Independent Schools Queensland
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Briefings
Thought leadership for the independent schooling sector

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EXECUTIVE FUNCTION AND SELF-REGULATION:
Long Term Education and Wellbeing Outcomes

Foreword

In the dynamic landscape of education, schools strive to deliver quality, inclusive programs that lay the foundation for young learners' futures.

The Australian Government's **Early Years Strategy 2024–2034**

Independent Schools Queensland (ISQ) member schools, entrusted with shaping the minds of Queensland's children, offer a diverse range of services, particularly in the early years. From government-approved kindergarten programs to early childhood initiatives spanning birth to school-age, they foster growth, curiosity, and resilience. Playgroups, sessional kindergartens, long day care, and composite programs all contribute to a rich educational tapestry.

Why invest in the early years? Investment in the early years pays off in multiple ways, yielding long-term benefits at the child and family, community, and national level.

Executive function – the set of cognitive processes responsible for goal-directed behaviour, self-regulation, attentional control, and problem-solving – emerges as a pivotal factor in shaping children's readiness for school and their overall developmental outcomes. Longitudinal studies affirm that well-developed executive function predicts academic success, secondary school graduation, and post-school pursuits. Beyond academics, strong executive function skills are associated with improved mental health outcomes, including lower rates of anxiety, depression, and behavioural problems in adolescence and adulthood.

Educators, attuned to the impacts of neurodiversity, play a crucial role. Understanding how diverse minds impact executive function development ensures that no learner is left behind. For disadvantaged children, strong executive function becomes a lifeline, guarding against academic underachievement.

This research paper outlines strategies to support executive function and equips educators with actionable insights. Emotional regulation, impulse control, and problem-solving – these skills weave the fabric of children's developmental outcomes. Understanding the developmental trajectory of executive function and implementing targeted interventions can mitigate the risk of challenging behaviour in early years students, ensuring equitable access to quality education and supporting positive behavioural outcomes.

CHRISTOPHER MOUNTFORD

Chief Executive Officer
Independent Schools Queensland

EXECUTIVE FUNCTION AND SELF-REGULATION:
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REBECCA MCKINNON
School Services Manager

KATE CROWE
School Services Advisor

As the largest schooling sector in Queensland with integrated early learning centres and kindergartens, independent schools are in a unique position to lead the way in both evidence-based practice and innovation. By leveraging resources, expertise, and commitment to excellence, investing in the partnership between early childhood education and formal schooling in independent schools can provide seamless transitions between the two stages, enhancing school readiness and fostering both long-term academic success and social-emotional capability.

Investment in the early years pays off in multiple ways, yielding long-term benefits at the child and family, community, and national levels. Investing in early childhood education and development specifically has evidenced, lasting, impacts on:

- **Long-term educational attainment:** High-quality early childhood education programs lay the foundation for lifelong learning by equipping children with essential cognitive, social, and emotional skills. Research consistently shows that children who participate in quality early education are more likely to succeed academically, graduate from high school, and pursue post-secondary education, leading to greater opportunities for career advancement and economic mobility.
- **Improved social and emotional wellbeing**: Early childhood is a critical period for social and emotional development, shaping children's ability to form positive relationships, regulate their emotions, and navigate social situations effectively. Investments in early childhood education promote the development of essential social-emotional competencies, reducing the risk of behavioural problems, mental health disorders, and social isolation later in life.
- **Reduced achievement gaps**: Quality early childhood education can help narrow the achievement gap by providing all children, regardless of socioeconomic background, with access to enriching learning experiences and supportive relationships. By addressing disparities in access to educational resources and opportunities early on, investments in early childhood can mitigate the effects of poverty and promote greater equity in educational outcomes.

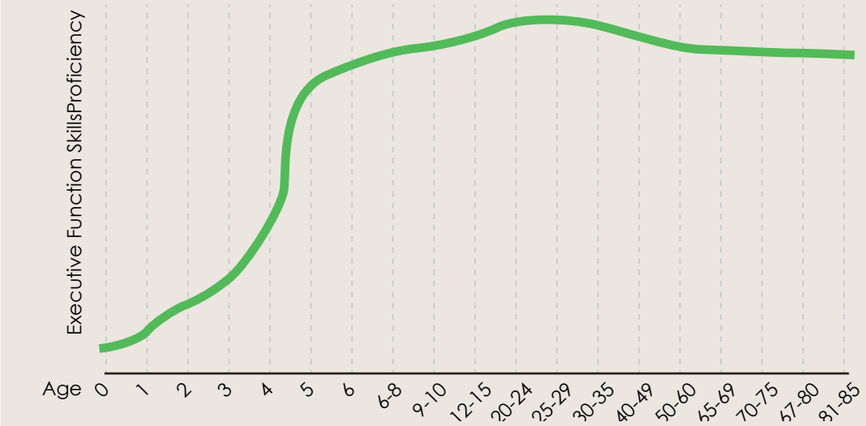
Executive function emerges as a key factor in shaping children's readiness for school and their overall developmental outcomes. Executive function refers to a set of cognitive processes responsible for goal-directed behaviour, self-regulation, attentional control, and problem-solving. Research highlights the importance of these skills in academic and self-regulated learning, highlighting the need for early childhood education programs to incorporate activities that promote the development of these skills. The Australian Education Research Organisation (AERO) describes self-regulated learning as students "actively influencing their own learning processes on an emotional, behavioural, metacognitive and motivational level."[1]

