



# TWO YEARS OF QUALITY KINDERGARTEN: WHAT DOES THE EVIDENCE SAY?

- Neuroscience shows that early brain development is critical in shaping the learning, development, health and wellbeing of children, and impacts on their future life opportunities.
- Social science shows that quality early childhood education improves children's outcomes before, during and after the school years, and that two years of kindergarten have a greater impact than one.
- International studies suggest 15 hours per week is the optimal number of hours in an early childhood education program in order to have a positive impact on children's learning and development.

## EARLY CHILDHOOD EDUCATION MATTERS

The first years of life see children's brains undergo tremendous growth. Researchers estimate that babies' and toddlers' brains form more than one million new neural connections every second. By the time a child turns five, around 90 per cent of a child's brain development has already occurred.<sup>1</sup>

Neurobiology shows how the early years of development establish the basic structures of the brain.<sup>2</sup> A child's relationships, experiences and environment during these years create neural pathways that have a long-lasting influence on health, wellbeing, behaviour and learning. While genes provide the initial map for the brain, the significant 'wiring' that occurs early in life effectively programs a child's development.<sup>3</sup>

Once these patterns are set, they can be difficult to change.<sup>4</sup>

Research also shows that a child's brain is primed for certain events and experiences to happen at particular times. These developmental stages build on each other, with each newly acquired skill helping to develop the next.<sup>5</sup>

When a child receives the right support at the right time, this lays a strong foundation for healthy development. Around the time a child turns three, there is a key window of opportunity to optimise their learning and development, and in particular, their social and emotional wellbeing. The development of language skills helps children to develop strong social skills. A child's experiences during these years make a significant difference to their future learning and life outcomes.<sup>6</sup>

Between the ages of three and five, children experience a critical period in the development of their self-regulation. Children develop skills that help them to manage their emotions and behaviour, build resilience and persistence, form positive relationships and focus their attention.<sup>7</sup> We know that these attributes make a significant difference to children's learning at school.<sup>8</sup> Researchers also consider that these skills and dispositions to learning are vital in enabling children to navigate and adapt to the numerous changes they are likely to encounter in their future careers.<sup>9</sup>

<sup>1</sup> Commonwealth Government. (2017). *Your child and neuroscience: Learning potential*.

<sup>2</sup> McCain, M.N., Mustard, J.F. & Shanker, S. (2007). *Early years study 2: Putting science into action*. Toronto, ON: Council for Early Child Development.

<sup>3</sup> Moore, T.G. et al. (2017). *The first thousand days: An evidence paper – summary*. Parkville, Victoria: Centre for Community Child Health, Murdoch Children's Research Institute.

<sup>4</sup> Center on the Developing Child at Harvard University. (2012). *Executive Function: Skills for Life and Learning (in Brief)*.

<sup>5</sup> Winter, P. (2010). *Engaging families in the early childhood development story: Neuroscience and early childhood development*. A national project conducted on behalf of the Ministerial Council for Education, Early Childhood Development and Youth Affairs.

<sup>6</sup> Raver, C.C. & Knitzer, J. (2002). *Ready to enter: what research tells policymakers about strategies to promote social and emotional school readiness among three- and four-year-old children*. Promoting the Emotional WellBeing of Children and Families Policy Paper No. 3. New York: National Center for Children in Poverty, Columbia University.

<sup>7</sup> Center on the Developing Child at Harvard University. (2014). *A Decade of Science Informing Policy: The Story of the National Scientific Council on the Developing Child*.

<sup>8</sup> Phillips, D. et al. (2017). *Puzzling it out: The current state of scientific knowledge on pre-kindergarten effects – A consensus statement*. Washington DC: Brookings Institution.

<sup>9</sup> The Foundation for Young Australians. (2017). *The New Work Smarts: Thriving in the New Work Order*. FYA's New Work Order report series. Sydney, Australia: The Foundation for Young Australians.

