Victorian Advancing Early Learning Study
Final Report

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August 2017
Table of Contents
List of figures .................................................................................................................. 3
List of tables ................................................................................................................... 4
Acronyms ...................................................................................................................... 5
Acknowledgements ........................................................................................................ 6
1. Executive summary .................................................................................................. 7
2. Introduction ............................................................................................................. 10
3. Pilot study .............................................................................................................. 19
   Aim ......................................................................................................................... 19
   Methodology ......................................................................................................... 19
   Design of a professional learning intervention ...................................................... 23
   Developing and checking a set of threshold conditions ....................................... 28
   Development and trial of instruments for use during the study ......................... 33
   Data analysis and evaluation ............................................................................... 40
   Pilot study findings ............................................................................................... 41
4. Main study .............................................................................................................. 50
   Aim ......................................................................................................................... 50
   Methodology ......................................................................................................... 50
   Implementation of professional learning intervention ....................................... 56
   Main study findings ............................................................................................... 60
5. Discussion of findings ............................................................................................ 86
   Multi-component professional learning .............................................................. 86
   Service management and leadership ................................................................. 87
   Educator practice change .................................................................................... 88
   Child learning outcomes ...................................................................................... 89
6. Project outcome ..................................................................................................... 91
   The VAEL Professional Learning Model .............................................................. 91
   Delivery of the professional learning program ................................................... 96
   Recommendations ............................................................................................... 98
7. Ongoing and future work ..................................................................................... 99
8. References ............................................................................................................ 101
LIST OF FIGURES

Figure 1. Structure of professional learning intervention - pilot study ........................................... 23
Figure 2. Talk type definitions used in the Time Sampling Tool ....................................................... 38
Figure 3. Toddler CLASS outcomes – LDC pilot site ........................................................................ 41
Figure 4. Pre-K CLASS outcomes – kindergarten pilot site ............................................................... 42
Figure 5. Time sample activity data - LDC pilot site ........................................................................ 43
Figure 6. Time sample activity data - kindergarten pilot site ............................................................ 43
Figure 7. Structure of professional learning program for main study sustainability phase .............. 55
Figure 8. Structure of professional learning program for main study LDC site 1 ............................... 56
Figure 9. Structure of professional learning program for main study LDC site 2 ............................... 59
Figure 10. Toddler CLASS outcomes - main study .......................................................................... 60
Figure 11. Pre-K CLASS outcomes - main study ............................................................................. 61
Figure 12. Time sample outcomes - main study LDC site 1 .............................................................. 62
Figure 13. Time sample outcomes - main study LDC site 2 .............................................................. 62
Figure 14. Time sample talk type outcomes - main study LDC site 1 ............................................... 63
Figure 15. Time sample talk type outcomes - main study LDC site 2 ............................................... 63
Figure 16. Changes in children’s knowledge of basic concepts – main study ..................................... 74
Figure 17. Changes in children’s development of language – main study .......................................... 75
Figure 18. Toddler CLASS outcomes - sustainability study .............................................................. 77
Figure 19. Pre-K CLASS outcomes - sustainability study ................................................................. 78
Figure 20. Time sample outcomes – pilot & sustainability study - LDC site ........................................ 78
Figure 21. Time sample talk type outcomes – sustainability study – LDC site ..................................... 79
Figure 22. Examples of 3a posters and signage displayed at participating VAEL centres ................ 82
Figure 23. VAEL Professional Learning Model .................................................................................. 91
Figure 24. Structure of professional learning program ....................................................................... 96
LIST OF TABLES

Table 1. Vulnerability according to AEDC data by LGA.................................................. 20
Table 2. Description of educators in the pilot study ......................................................... 21
Table 3. Overview of VAEL professional learning content – pilot study......................... 25
Table 4. Overview of coaching content - pilot study ......................................................... 26
Table 5. Instruments used in the VAEL pilot and main study .......................................... 33
Table 6. Domains and dimensions CLASS Toddler and Pre-K Tools............................. 36
Table 7. Educators’ opinions regarding practice improvement – pilot study .................... 44
Table 8. Summary of expert coaching sessions - pilot study ............................................ 46
Table 9. Summary of Educational Leader coaching sessions - pilot study ....................... 47
Table 10. Main study - vulnerability according to AEDC data by LGA .............................. 51
Table 11. Description of educators - main study .............................................................. 52
Table 12. Educator characteristics at the sustainability site ............................................ 54
Table 13. Overview of professional learning content - LDC site 1 .................................... 57
Table 14. Overview of professional learning content - LDC site 2 .................................... 58
Table 15. Summary of expert coaching sessions .............................................................. 67
Table 16. Educators’ opinions regarding practice change - main study ........................... 70
Table 17. Summary of Educational Leader coaching sessions - main study ..................... 71
Table 18. Effective strategies used by the Educational Leaders ........................................ 71
Table 19. Child outcomes: WJIII subtests - main study .................................................. 76
Table 20. Summary of Educational Leader coaching sessions for LDC site - pilot study .... 79
ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>3α</td>
<td>Abecedarian Approach Australia</td>
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<tr>
<td>ATSI</td>
<td>Aboriginal or Torres Strait Islander</td>
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<td>ACECQA</td>
<td>Australian Children’s Education and Care Quality Authority</td>
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<td>AEDC</td>
<td>Australian Early Development Census</td>
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<td>CLASS</td>
<td>Classroom Assessment Scoring System</td>
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<td>DET</td>
<td>Department of Education and Training Victoria</td>
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<td>ECEC</td>
<td>Early Childhood Education and Care</td>
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<td>EL</td>
<td>Educational Leader</td>
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<td>LGA</td>
<td>Local Government Area</td>
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<td>Melbourne Graduate School of Education</td>
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<td>NQF</td>
<td>National Quality Framework</td>
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<td>Participatory Action Research</td>
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<td>PLS-5</td>
<td>Preschool Language Scales – 5th Edition</td>
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<td>Victorian Advancing Early Learning</td>
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<td>VEYLDF</td>
<td>Victorian Early Years Learning and Development Framework</td>
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<td>WJIII</td>
<td>Woodcock Johnson III</td>
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ACKNOWLEDGEMENTS

The Graduate School of Education at the University of Melbourne was funded by the Department of Education and Training [formerly Department of Education and Early Childhood Development] to undertake the Victorian Advancing Early Learning Study (2014-2016).

The research team included Professor Collette Tayler, Dr Jane Page, Dr Frank Niklas, Nicole Pilsworth, Catherine MacBean, Isabel Brookes, Kimberly Sparling-Meunier, Samantha Simpson, Alexander Eastwood, Tim Walker and Brenda Ivonne Aguilar Esteban.