Longitudinal studies have shown that children with well-developed executive function are more likely to succeed in school, graduate from secondary school, and pursue post-school education or career opportunities. Moreover, strong executive function skills are associated with improved mental health outcomes, including lower rates of anxiety, depression, and behavioural problems in adolescence and adulthood.

Executive function and student outcomes

Research on executive function indicates its relevance to learning and education across various domains. The early years are identified as a particularly sensitive period for executive function skill acquisition. Specifically, executive function capability has been identified as a predictor of both mathematics and reading comprehension in the early years and throughout primary school. Children with stronger skills tend to learn more effectively from the same amount of instruction, although factors like having a growth mindset also contribute to learning outcomes. These skills are malleable and can be improved through relatively brief interventions that provide children with opportunities to practice and develop at increasing levels of challenge.

Figure 1: Executive Function Skills Build into the Early Adult Years



Difficulties with executive function can stem from various forms of atypical cognitive development. These difficulties are prevalent in numerous disorders with childhood onset, including specific learning disabilities and Attention Deficit Hyperactivity Disorder (ADHD). Educators' understanding of how neurodiversity impacts executive function skill development is key to supporting all learners. Strong executive function skills serve as a protective factor against the risk of low academic achievement, particularly in disadvantaged children.

Poor executive function and self-regulation also to contribute to behaviour challenges. Queensland data shows high numbers of suspensions of Prep students in State Schools between 2018 and 2022[2]. Suspension and exclusion can have significant negative consequences for Prep students, including social isolation, disengagement from learning, and impaired academic progress. Evidence suggests that students who experience suspension or exclusion are at increased risk of academic failure, dropping out of school, and involvement in the juvenile justice system later in life.

Addressing the issue of suspension and exclusion among prep students requires a multi-faceted approach that emphasises early intervention, targeted support, and proactive strategies for promoting positive behaviour and wellbeing. Investment in understanding the developmental trajectory of executive function is critical.

Strategies that support executive function can significantly assist with behaviour management in schools by helping students develop the self-regulation skills needed to control their actions, emotions, and impulses. In particular:

1. **Emotional regulation** strategies teach students how to regulate their emotions and manage stress effectively, reducing the likelihood of impulsive or disruptive behaviour.
2. **Impulse control** skills, such as inhibitory control, help students resist the urge to act impulsively and make thoughtful decisions.
3. **Self-monitoring** strategies encourage students to monitor their own behaviour and evaluate whether it aligns with established expectations and goals, promoting responsible behaviour and accountability.
4. **Problem-solving** strategies foster students' ability to identify problems, generate solutions, and implement effective strategies to address challenges, reducing frustration and negative behaviour.
5. **Flexibility and adaptability** skills support students to respond to changing circumstances or unexpected events, reducing rigidity and resistance to change that may lead to disruptive behaviour.
6. **Collaboration and communication** strategies help students to develop social-emotional competencies that support positive relationships and constructive behaviour in social settings.

1. Australian Education Research Organisation. Supporting self-regulated learning. Supporting self-regulated learning | Australian Education Research Organisation (edresearch.edu.au)

2. https://qed.qld.gov.au/our-publications/reports/statistics/Documents/sda-by-student-demographics.xlsx

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A focus on self-regulation development helps to unite multiple influences within a coherent framework that can serve as a basis for action and the structuring of educational experiences from prekindergarten through the early elementary grades to support and foster progress in school for diverse groups of children. It would seem that the path through the wilderness is clear; it only remains to be taken.

BLAIR C. AND RAVER C.C.

Physicality and executive function are also closely linked in early childhood, with physical activity playing a critical role in supporting the development of cognitive processes related to self-regulation, cognitive flexibility, working memory, inhibition, emotional regulation, and attentional control. By incorporating opportunities for movement and active play into early childhood environments, educators and caregivers can promote holistic development and lay the foundation for strong skills in young children.

A focus on self-regulation development helps to unite multiple influences within a coherent framework that can serve as a basis for action and the structuring of educational experiences from prekindergarten through the early elementary grades to support and foster progress in school for diverse groups of children. It would seem that the path through the wilderness is clear; it only remains to be taken. (Blair C. and Raver C.C.).