Skills such as the ability to communicate well, think critically, solve problems, get along and co-operate with others, and control emotions are strongly linked with positive outcomes during the school years and throughout life.<sup>10</sup>

The best outcomes for children come about through combining sustained positive parenting with high-quality early childhood education.<sup>11</sup>

## TWO YEARS ARE BETTER THAN ONE

Quality early childhood education and positive relationships with early childhood professionals are linked to improved outcomes in areas that matter for success later in life, including those related to language, literacy, numeracy, and social and emotional wellbeing.<sup>12</sup>

There is national and international evidence that quality kindergarten programs lay the foundation for success at school, with attendance for more than one year strongly linked to more positive results. For example:

- A United Kingdom study showed that students who attended two to three years of kindergarten had better development in language, pre-reading, early number concepts, independence, concentration and social skills when they started school. At the end of school, they had higher exam scores, better grades in English and maths, and took more final year exams. They also had better social behaviours and self-regulation.<sup>13</sup>
- The study also showed an “achievement gap” of nearly one-and-a-half years between children who attended more than one year of kindergarten, and those who attended for one year or less.<sup>14</sup>
- Analysis of 2015 Programme for International Student Assessment (PISA) results showed that student performance at age 15 is strongest among children who attended early childhood education for at least two years.<sup>15</sup>

In light of the evidence, key educational research bodies have concluded that two years of high-quality kindergarten is a proven strategy for lifting children’s outcomes across all learning domains.<sup>16</sup>

Moreover, two years of kindergarten has an even stronger positive effect on children from disadvantaged backgrounds.<sup>17</sup>

## NUMBER OF HOURS PER WEEK

As part of its ‘Two Years are Better than One’ study, Australia’s Mitchell Institute concluded that 15 hours per week is the optimal number of hours in an early childhood education program in order to have a positive impact on children’s learning and development.<sup>18</sup> The Institute also recognised that many other countries offer closer to 20 to 30 hours per week.<sup>19</sup>

A UNICEF report on early childhood services in OECD countries established that 15 hours per week reflects the general expert consensus.<sup>20</sup> A longitudinal study in the United States found that at least 15 hours per week was necessary for substantial impacts on cognitive outcomes, and that outcomes were optimised when children started before age four.<sup>21</sup>



<sup>1</sup> Starting Strong 2017, Organisation for Economic Co-operation and Development (OECD)

<sup>10</sup> Britto, P. R. (2017). *Early moments matter for every child*. New York, NY: United Nations Children’s Fund (UNICEF).

<sup>11</sup> Pascoe, S. & Brennan, D. (2017). *Lifting Our Game: Report of the Review to Achieve Education Excellence in Australian Schools through Early Childhood Interventions*. Melbourne, Victoria: State of Victoria.

<sup>12</sup> Tayler, C. (2016). *The E4Kids Study: Assessing the effectiveness of Australian early childhood education and care programs*. Overview of findings at 2016. Final report to the Partner Organisations of the Effective Early Educational Experiences (E4Kids Study).

<sup>13</sup> Sammons, P., Sylva, K., Melhuish, E., Siraj, I., Taggart, B., Toth, K. & Smees, R. (2014). *Effective Pre-School, Primary and Secondary Education Project (EPPSE) Research Report: Influences on students’ GCSE attainment and progress at age 16*. London: Department for Education.

<sup>14</sup> *ibid.*

<sup>15</sup> Organisation for Economic Co-operation and Development (OECD). (2017). *Starting Strong 2017: Key OECD Indicators on Early Childhood Education and Care*. Paris: OECD Publishing.

<sup>16</sup> Fox, S., & Geddes, M. (2016). *Preschool – Two years are better than one: Developing a preschool program for Australian 3 year olds – evidence, policy and implementation*. Mitchell Institute Policy Paper No. 03/2016. Melbourne, Victoria: Mitchell Institute.

<sup>17</sup> NICHD Early Child Care Research Network & Duncan, G.J. (2003). ‘Modeling the impacts of child care quality on children’s preschool cognitive development’. *Child Development*, 74, 1454–75.