The VAEL study team would also like to acknowledge and thank:
Professor Joseph Sparling
Tim Gilley
Dawn Davis
The Alfred Felton Bequest
Moonee Valley City Council
Hume City Council
Broadmeadows Valley Primary School
Mission Australia
Gowrie Victoria

We express our gratitude and acknowledgment for the support and contribution of the educators, Educational Leaders, service managers, children and families at our participating services.

It should be noted that the circumstances reflected in this report are at the time of the research – 2014-2016.
1. EXECUTIVE SUMMARY

The Victorian Advancing Early Learning Study (VAEL) (2014-2016) was a three year study that was established in the light of initial findings from the Effective Early Educational Experiences (E4Kids) study concerning the quality of pedagogy within Victorian ECEC settings and departmental interest in interventions that can improve children’s outcomes from an early age, especially young children experiencing disadvantage. The VAEL study, developed, piloted and tested the effectiveness of a professional learning program on the quality of educator-child interactions in early childhood education and care (ECEC) settings where Educational Leaders and educators were trained and coached in the use of evidence-based teaching strategies.

The primary aim of the VAEL study was to develop and test a professional in-service model for improving the quality of educator-child interactions which has downstream positive effects on the learning outcomes for children, specifically children experiencing disadvantage. The professional learning intervention components included (a) Abedecarian Approach Australia (3α) training and an overview of the domains of Classroom Assessment Scoring System (CLASS), and (b) expert and local coaching to support educators with the implementation of the pedagogical strategies. The 3α training provided detailed content about the background and research evidence from the Abedecarian studies, and the pedagogical strategies - Enriched Caregiving, Conversational Reading, and LearningGames® - embedded within the Abedecarian Approach. The overview of the CLASS tool included an exploration of the dimensions, indicators and behavioural markers within the three domains of Emotional Support, Classroom Organisation and Instructional Support. The 3α teaching and learning strategies were aligned with dimensions of CLASS to support implementation of these strategies. The training also aligned this content with the current Australian policy context. The main study aimed to collaborate, through participatory action research processes, with a community experiencing high levels of disadvantage, and sought to promote positive learning opportunities and everyday experiences for their very young children.

The VAEL Professional Learning Model provided educators with pedagogical training and coaching on the application and use of evidence-based teaching strategies in their daily interactions with children within their play-based programs. Threshold conditions were put into place to ensure the effective and efficient implementation of the professional learning program.

The VAEL study involved two stages of intervention 1) developing, piloting and adapting a Professional Learning Model in the first year, the ‘pilot study’ with Educational Leaders and educators, families and children in two ECEC services in Moonee Valley City Council and 2) implementing the adapted Professional Learning Model for two years in an ECEC service, with two different service providers, in Hume City Council as the main study. The main study also tracked the LDC site from the pilot study through a sustainability phase. The quality of educator-child interactions were tracked as the primary measure during each year and the impact on children’s learning outcomes assessed as a secondary measure during the main study. In summary, the VAEL study established the following findings with these themes:

*Educator practice change*

1. With training and support to practice, educators can adjust their use of time with the children in any ECEC program. There was evidence of relative increases in small group time and an increase in 1:1 interaction time. Deploying tactics that increased 1:1 adult-child interaction time was reported by most staff to be challenging, however there is evidence to suggest that educators were able to shift their practice despite these challenges over time.
Targeted professional learning (training, coaching and educational leadership) has been found to support educators to gain deeper theoretical, research-based and practical understandings of how children learn, their role in the learning process and what effective instruction looks like in practice.

The benefit of an external expert coach in the initial stages of implementation of new knowledge support the engagement of educators and leaders in committing to pedagogical change.

The evidence-based 3σ teaching and learning strategies were reported by most educators to be helpful in improving the level of support they gave to children in the program.

Based on changes to educator practice there were gains in the level of emotional and behavioural support as well as engaged support for learning in Toddler programs as the intervention progressed. These gains were continued during the sustainability phase of the study. This was more strongly evident where the management and leadership group were all engaged with the study targets.

In the (Pre-K) three-to five year old programs there was variation in the relative levels of emotional, organisational and instructional support provided to the children across the year. Improvement was more evident in programs that had a more stable staff complement, and involvement from the management and leadership.

The most prevalent types of talk deployed by the educators (in both toddler and 3-5 year old programs) were responsive talk and educational talk, with increases in educational talk being demonstrated over the course of the study across all programs for children birth to five years.

Professional Learning Implementation

Professional learning programs that are distributed over time, and which involve external expert and local (Educational Leader) coaching, can support practice implementation. This is achieved when characterised by regular, ongoing, individualised support which assists effective pedagogical change.

Coaching and educational leadership characterised by regular, ongoing, individualised support, assists the implementation and adaptation of effective pedagogical change.

The tools and documents used to record implementation evidence of the 3σ teaching and learning strategies, and change in children’s outcomes, are more easily implemented by educators when they are aligned to the VEYLDF and NQS.

Service Management and Leadership

Threshold conditions make a difference to educators who are engaged in improving pedagogical practices. Improving practice, and subsequently child outcomes, seems to be facilitated when there is ‘buy-in’ by the management and leadership of the service; and when time is available for the Educational Leader to work with the educators as they strive to improve their practices.

Service stability and the influence of stable leadership appears to be a key factor in ensuring the progress of pedagogical improvement within an ECEC service.

Child Learning and Family Engagement

There was preliminary evidence that children’s conceptual and cognitive skills improved, beyond what was expected for normal development, from the outset to completion of the pedagogical practice intervention. These conceptual skills included understanding basic concepts, concept formation, verbal comprehension and understanding directions.

Small positive improvements in auditory comprehension, expressive communication and total language scores were evident.

There was evidence that families increased their understanding of effective engagement strategies to support their children’s learning and development.
The primary outcome of the VAEL study was to develop a Professional Learning Model that provided a systematic approach to evidence based professional learning and pedagogical improvement. Key components and processes are addressed in this model and include collaborative partnerships with key stakeholders, service management and leadership ‘buy in’, commitment and accountability, building and maintaining a ‘whole of centre’ approach to quality improvement through a participatory action process, a multi-component program of professional learning (training, external expert coaching and educational leadership) and tracking and assessing the effectiveness of the implementation process. A number of recommendations in relation to the delivery of the professional learning model are also made.
2. INTRODUCTION

STUDY PURPOSE AND REPORT STRUCTURE

The purpose of the Victorian Advancing Early Learning Study (VAEL) was to determine the impact of a professional learning program on the quality of adult-child interactions in the context of early childhood education and care (ECEC) services. The purpose of this report is to provide an overview of the implementation and findings of the VAEL study undertaken from 2014-2016.

