wellbeing. This requires the adoption of a constructivist, child-centred approach to the conceptualisation of wellbeing in early childhood research to promote effective programme provision.

Other articles and papers

1. Ishimine, K., & Tayler, C. (2014). Assessing Quality in Early Childhood Education and Care. *European Journal Of Education*, 49(2), 272-290. doi:10.1111/ejed.12043

Evaluating quality in ECEC Service internationally is increasingly important. Research to date indicates that it is 'high-quality' programmes that boost and sustain children's achievement outcomes over time. There is also growing interest in the accountability of public funds used for ECEC programmes and the types of measures that assess ECEC quality. This article reviews eleven existing instruments that were designed to assess global ECEC programmes and examines them in terms of their strengths and weaknesses as quality measurement tools and the adequacy of the measures to sufficiently reflect the context and purposes of the assessment. Through this process the authors identify directions for the development of new measures that are both theoretically and psychometrically sound.

2. Tayler, C. (2012). Créer un Sentiment de Sécurité chez l'enfant. *Le Furet*

How to help the child on the social and academic level, by creating a feeling of security and well-being.

3. Tayler, C. (2012). Quality and Quantity. *Early Education*, Spring 2012

There's a new approach to Early Childhood Education and Care provision in Australia, trying to ensure high outcomes for all children.

Conference and other research presentations

Study findings have been regularly reported to stakeholder and have included focus on implications for policy and early childhood practice.

1. Variations in the availability and quality of early childhood education and care by socioeconomic status? *Cloney, D., Cleveland, G., Hattie, J., & Tayler, C.*

Presented at: the International Conference of the Australian Association for Research in Education (AARE) and the New Zealand Association for Research in Education (NZARE), Brisbane, Australia., 3rd December 2014.

2. Development Trajectories of children from low SES backgrounds and the influence of ECEC programs. *Cloney, D., & Adams, R.*

Presented at: the International Conference of the Australian Association for Research in Education (AARE) and the New Zealand Association for Research in Education (NZARE), Brisbane, Australia., 3rd December 2014.

3. What counts as Quality in Early Childhood Education and Care Programs? *Tayler, C.*

Presented at: Australian College of Educators 2014 National Conference, 13th September 2014.

4. Leading the change: Increasing the quality of mathematics learning in play-based programs? *Tayler, C., Niklas, F. & Cohrssen, C.*

Presented at: Early Childhood Australia National Conference 2014; Season of Change, 4-7 September 2014.

5. Usage patterns and quality in Australian ECEC programs, Dean's lecture, University of Melbourne, November 2012. *Tayler, C.*

Available at: <http://go.unimelb.edu.au/g29n>

6. The No-Program Control: Identifying and recruiting a random sample of children who do not participate in early childhood services. *Cloney, D., Tayler, C., Cleveland, G., Thorpe, K.*

Presented at: Society for Research on Child Development (SRCD), Developmental Methodology Program, Tampa Florida, February 9-11, 2012.

7. The determinants of interaction quality in Australian child care: A production-function Approach. *Cleveland, G. Tayler, C. & Cloney, D.*

Presented at: Joint International Conference of the Australian Association for Research in Education (AARE) and the Asia Pacific Educational Research Association (APERA) 5 December, 2012.

8. Economies of scale and scope and the Structure of Costs in Australian Early Childhood Services. *Cleveland, G., Colley, S., Tayler, C. & Cloney, D.*

Presented at: Joint International Conference of the Australian Association for Research in Education (AARE) and the Asia Pacific Educational Research Association (APERA) 5 December, 2012.

9. Adaptation of the Friendship Bus Story for Assessment of Social Bridging and Social Inclusion. *Thorpe, K., Staton, S., Bell-Booth, R., Thompson, C., Tayler, C., Cloney, D., Dyson, R., & Canning-Ure, A.*

Presented at: 15th European Conference on Developmental Psychology, Bergen Norway, and August 23-27, 2011.