<sup>18</sup> Fox, S., & Geddes, M. (2016). *Preschool – Two years are better than one: Developing a preschool program for Australian 3 year olds – evidence, policy and implementation*. Mitchell Institute Policy Paper No. 03/2016. Melbourne, Victoria: Mitchell Institute.

<sup>19</sup> *ibid.*

<sup>20</sup> Bennett, J. (2008). *Benchmarks for early childhood services in OECD countries*. Innocenti Working Paper 2008-02. Florence, Italy: UNICEF Innocenti Research Centre.

<sup>21</sup> Loeb, S et al. (2007). ‘How Much is Too Much? The Influence of Preschool Centers on Children’s Social and Cognitive Development’. *Economics of Education Review*, 26,1.

Quality kindergarten programs are designed to be flexible and responsive to individual and groups of young children. Session times of longer duration can be designed with a mixture of more active and quieter experiences offered throughout the day, to allow children the opportunity to rest and recharge as they need to, while still presenting an engaging and stimulating learning environment.

## IMPROVING OUTCOMES FOR ALL CHILDREN

High quality kindergarten can help ensure that all children get a strong start in life. It has an even greater impact for children experiencing vulnerability and disadvantage, and can help to close achievement gaps at the start of school.<sup>22</sup>

Analysis of the Australian Early Development Census (AEDC) found that children who attended some form of early childhood education before starting school were half as likely to have developmental vulnerabilities when they started school, when compared to children who did not attend an early learning program.<sup>23</sup>

Developmental vulnerability when starting school can affect children's ability to engage with education, with these children being more likely to leave school without being ready for work.<sup>24</sup>

Unfortunately, research shows that families experiencing disadvantage generally have access to fewer hours and lower quality early childhood education and care programs.<sup>25</sup>

Universal access to a kindergarten program, rather than one targeted for particular cohorts, has benefits for all children. Children experiencing vulnerability and disadvantage are more likely to attend universal kindergarten because it is more available, and enrolment and attendance are normalised. A universal kindergarten program is also associated with improved outcomes for all children, regardless of their background.<sup>26</sup>

Children in Year 3 who attended kindergarten were **15 to 20 weeks ahead** of those who did not!



At age 16, students who had attended **two to three years** of kindergarten had **higher scores** in English and maths<sup>2</sup>

For every \$1 invested in early childhood education, Australia receives **\$2** back over a child's life – through higher productivity and earning capacity, and reduced government spending on health, welfare and crime<sup>3</sup>



<sup>1</sup>E4 Kids, University of Melbourne

<sup>2</sup>Effective Pre-school, Primary and Secondary Education Project, Department for Education, United Kingdom

<sup>3</sup>A Smart Investment for a Smarter Australia, PricewaterhouseCoopers & The Front Project

## THE BIG PICTURE

Evidence shows investment in early childhood education results in positive effects across society. It can help to strengthen the economy by developing a more highly skilled, productive and higher paid workforce. Intervening early reduces the need for more expensive interventions later in life, and decreases future government spending on health, welfare and justice.<sup>27</sup>

Foundational research by Nobel Prize-winning economist James Heckman showed that investing in early childhood education is a cost-effective strategy for promoting economic growth.<sup>28</sup> Recent research confirms that this is also true in an Australian context.<sup>29</sup>

Investment in early learning can also have significant benefits for society, including greater social cohesion, reduced inequality, and a healthier, happier and more resilient community.<sup>30</sup>

<sup>22</sup> Pascoe, S. & Brennan, D. (2017). *Lifting Our Game: Report of the Review to Achieve Education Excellence in Australian Schools through Early Childhood Interventions*. Melbourne, Victoria: State of Victoria.

<sup>23</sup> Goldfeld, S. et al. (2016). 'The Role of Preschool in Promoting Children's Healthy Development: Evidence from an Australian Population Cohort', *Early Childhood Research Quarterly*, vol. 35, pp. 40-8.