The report includes a description of the rationale and background evidence that informed the VAEL study, the research aims, design and methodology, including the selected model of professional learning and its implementation process. The model was piloted in the first year of the study. The pilot study outcomes enabled the refinement and explication of the main study design. After piloting, the main study model and implementation details were finalised for the subsequent two-year project.

The pilot study is outlined in detail including the design, methodology and outcomes. It details the professional learning program, threshold operating conditions for ECEC sites seeking to improve pedagogy, key process factors and the instruments to obtain evidence during a professional improvement program. The main study section includes the design and findings and is followed by the discussion of the overall VAEL study outcomes and findings. The central themes that were found to impact on the effectiveness of the professional learning program are detailed in the following section. Key considerations are highlighted for further projects that focus on improving pedagogical practices and child outcomes within ECEC programs for young children from birth to five years of age. Finally, the overall project finding – the VAEL Professional Learning Model for a systematic approach to evidence based professional learning and pedagogical improvement - is presented. The report concludes with recommendations for a sustainable Professional Learning Model that has the potential to be up-scaled across the broader ECEC sector to support higher quality services and reduce disadvantage in ECEC.

RATIONALE

The VAEL study was established because of initial findings from the Effective Early Educational Experiences (E4Kids) study regarding the quality of pedagogy within ECEC settings, and upon departmental interest in interventions that can improve child outcomes at an early age. An important step from the E4Kids findings was to test the effectiveness of a professional learning treatment model that focused on improving the quality of educator-child interactions in ECEC settings by providing educators with specific pedagogical training and coaching on the application and use of evidence-based teaching techniques that were likely to improve child outcomes in language and conceptual development.

Children experiencing relatively high levels of disadvantage are found to benefit most from effective early learning and development interventions (Campbell, Conti, Heckman, Moon, Pinto, Pungello & Pan, 2014; Campbell & Ramey, 1994). Since this constituent group were those of greatest interest for targeting improvements in the ECEC programs they encountered before school, a suite of Abecedarian teaching strategies were identified as a model program intervention that could be trialed within the VAEL study. The strategies had been validated by high-quality longitudinal research elsewhere, and the Abecedarian Approach comprises clear, straightforward educational
strategies that can be learnt by individuals with varying degrees of education qualification.

A clear pedagogical tracking process was also necessary to meet the VAEL study rationale of raising pedagogical quality to influence child outcomes. Within the E4Kids study, the Classroom Assessment Scoring System (CLASS) had been psychometrically tested on Australian data and proved to be a valid and informative measure of teacher-child and child-child interaction within Australian ECEC settings (Cloney, Nguyen, Adams, Tayler, Cleveland & Thorpe, 2017). The CLASS enabled researchers to compare the process quality of different types of ECEC services and, through linear modelling analytic techniques, assess the impact on child outcomes. Hence, the VAEL study adopted the CLASS tool both as an assessment measure of quality and as content for professional learning in order to provide participants with an understanding of key process dimensions of quality. However, because VAEL was a small-scale study, there was no expectation that the quantitative analyses could provide robust causal relationships between the changes in educator pedagogies and child outcomes. Rather, the trends revealed from the analysis of a small dataset were intended to gauge the likely merit of utilising this model of intervention in subsequent larger-scale studies.

**PRIMARY AIM**

The aim of the VAEL study was to develop a Professional Learning Model that had a sustained impact on educator professional practice, and which had downstream positive effects on the learning outcomes for children, specifically children experiencing disadvantage. The research literature highlights the challenges of bringing about lasting change in professional practice, and suggests that sustained changes must be underpinned by changes to educators’ attitudes, knowledge and beliefs (Edwards and Nuttall 2009; Fisher & Wood 2012). The VAEL study aimed to combine evidence-based teaching strategies that were aligned with the relatively new policy developments that were captured within the *National Quality Framework for Early Childhood Education and Care (NQF)* (ACECQA, 2012) to inform shifts in educators’ knowledge, beliefs and professional practice. VAEL sought to achieve this through addressing the mediating conditions in the learning environments that were directly related to educator practice, with a focus on teaching effectiveness.

For the purposes of this report, the term ‘educators’ will be an inclusive term that includes all practitioners that work directly with children, irrespective of qualification or level of experience. The term ‘family’ refers to parents and/or carers that have responsibility for the day-to-day health and wellbeing of the child.

**WHAT EVIDENCE INFORMED THE VAEL STUDY?**

**The Effective Early Educational Experiences (E4Kids) Study**

The E4Kids research program studied, at scale, key quality dimensions of Australian early childhood education and care (ECEC) programs to empirically test their impact on children’s learning and development independent of other family and community factors such as socio-economic status and home learning environment. A core priority was to investigate how much value to children’s learning and development there is to be gained from participation in everyday ECEC services. The
E4Kids findings suggested the need for more nuanced consideration of approved ECEC services that are available to young children and families, and the impact of these services on different groups of children. Tayler (2017) states that additional program investments and research initiatives should address aspects of program quality that significantly improve children’s outcomes, and deeply engage the communities least well-served by everyday programs so that the promise of high-quality early education and care for all can be realised.

The most significant finding for program quality as a driver of child development was the quality of adult-child engagements measured within daily interactions. There are key teacher-child interaction behaviours that characterise high-quality processes and improve child achievement outcomes. The E4Kids findings suggest a need to improve the elements of process quality that specifically promote cognitive and language development.

Australian ECEC policy over the past decade reflected two basic aims that were expressed in the COAG Communique (February 2006); promoting child development and facilitating the workplace engagement of the children’s caregivers. Based on the E4Kids findings the child development (particularly cognitive development) aim is still underserved, especially for children experiencing high levels of disadvantage. Therefore, the key objective of the VAEL study was to develop, pilot and test the effectiveness of a professional learning program that could raise teacher effectiveness and the quality of adult-child interactions within ECEC programs to maximise young children’s learning and development outcomes, and to address the disparities in child outcomes that are linked to disadvantage and marginalisation.

A summary of the findings of the E4Kids research study can be found in The E4Kids study: Assessing the effectiveness of Australian early childhood education and care programs: Overview of findings at 2016 (Tayler, 2017). When considering the VAEL study, the main implications of the E4Kids findings were that:

- It is possible to predict persistent poorer learning outcomes based on family circumstances and initial assessment of children’s abilities at age 3-4 years and
- Because participation in mainstream ECEC programs is not narrowing the achievement gap for these children, it is important to address this by designing higher quality interventions in those programs attended by children experiencing disadvantage.