10. Children's social networks and friendship quality across different early childhood education and care setting in Australia. *Staton, S., Thorpe, K., Tayler, C., Dyson, R., & Canning-Ure, A.*

Presented at: 15th European Conference on Developmental Psychology, Bergen Norway, August 23-27, 2011

11. Teacher-Child Interactions in Early Childhood Education and Care: An Australian Study. *Tayler, C., Ishimine, K., Cloney, D. & Thorpe, K.*

Presented at: Society for Research in Child Development (SRCD) Biennial Meeting; Montreal, Quebec, Canada, March 31 – April 2, 2011.

NB: Regular presentations have been made to both industry partners on a regular basis (Victorian Department of Education and Early Childhood Department in Melbourne and the Queensland Department of Education, Training and Employment in Brisbane).

Nested and related work

In addition to the E4Kids longitudinal study of children, both the University of Melbourne and the Queensland University of Technology are supporting smaller and more intensive pieces of work related to improving the quality of early childhood education and care services. The table below includes a summary of these nested and related studies within the broader E4Kids Research Program.

Table 2: Nested and related studies

No.	Topic	Type of study	Status at 31 December 2014	Email contact
1	Developing a measure for assessing National Quality Area 1: educational program and practice in a variety of Australian ECEC services.	Post Doctoral Research project (APDI Scholarship - Karin Ishimine)	Completed: Tool deployed in validation and standardisation activity	E4-Kids@unimelb.edu.au
2	How does the implementation of an early childhood mathematics curriculum impact on the mathematical concept development and quality of feedback enacted by teachers in different early childhood settings?	PhD (APAI Scholarship - Caroline Cohrsen)	Completed: PhD awarded 3 August 2013	E4-Kids@unimelb.edu.au
3	Examining the impact of sleep/rest policy on child sleep patterns, behaviour learning and well-being	PhD (APAI Scholarship - Sally Staton)	Completed: in examination	
4	Examining the factors that are barriers and enablers for Aboriginal families in accessing ECEC services	PhD (APAI Scholarship – Rachel Leske)	Confirmed	
5	Work and Wellbeing in Family Day Care	PhD (Lara Corr)	Completed: PhD awarded December 2014	E4-Kids@unimelb.edu.au
6	Examining differential effects of ECEC provision for children with different emotional, social and activity levels (temperament)	PhD (Elspeth Davis)	Completed: PhD awarded November 2014	
7	Equity and selection: the varied exposure of young children to ECEC programs, and the effects on academic and social achievement	PhD (Daniel Cloney)	Confirmed	E4-Kids@unimelb.edu.au
8	Children's experiences of wellbeing in early childhood settings	PhD (Angela Mashford-Scott)	Confirmed	E4-Kids@unimelb.edu.au

Concluding comment

The study began with the big question: what is the impact of children's participation in ECEC programs on their learning and development to age 8.

The National Assessment Program –Literacy and Numeracy (NAPLAN) is a test of skills that are regarded as essential for every child to progress through school and life, such as reading, writing, spelling and numeracy. Through the study, we link the child outcome data in 2014 and 2015 (for children in Grade 3 in primary schools). Whilst the final findings await the analysis of 2015 NAPLAN data, some trends in the findings are clear.

We know that children experience different levels of quality within ECEC programs, and after taking the surrounding conditions, such as family income, education, and socio-economic status, into account it is apparent that the quality of programs has a small effect on children's social and academic achievement outcomes. The kind of ECEC program exposure that children have (how much time children spend in programs) varies considerably, and is influenced by the geographic location of the family. The starting point for children entering ECEC programs makes a difference to their on-going progress and achievement. Children whose families read to them almost every day, and from an early age, do better on verbal ability and vocabulary assessments, and their literacy progress is better because they enjoy a supportive home learning environment.

In summary, there are positive impacts to be found but these are well below what other research has identified as the potential influences of such programs. Two major challenges present themselves: improving the quality of learning support for children and ensuring that children have sufficient and early enough dosage of ECEC to make a positive difference.

Research Collaboration



E4Kids is a project of the Melbourne Graduate School of Education at The University of Melbourne and is conducted in partnership with Queensland University of Technology. E4Kids is funded by the Australian Research Linkage Projects Scheme (Grant LP0990200), the Victorian Government Department of Education and Training and the Queensland Government Department of Education and Training. E4Kids is conducted with academic collaboration with the University of Toronto at Scarborough, the Institute of Education, the University of London and the Royal Children's Hospital, Melbourne.