Government investment

The Australian Early Development Census (AEDC) plays a crucial role in informing early childhood investment and policy decisions, by providing comprehensive data on children's developmental outcomes at a population level. The AEDC is a national data collection conducted every three years since 2009, to examine how children have developed by the time they start school. The AEDC measures five areas of early childhood development, known as domains, and describes children as developmentally on-track, developmentally at-risk and developmentally vulnerable. Results in the domains of social competence, emotional maturity and language and cognitive skills, are intrinsically linked to executive function.

By leveraging this data effectively, stakeholders can target resources where they are needed most and work towards improving outcomes for all children, regardless of their background or circumstances. As the current prep cohort are predominantly born between July 2018 and June 2019, the 2024 data collection will help to better understand the impact of the COVID-19 pandemic and government responses to it, on early childhood development in Australia.

Findings from the Royal Commission into *Early Childhood Education and Care* in South Australia emphasise the significance of executive function in shaping children's school readiness. Similarly, the Productivity Commission's Draft Report, *A Path to Universal Early Childhood Education and Care*, stresses the critical role of early childhood education in supporting the development of executive function skills.

The Australian Government's **Early Years Strategy** draws links between physicality and executive function in early childhood. By promoting a holistic approach to early childhood development and emphasising the importance of physical activity and movement, the strategy supports the comprehensive growth of children and acknowledges the role of physicality in shaping executive function skills.

The draft Early Years Strategy notes, "Environments that promote and extend children's brain development help children to better understand the world around them and solve problems. This foundational learning creates a strong pathway for successful learning in formal education settings.[3]" It emphasises a holistic approach to early childhood development, recognising that children's physical health and wellbeing are intertwined with their cognitive, social, and emotional development. By promoting physical activity and movement alongside other aspects of development, the strategy supports the comprehensive growth of children and acknowledges the importance of physicality in shaping executive function skills.

Recognising the critical role early childhood plays in school readiness, the Queensland Government has introduced Free Kindy, entitling all children to 600 hours of an approved kindergarten program. There are 126 approved Kindergarten programs operating in Queensland independent schools. Additionally, the Kindy Uplift program, piloted in 2022 and 2023 and rolled out to all Queensland kindergartens in 2024, focuses on investing in the capacity of kindergarten educators to meet the needs of children in six priority areas that contribute to school readiness, including executive function. By embedding activities and experiences that challenge and strengthen children's executive function skills, such as problem-solving tasks and self-regulation exercises, independent schools can enhance the readiness of children transitioning from early childhood to formal schooling. ISQ is providing advisory support to 109 kindergartens that are aligned with independent schools in Queensland and participating in Kindy Uplift in 2024. Building the capacity of educators to support children with social and emotional capability and executive function has been identified as a priority in 81 of these programs.

Image: Photo courtesy of John Paul College

2. Early Years Strategy 2024–2034

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Conclusion

As Commonwealth and State Government prioritise investment in the early years, schools can capitalise on this, recognising the critical role of executive function in shaping school readiness and long-term success. Executive function skills, such as emotional regulation, impulse control, and problem-solving are pivotal factors in children's overall developmental outcomes. Understanding the developmental trajectory of executive function and implementing targeted interventions can mitigate the risk of challenging behaviour in early years students, ensuring equitable access to quality education and supporting positive behavioural outcomes.

As we navigate the complexities of early childhood development, informed by research and strategic investments, schools can foster environments that promote resilience, wellness, and lifelong learning for all children. By leveraging data-driven insights, prioritising the holistic development of children, independent schools in Queensland can serve as beacons of excellence in nurturing the potential of every child, regardless of their background or circumstances.

Available Support

ISQ provides a range of professional learning opportunities that are linked to transitions and brain development. ***Hey Little Warrior & the Developing Brain*** delves into understanding how to 'neuronurture' children in kindergarten and the early years of school, to better support their growth, learning, social and emotional development, relationships, and a rich, wholehearted engagement with the world.

The Behaviour Series and in particular, ***An introduction to behaviour support plans*** explores resources, research and theories related to behaviour support and aims to increase understanding of intersecting factors that may influence behaviour. ***Kindergarten Inclusion: Transition to school*** helps educators and leaders to support transitioning students from the final term of Kindergarten into the first term of schooling. Additionally, ISQ's Member Hub ***Kindergarten and Early Childhood page***, provides valuable resources for member schools.

The Australia Early Development Census (AEDC) 2024 data collection will take place from 1 May to 21 June 2024. For further information contact Fran Myers-Baird via FMyersBaird@isq.qld.edu.au

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Figure 1
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Independent Schools Queensland Ltd
ACN 614 893 140 **ABN** 88 662 995 577

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Independent Schools Queensland
Level 7, 189 Grey Street, South Brisbane Q 4101
P (07) 3228 1515 **E** office@isq.qld.edu.au

www.isq.qld.edu.au