Adult-child interaction

Research literature confirms the significant influence of families on a child’s learning and development (Niklas, Cohrssen & Tayler, 2016; Van Voorhis, Maier, Epstein, & Lloyd, 2013; Galindo & Sheldon, 2012). However, research into the importance of early childhood participation has substantiated the extent to which educators also play an important role in advancing the learning and development of young children (Hattie, 2009; Mashburn, Pianta, Hamre, Downer, Barbarin, Bryant, Burchinal, Early & Howes, 2008; Zimmerman, Gilkerson, Richards, Christakis, Gray, & Ypanel, 2009). Participation in high quality ECEC programs leads to better learning and development outcomes for all young children (Gilley, Tayler, Niklas & Cloney, 2015; Tayler, 2015), but particularly for children experiencing disadvantage (Chen & de Groot Kim, 2014; Dickinson & Tabors 2001).

More explicitly, these augmented learning outcomes can be related to the engagements between
educators and children, because as educators interact with children, they support increased understanding and language production (Bjorklund, Dukes, & Douglas Brown, 2009; Pianta, La Paro, Payne, Cox & Bradley, 2002). Effective teaching in ECEC requires an integrated approach that includes “explicit instruction, sensitive and warm interactions, responsive feedback, and verbal engagement to stimulation intentionally directed to ensure children’s learning” (Pianta, Barnett, Burchinal & Thornburg, 2009, pp. 71-72). Research in ECEC settings verifies the importance of educators’ interactions with young children and the impact that teaching strategies can have upon children’s learning outcomes in the early years (Cloney, Page, Tayler & Church, 2013).

Documenting the shifts that occur, and the impact of evidence-based strategies on the quality of programs within Australian ECEC settings is also important, as this reveals the intent, frequency and content of teacher-child interactions that are aimed to advance child engagement, learning and development. Although Australian evidence is still limited, international research evidence suggests that the frequency and type of interactions between adults and children in ECEC settings impact children’s cognitive and social skills and their health and wellbeing over time (Hatfield, Burchinal, Pianta & Sideris, 2015; Burchinal, Vandergrift, Pianta & Mashburn, 2010; Gormley, Phillips, Newmark, Welti & Adelstein, 2011; Campbell et al., 2014; Campbell, Wasik, Pungello, Burchinal, Barbarin, Kainz, Sparling & Ramey, 2008; Campbell, Lamb & Hwang, 2000). Adult-child interactions that are intentional - namely being focused on building opportunities for instructional discussions to promote children’s high-order thinking skills and facilitating and encouraging children’s expressive and receptive language skills - are known to have the greatest impact on children’s learning and development (Pianta, La Paro & Hamre, 2008; Early, Maxwell, Ponder & Pan, 2016).

**Vulnerability**

E4Kids findings identified that disparities in child outcomes are closely linked to family characteristics such as socio-economic status, parent education, and language spoken at home (Tayler, Cloney & Niklas, 2015). Children experiencing disadvantage are more likely to begin school with vulnerabilities in one or more areas, and stand to benefit most from quality ECEC programs. Because vulnerability in children proves to be an important early indicator of poorer child outcomes, it is vital to be able to both identify children at risk and intervene to improve outcomes. Numerous studies examine the effects of particular interventions on child outcomes, most often focusing on cognitive impacts (see for example, Mantzicopoulos, Patrick & Samarapungavan, 2013; Toll & Van Luit, 2012), but some explore social and emotional development (see for example, Burchinal, Roberts, Zeisel, Hennon & Hooper, 2006), and readiness for school (see for example, Johnson, Martínez-Cantu, Jacobson & Weir, 2012). The impact on child outcomes of involving parents in interventions has also been reviewed with generally positive results for children (Beliner & Bente, 2013).

Studies conducted within universal and mainstream ECEC programs are critical because they provide an evidence base which government can confidently use in developing policies to improve learning outcomes for all children. By increasing the accessibility and quality of these major programs, government can address the needs of vulnerable populations without having to be reliant on inventing and funding separate models and programs. Work by the European Commission (2012) also highlights the importance of universal services, in which special attention is given to vulnerable children, as a preferred option over separate, targeted provision. The VAEL study aimed to work within universal services in areas with an identified level of disadvantage.
The Effective Provision of Preschool Education (EPPE) study (1997) in the United Kingdom was the first English longitudinal study of young children’s intellectual and social/behavioural development between the ages of 3 and 7 years. The aim of the study was to investigate the effects of preschool education for 3- and 4-year-old children, and EPPE explored the characteristics of effective practice (and the pedagogy which underpins them) through case studies of settings found to have positive child outcomes. Findings showed improved educational outcomes up to age 15 years for those who participated in high quality early childhood programs (Sylva, Melhuish, Sammons, Siraj-Blatchford & Taggart, 2011; Siraj-Blatchford, Mayo, Melhuish, Sammons, Taggart and Sylva, 2011).

Evidence-based interventions targeting educator interactions: Abecedarian Approach Australia -3a

The use of evidence-based teaching strategies is critical if educators are to have an impact on children’s learning and development. The Abecedarian Approach – a combination of language rich teaching strategies - Enriched Caregiving, Conversational Reading, and LearningGames® - , has been studied and validated in the US Abecedarian studies for over 40 years (see for example, Campbell, Ramey, Pungello, Sparling & Miller-Johnson, 2002; Sparling, 2011). These studies demonstrated that both short-term and long-term outcomes for highly vulnerable children can be improved when they are exposed to frequent, individualised language- rich interactions with adults throughout the day (Ramey, Sparling & Ramey Landesman, 2012). The findings showed improved intellectual performance and IQ scores, longer engagement in education and a greater likelihood of attending tertiary education, as well as greater likelihood of employment, earned income and better physical and mental health outcomes in later life (Campbell, Pungello, Burchinal, Kainz, Pan, Wasik, Barbarin, Sparling & Ramey, 2012). Research also suggests that there are positive outcomes for educators and families who learn to implement the Abecedarian strategies: a Massachusetts family day care study found that educators used richer oral language in their interactions and were more responsive to children (Collins, Goodson, Luallen, Fountain & Checkoway, 2010). The US Classroom Literacy Instruction and Outcomes Study found that the Abecedarian Approach had a positive effect on parents’ interactive reading skills and responsiveness to their children (Judkins, St. Pierre, Gutmann, Goodson, von Glatz, Hamilton, Webber, Troppe & Rimdzius, 2008).