<sup>24</sup> O'Connell, M., Fox, S., Hinz, B. & Cole, H. (2016). *Quality Early Education for All: Fostering creative, entrepreneurial, resilient and capable learners*. Mitchell Institute policy paper No. 01/2016. Melbourne, Victoria: Mitchell Institute.

<sup>25</sup> Tayler, C. (2016). *The E4Kids Study: Assessing the effectiveness of Australian early childhood education and care programs*. Overview of findings at 2016. Final report to the Partner Organisations of the Effective Early Educational Experiences (E4Kids Study).

<sup>26</sup> Bartik, T. (2014). *From Preschool to Prosperity: The Economic Payoff to Early Childhood Education*, WE Focus Series, W.E. Kalamazoo: Upjohn Institute for Employment Research.

<sup>27</sup> PricewaterhouseCoopers Australia. (2019). *A Smart Investment for a Smarter Australia*. Melbourne, Victoria: The Front Project.

<sup>28</sup> Heckman, J. (2004). 'Invest in the Very Young', Tremblay RE, Barr RG, Peters RDeV, eds. *Encyclopedia on Early Childhood Development*.

<sup>29</sup> PricewaterhouseCoopers Australia. (2019). *A Smart Investment for a Smarter Australia*. Melbourne, Victoria: The Front Project.

<sup>30</sup> *ibid.*

## QUALITY COUNTS

Quality in early childhood education is influenced by the practice of early childhood teachers and educators, and the everyday experience of children in early learning settings.

The Victorian Early Years Learning and Development Framework (VEYLDF) is the approved learning and development framework for kindergarten services in Victoria. The VEYLDF focuses on early experiences and learning from birth, and gives best practice advice to early childhood professionals on ways to support children and families through the first eight years of a child's life.

You can view the VEYLDF at: <https://www.education.vic.gov.au/Documents/childhood/providers/edcare/veylframework.pdf>.

Evidence shows that programs must be high quality to achieve significant, lasting impact on children's development and learning.<sup>31</sup> High quality programs include warm, nurturing relationships and interactions between children and educators, play-based approaches using both child-led and intentional teaching strategies, and engaging learning environments.

As part of its work to support the roll-out of Three-Year-Old Kindergarten, the Department of Education and Training will be assisting services and early childhood professionals to plan and deliver age-appropriate, quality programs that align with the VEYLDF.

## HOW UNIVERSAL ACCESS TO THREE-YEAR-OLD KINDERGARTEN CAN MAKE A DIFFERENCE

A funded kindergarten program is different from other early learning opportunities. It is designed to make sure all children have access to the three elements associated with significant and sustained effects on children's learning and development outcomes:

- the number of hours of programming, or 'dosage', with more hours being associated with improved outcomes
- delivery by a degree-qualified teacher
- access to additional funding and practical support to help services provide a high quality program and ensure children get the most out of their early learning (e.g. Kindergarten Fee Subsidy, School Readiness Funding, Early Start Kindergarten, Kindergarten Inclusion Support, Preschool Field Officers and Pre-Purchased Places).

The Victorian Government's introduction of funded Three-Year-Old Kindergarten means more children will have opportunities to participate in a program led and delivered by a qualified teacher, and fewer will miss out due to financial barriers.

Hours of funded Three-Year-Old Kindergarten will increase to 15 hours a week for 40 weeks of the year by 2029.

In the meantime, Early Start Kindergarten will continue to offer 15 hours of free or low-cost kindergarten during the roll-out of funded Three-Year-old Kindergarten. Early Start Kindergarten is available for children who are:

- Aboriginal and/or Torres Strait Islander, or
- known to Child Protection or who have been referred by Child Protection to Child FIRST.

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<sup>31</sup> Tayler, C. (2016). *The E4Kids Study: Assessing the effectiveness of Australian early childhood education and care programs*. Overview of findings at 2016. Final report to the Partner Organisations of the Effective Early Educational Experiences (E4Kids Study).