The principles and experiences of the Abecedarian Approach are readily adaptable to a variety of ECEC settings. Importantly the Abecedarian Approach provides a model for improving the quality of adult-child interactions and appears to be particularly relevant to extending the learning of very young children (0-3 years) where there has been a major gap in knowledge of how best to intervene in the earliest years of ECEC.

While these teaching strategies were researched in dedicated long-day care centres in the US, the application of the three specific pedagogical techniques - Enriched Caregiving, Conversational Reading, and LearningGames® - was reviewed and adjusted for Australian ECEC contexts. This work was conducted prior to the VAEL study by members of the VAEL team with Professor Joseph Sparling, ensuring that while the core interactional qualities of the teaching strategies remained intact, they also deployed concepts and language structures that were matched to Australian English language and local cultures. Using the Australian version of LearningGames® and the local exemplars of Enriched Caregiving and Conversational Reading resolved in naming the set of Abecedarian strategies the ‘Abecedarian Approach Australia’ (hereafter 3a). This enabled the VAEL study to deploy the Abecedarian Approach teaching strategies that are proven to make a difference to young children’s learning outcomes in the professional learning intervention and at the same
time to support Educational Leaders and educators to align these teaching strategies with the practice principles and child learning and development outcomes embedded in the VEYLDF and EYLF and to standards and elements within Quality Areas 1 and 5 of the National Quality Standard (NQS).

3a strategies are applied in any play-based setting, either by ECEC educators and/or families, to support young children’s learning and development. 3a is an evidence-based pedagogical intervention using purposeful adult-child interactions as the key to children’s learning. The development of receptive and expressive language and joint attention is a priority within this approach, and is supported by each of the three techniques named above. 3a has also been analysed for its links to the Australian policy context: the LearningGames® were mapped to the Victorian Early Years Learning & Development Framework (VEYLDF) and each of the 3a teaching and learning strategies were aligned to the NQS; specifically, Quality Area 1: Educational Program and Practice and Quality Area 5: Relationships with Children. 3a is not a curriculum - it has no detailed scope and sequence or prescribed milestones. Rather, 3a is an approach that requires the educator to use both spontaneous and orchestrated incidents that occur within play-based ECEC programs. It is relatively easy to understand, but challenging to implement with fidelity. The strategies focus on individual or small group interactions with an adult, requiring some intentional planning, implementation and attention to the frequency of usage in all experiences, routines and transitions across a day. The frequency in which they are used with children has been shown to impact on children’s learning and development (Sparling, Lewis, Ramey, Wasik, Bryant & LaVange, 1991).

The fact that 3a is founded on the adult-child interaction and relationships between adults and children provides a strong, natural relationship to the VEYLDF (DET, 2016). The VEYLDF was built on this evidence in recognition of the vital role the early years plays in children’s success throughout their lives (DET, 2016). The VEYLDF describes and emphasises the importance of early childhood educators’ active and interactive roles in children’s learning. The vision of the VEYLDF is based on relationships, including with families, and encompasses the belief that families are ‘children’s first and most influential educators’ (p. 11). 3a focuses on these relationships and highlights the importance of adult-child interactions.

**Professional Learning**

Page and Tayler (2016) argue that professional learning is found to positively impact educator confidence, professional growth and improved practice in conditions where the learning:

1. “is aligned with standards for practice and organisational goals, and has explicit objectives (US Department of Education, 2010)
2. is continuous (Hadley, Waniganayake & Shepherd, 2015; Nolan, Morrissey & Dumenden, 2013)
3. is delivered by academicians, mentors or coaches (Degotardi, Semann & Shepherd, 2012; Hahs-Vaughn & Yanowitz, 2009)
4. is supported by the management/leadership team (Walter & Briggs, 2012)
5. is designed to align teaching strategies to educators’ qualifications and experience in the sector, and their knowledge (Hadley et al., 2015),
6. enables the collective participation of all educators at the educational setting (US Department of Education, 2010),
7. supports educators to reflect on how to teach children and the impact of their practices (Colmer, Waniganayake & Field, 2015; Opfer & Pedder, 2011) and
8. combines theory, research and practice to promote deeper contextualised knowledge (Colmer et al., 2015).” (p. 121).

Effective professional learning also provides educators with targeted ‘content knowledge’ that deepens educator’s understanding of how children learn, the role of the educator, child and parent in the learning process, effective teaching practices - how they support child learning outcomes and how to embed them in daily educational programs (Artman-Meeker Fettig, Barton, Penney, & Zeng, 2015; Colmer et al., 2015; Couglin & Baird, 2013; Fixsen, Naoom, Blase, Friedman & Wallace, 2005; Fonsén, 2013; Waniganayake, Cheeseman, Fenech, Hadley & Shepherd, 2012).

Elmore (2002) argues that professional learning is a “collective good rather than a private or individual good” and that it should be harnessed to achieve the goals of the system for the improvement of child learning outcomes, rather than be driven by the preferences of individuals who work in schools or other educational settings (p. 14). In addition, networks of professionals, planning and collaborating around child learning, are known to have a greater collective impact than the individual educator working in isolation (Couglin & Baird, 2013; Darling-Hammond, Wei, Andree, Richardson & Orphanos, 2009; Fonsén, 2013). In this context, the role of the Educational Leader has a key place in establishing and driving the professional learning of colleagues in an ECEC setting. A distributed leadership model aligns well with the adoption of such a role.

Mentoring and coaching are also identified as effective strategies for strengthening educators’ knowledge and practice and supporting ongoing professional learning (Twigg, Pendergast, Fluckiger, Garvis, Johnson & Robertson, 2013). Individualised support that is both instructional and relational and includes a range of purposeful coaching methods such as modeling, observation, reflection, feedback and goal setting are key to improving the quality of educator practices (Artman-Meeker et al., 2015; Diamond & Powell, 2011; Dunst, 2015; Hamre, Downer, Jamil, & Pianta, 2012; Landry, Zucker, Taylor, Swank, Williams, Assel & Lonigan, 2014; Jayaraman, Marvin, Knoche, & Bainter, 2015; Rush & Shelden, 2011; Sibley, Lawrence, Lambert, Neuman, & Kamil, 2010; Snyder, Hammeter, Meeker, Kinder, Pasia & McLaughlin, 2012; Wasik & Hindman, 2011). Providing mentoring or coaching in the workplace and the dose of coaching further contribute to the effectiveness of coaching interventions and continuous improvement in teaching practices (Abell, Arsiwalla, Putnam, & Miller, 2014; Cain, Rudd & Saxon, 2007; Desimone, 2009; Friedman & Woods, 2015; Milburn, Girolametto, Weitzman, Greenberg 2014 ; Neuman & Cunningham, 2009; Sibley & Sewell, 2011; Wasik & Hindman, 2011; Weitzman, & Greenberg, 2014).

Educational Leaders can be assisted to incorporate these strategies into their practice to support continuous improvement and contribute towards a strong culture of learning across a team of educators. For example, Colmer (2008) outlines the positive development of educators through the development of a ‘learning organisation’ culture. Each individual within the team has strengths that can be utilised and built upon to enhance the culture of learning. Coaching and mentoring are both strategies that:

- can tap the individual educators’ strengths as a way of working to reflect on and improve practice, rather than ‘fixing’ people,
- can be used as a strategy to support the fidelity of implementation of new teaching practices and
- support educators to engage with new knowledge and skills through observation, role modelling and targeted feedback.

By increasing their understanding and capacity, educators will have greater ability to work effectively with children and families to build strong relationships.
Furthermore, the overview of findings from the E4Kids study (Tayler, 2017) suggest that “Generating evidence that tracks the effectiveness of professional learning on the quality of educator-child interactions over time is key to understanding the active ingredients that drive the process of continuous improvement, and counteracting the prevalence of low quality pedagogical practices in Australian ECEC settings” (p. 33).

Leadership, professional learning and coaching studies can shed light on effective steps towards positively changing interaction behaviours. Page and Tayler (2016) note that “educational leadership is key to building high-quality ECEC programs and driving the process of continuous improvement. Effective educational leadership aims to support all educators in ECEC settings to portray evidence-based practices that advance children’s learning.” (p. 113). However, the authors also note that educational leadership is a complex role and requires certain conditions to be in place in order to lead purposefully and systematically. Management and Leadership ‘buy-in’ and a supportive organisational infrastructure with clear ‘threshold conditions’ have been identified as key to implementing professional learning and/or pedagogical improvement strategies in ECEC settings (Brookes in Page & Tayler, 2016; Darling-Hammond et al., 2009; Gomez, Kagan & Fox, 2015; Walter & Briggs, 2012). Integrating professional learning into work days, ensuring all educators participate in professional learning (US Department of Education, 2010) and providing time for educators to learn and consolidate new teaching practices in their settings (Darling-Hammond et al., 2009) are core conditions that support improved educator teaching strategies.

Leadership behaviour is a central determinant of quality in ECEC enacted by the educators in ECEC settings. Educator knowledge, skills and capacities can be enhanced through effective leadership (Sheridan, Pope Edwards, Marvin & Knoche, 2009; Chu, 2012; OECD, 2005), and raising the capacity of staff has been shown to have the most direct impact on improving children’s learning and development outcomes (Hattie, 2009).

Leadership is also a critical component of the National Quality Framework (NQF): Quality Area 7 of the highlights the role of Educational Leader as someone who “leads the development of the curriculum and ensures the establishment of clear goals and expectations for teaching and learning” (ACECQA, 2012, p. 172). As part of the VAELE study there was a need to conceptualise the role of the Educational Leader as a key component in supporting educators to reflect on how they work and learn with other adults, as well as the role educators play in enhancing young children’s learning outcomes. Within the NQS, leadership is defined as “a relationship between people and the best leaders are those who are able to empower others” (ACECQA, 2012, p.171). Effective leadership can also therefore promote a positive organisational culture and can build a professional learning community, thus enhancing the knowledge, skills and capacities of educators.

Currently, across the ECEC sector there are a range of understandings for what defines educational leadership. The National Law has defined an Educational Leader as a “suitably qualified and experienced educator, coordinator or other individual appointed as Educational Leader at a service to lead the development and implementation of education programs in the service” (Ministerial Council for Education, Early Childhood Development and Youth Affairs (MCEECDYA), 2010, Part 4.4, Division 1, 118, p.133). The role has also been associated with the responsibility of facilitating a distributed model of pedagogical leadership for educators as a means by which to improve practice (DuFour & Mattos, 2013). The Australian Children’s Education and Care Quality Authority (ACECQA) defines an Educational Leader as someone who works with “teachers to provide curriculum direction and to ensure children achieve the outcomes of the approved learning framework” (p.
Within the VAEL study it was necessary to further unpack the role of the Educational Leader as leading learning and facilitating distributed pedagogical leadership within early childhood settings. This involved discussion and negotiation with research partners with the aim to develop a shared understanding of how the research evidence on educational leadership informed the proposed Professional Learning Model and how this worked alongside the requirements of national legislation and organisational limitations in framing the role of the Educational Leader.
3. PILOT STUDY

Aim

The aim of the VAEL pilot study (2014) was to develop and test a professional in-service model of learning for improving the quality of educator-child interactions.

Methodology

The VAEL study adopted a Participatory Action Research (PAR) design – a collaborative group-focused research process that stems from social psychology, and is argued to establish ‘self-critical communities’ (after McTaggart, 1991). In this case, because the target was improvement in pedagogy and the educators within ECEC programs hold the power to enact and adjust their practice, it was deemed critical to adopt methods that ensure the agency of the participants in the improvement process. PAR as an approach emphasises participation and action (Pain, Whitman, Milledge & Lune Rivers Trust, 2011), and collaboration that seeks to produce knowledge with others within a specific context (McIntyre, 2008). “Authentic participation in research means sharing in the way research is conceptualized, practiced, and brought to bear on the life-world. It means ownership-responsible agency in the production of knowledge and the improvement of practice” (McTaggart, 1991, p. 171). Moreover, Carr and Kemmis (1986) originally distinguished PAR practice as being systematic and collaborative in the collection of evidence; problem-posing rather than simply problem solving; and ensuring research was not mapped onto people by external agents. Both the NQF and the VEYLDF promote reflective practice as a key pedagogical process that ECEC educators demonstrate.

The participants included the leaders, Educational Leaders and educators within the ECEC sites, the university researchers, the children and families, and representatives from Department of Education and Training (DET). Given the interest of the sites on improvement, including evidence gathering for critical reflection and systematic planned change to practice, this approach vested the ‘power to act’ at the source – within ECEC programs. To enhance local and collective knowledge of effective pedagogies the learning intervention encompassed the delivery of a professional learning program, alongside coaching and mentoring of educators and Educational Leaders.

Description of sites

In the initial VAEL consultation Moonee Valley City Council (MVCC) was identified as a partner. MVCC is an approved provider for education and care services, several of which are located in geographical areas identified in 2012 (through the Australian Early Development Census - AEDC) as having children with higher than the Victorian average as vulnerable in two or more domains. Two services were selected after consultation with Council’s Family & Children’s Services management: a long day care centre in Flemington and a sessional kindergarten in Avondale Heights. Table 1 shows the percentage of vulnerable children according to AEDC data for the Flemington and Avondale Heights LGA’s.
Table 1. Vulnerability according to AEDC data by LGA.

<table>
<thead>
<tr>
<th>Suburb (LGA)</th>
<th>Developmentally vulnerable on one or more domains (%)</th>
<th>Developmentally vulnerable on two or more domains (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flemington (MVCC)</td>
<td>27.6</td>
<td>17.9</td>
</tr>
<tr>
<td>Avondale Heights (MVCC)</td>
<td>15.2</td>
<td>7.4</td>
</tr>
<tr>
<td>Victorian Average</td>
<td>19.5</td>
<td>9.5</td>
</tr>
</tbody>
</table>

Developmental vulnerability; AEDC (2012, 2015)

The long day care centre was selected where the study would focus on programs for children aged birth to three. In 2013, the service had been given an NQS rating of Exceeding National Quality Standard however there had been changes in key leadership staff since this time. This medium sized centre is located next door to the local primary school in a community which draws from a varied demographic. For the purposes of the study, the long day care centre is referred to as the LDC pilot site.

The sessional preschool program, catering for both 3 and 4 year old programs. At the commencement of 2014 the service opened with the merging of two existing stand-alone preschool programs. The Centre was a newly established building co-located with Maternal & Child Health services. The VAEL study focused on the three 4 year old programs providing three 15 hour preschool programs across the week. The service is located close to other community facilities such as libraries and local sporting venues as well as the local primary school. In 2015 this site was given the NQS rating of Exceeding National Quality Standard. For the purposes of the study, the kindergarten service is referred to as the kindergarten pilot site.

Description of educators

A total of 14 educators were enrolled in the VAEL pilot study, 10 of these at the LDC pilot site and 4 at the kindergarten pilot site.

Table 2 to follow shows a breakdown of the number of staff at the LDC and kindergarten pilot sites, including their qualifications, type of employment, average years at the centre, average years in ECEC, whether born in Australia and whether speaking a language other than English. Educators at the LDC pilot site had a mix of qualifications and work roles. The average years working in ECEC was over 10 years suggesting an experienced staff, while the average years at the centre was over 6 years, suggesting stability. Six of the participating staff reported speaking a language other than English. At the kindergarten pilot site there were four educators, with the qualification profile and work-type breakdown being reflective of contemporary Victorian stand-alone kindergarten settings. Educators reported working an average of 14.0 years in ECEC and 13.3 years in their current centre, again suggesting an experienced and stable staff group.
Table 2. Description of educators in the pilot study

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>LDC</th>
<th>Kindergarten</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate III in Children’s services</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Diploma in Children’s services</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Bachelor of Education</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Masters of Teaching (EC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Employment</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Time</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Part Time</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Casual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9*</td>
<td>4</td>
</tr>
</tbody>
</table>

| Average years at Centre             | 6.6**| 13.3         |
| Average years in ECEC               | 10.9*| 14.0         |
| Educators born in Australia         | 4*   | 4            |
| Educators who speak a LOTE          | 6*   | 1            |

* Surveys were only received from 9 of the educators

Description of children and families

All children and families at the pilot sites were invited to participate in the study. A total of 122 children and families consented (50 at the LDC site and 72 at the kindergarten site). Consenting families were then invited to complete a survey about their child and family. Overall 58 surveys were completed as part of the pilot study, 38 from the LDC pilot site and 20 from the kindergarten pilot site.

Of the children surveyed, 45% from the LDC and 34% from the kindergarten were girls. No children or families identified as being Aboriginal or Torres Strait Islanders. All except two children were born in Australia (one from the LDC and one from the kindergarten), and the majority reported English as their first language (100% from the LDC and 79% from the kindergarten); however, some of these children did report speaking other languages at home. A total of four families reported their child as having health or developmental concerns, one from the LDC and three from the kindergarten.

Families from the LDC were more likely to have a partner, be in paid employment, have higher qualifications and earn a higher income than families from the kindergarten site. This may be indicative of the fact that kindergarten is a funded program and is more accessible to families. All main caregiver responders from the LDC reported currently having a partner and none reported having a Health Care Card. All respondents also reported having a diploma level qualification or higher (85% had either a degree or postgraduate degree). Ninety per cent of respondents reported being currently in paid work, and 60% of respondents reported a family income of over $175,000.

Most main caregivers from the kindergarten pilot site reported currently having a partner (89%), and 26% reported having a Health Care Card. All respondents reported having a Year 12
qualification or higher (55% had either a degree or postgraduate degree). Two thirds (66%) reported currently being in paid work and 60% of respondents reported a family income of over $75,000 (none reported earning over $150,000-$174,999).

Families were also asked about the number of books in their home, and their reading and literacy activities. Eighty per cent of families from the LDC reported having more than 100 books in their home in comparison to only 26% of the kindergarten families. The majority of the LDC main caregivers completing the survey reported reading on a daily basis (75%), reading to their child on a daily basis (90%) and doing activities to help their child learn the alphabet (25% daily, 30% each week). In comparison, fewer kindergarten main caregivers reported reading daily (47%) and reading to their child daily (66%). Given the (older) age of children in the kindergarten group compared with the LDC group, more kindergarten main caregivers reported doing activities to help their child learn the alphabet (42% daily, 39% weekly).
Design of a professional learning intervention

The VAEL pilot professional learning program was designed to be delivered in a 7-stage distributed approach from January to November in 2014 (see Figure 1 below). After negotiation with all parties including DET, the program provided participants with content focused on the 3α strategies as well as information about the pedagogical domains and dimensions of CLASS tool for studying adult-child interactions. The facilitation of professional learning sessions was followed by external expert coaching to support the implementation of the teaching strategies covered in each professional learning session.

![Figure 1. Structure of professional learning intervention - pilot study](image)

Professional learning content

The VAEL pilot professional learning program was developed by the ECEC team at the Melbourne Graduate School of Education (MGSE) in consultation with Professor Joseph Sparling, an original researcher on the Abecedarian studies that were conducted in the US. This professional learning program focused on building and maintaining the quality of adults’ interactions with children in ECEC settings, addressing the implementation of evidence-based teaching strategies from Abecedarian Approach Australia (3α) and building educators’ capacity to engage individual children in intentional learning interactions, on a daily basis.

The content of the VAEL pilot professional learning program included the research and theory underpinning 3α, how the strategies connect with current Australian ECEC policy and organisational contexts, the teaching strategies that make up 3α – including Language Priority, Enriched Caregiving, Conversational Reading and LearningGames® - and how to plan for, implement and evaluate these strategies in an early educational program. The content also addressed strategies for working collaboratively with colleagues and families to support young children’s ongoing learning and development. The professional learning sessions aimed to build a shared language and approach to advancing young children’s learning outcomes, in particular those related to children’s attention, conceptual development, and their receptive and expressive language.

The CLASS component of the VAEL pilot professional learning program included an overview of the process and structural components of process (interaction) quality in ECEC. It also provides an overview of the research underpinning CLASS and details dimensions, indicators and behavioural
markers within the three domains: Emotional Support; Classroom Organisation; and Instructional Support. The content provided opportunities for practice, assessment and discussions as well as considerations for programs with children aged from birth to three years.

The professional learning content was delivered over a period of 6 months with a total of 24 hours of face-to-face training. This was supplemented with fortnightly on-site interactive coaching for Educational Leaders, and fortnightly on-site coaching for Educators (essentially weekly visits to the service by an external expert coach) to assist in deepening understandings of the content in relation to current practice.

All professional learning sessions occurred outside of ECEC program contact hours (i.e., after-hours), whereas the on-site coaching for both groups occurred during the daily programs with the children, and during non-contact time for Educational Leaders. An overview of the VAEL pilot professional learning program content is presented in Table 3.
Table 3. Overview of VAEL professional learning content – pilot study

<table>
<thead>
<tr>
<th>Session</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Overview of VAEL study/ expectations of involvement</td>
</tr>
</tbody>
</table>
| PL1 | Quality in ECEC/ CLASS  
3a – Abecedarian Approach Australia  
Enriched Caregiving  
VAEL operational matters |
| PL2 | VAEL study update  
Language Priority  
Enriched Caregiving  
CLASS – Emotional Support  
VAEL planning and record keeping |
| PL3 | VAEL study update  
Conversational Reading  
Joint Attention  
Planning for Conversational Reading |
| PL4 | VAEL study update  
Conversational Reading – review  
CLASS – Classroom Organisation  
Planning and record keeping for Conversational Reading & Enriched Caregiving |
| PL5 | VAEL study update  
LearningGames®  
Planning for LearningGames® |
| PL6 | VAEL study update  
LearningGames®, NQS & VEYLDF  
CLASS – Instructional Support  
Planning and record keeping for LearningGames® |
| PL7 | VAEL study update  
Reviewing VAEL research questions  
Overview of study data  
Planning for sustainability – what’s next?  
Evaluation & Feedback |

Coaching

The VAEL study design comprised two levels of coaching with the intention to embed the 3a teaching and learning strategies into practice across programs.

1. External expert Coaches (from MGSE) primarily worked with the Educational Leaders at each site, but also engaged with educators to support their understanding and implementation of the evidence-based strategies. Each of the external expert coaches had in-depth knowledge of 3a and experience and expertise in working in a coaching capacity.
2. Coaching was also conducted by each on-site Educational Leader. The Educational Leader was supported by the external expert coach who provided coaching in relation to the evidence-based strategies as well as information on change management and identifying and evaluating goals. As is illustrated in Table 4 1 the Educational Leader began coaching educators 1 month after the external coaching commenced. Initially this occurred alongside
the external expert coach, and later each Educational Leader worked independently with individuals and groups of educators. The aim of the Educational Leader’s role in coaching was to support the implementation of 3a teaching and learning strategies, and to support the documentation of how the strategies were integrated into the educational program.

The coaching sessions followed a planned schedule and content focus however this was designed to be flexible and adaptable to the local conditions within each site and ECEC program. An overview of the coaching content is shown in Table 4.

Table 4. Overview of coaching content - pilot study

<table>
<thead>
<tr>
<th>Session</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Introduction Coach/ Educational Leader/ Educators</td>
</tr>
</tbody>
</table>
| Educational Leader session 1 (EL1) | VAEL Introduction  
The role of Educational Leader  
3a in the context of VEYLDF/NQS |
| EL2                          | Selecting Focus Children  
Weekly Planning for Enriched Caregiving                                  |
| EL3                          | Enriched Caregiving/Language Priority CLASS – Emotional Support  
Weekly Planning for Enriched Caregiving/ Language Priority  
Educator 3a Implementation Record (Enriched Caregiving only)  
Coaching and Mentoring Language                                    |
| EL4                          | Conversational Reading  
Joint Attention  
Weekly Planning for Conversational Reading– (incorporating Enriched Caregiving + Conversational Reading)  
Models of Change                                                      |
| EL5                          | Conversational Reading/3S  
Monitoring planning and implementation record keeping for Conversational Reading |
| EL6                          | Conversational Reading/3S/CLASS – Classroom Organisation  
Record Keeping – Educator 3a Implementation Record (Enriched Caregiving + Conversational Reading) |
| EL7                          | Conversational Reading/3S/CLASS – Classroom Organisation Record (Enriched Caregiving + Conversational Reading) |
| EL8                          | LearningGames®  
Planning and implementation record keeping for LearningGames®             |
| EL9                          | LearningGames® /CLASS – Instructional Support  
Record Keeping – Educator 3a Implementation Record (Enriched Caregiving + Conversational Reading+ LearningGames® |
| EL10                         | LearningGames® /CLASS – Instructional Support  
Monitoring planning and implementation record keeping for LearningGames® |
| EL11                         | LearningGames® /CLASS – Instructional Support  
Monitoring planning and implementation record keeping for LearningGames® |
| EL12                         | LearningGames® /CLASS – Instructional Support  
Monitoring planning and implementation record keeping for LearningGames® |
To maximise the engagement of educators in the coaching program it was important to communicate the intent of the program clearly to all involved. The coaching program made transparent to participants the expectations of the process as well as each party’s responsibilities associated with the role being enacted. This gave an opportunity for all educators as well as those in leadership positions to consistently ask questions and make suggestions as to how the program may work best with individual educators in different programs. Both the formal and informal interactions within the service aimed to strengthen relationships within the ECEC teams and to encourage a sense of ownership and responsibility among team members. Focusing on coaching as a strategy to engage educators provided a structure to build staff collaboration and professional relationships.

Both the expert coach and the Educational Leader maintained records which provided evidence of ongoing development and provided a systematic approach to specific mentoring and coaching required by individual educators. These coaching records were designed to track the process and progress of the coaching sessions. The records are detailed further in the following section (Development and trial of study instruments, p 38).
Developing and checking a set of threshold conditions

Monitoring and adjustment of Threshold (entry-level) Conditions for their apparent influence and effects formed part of the pilot phase of the study.

The starting point for a systematic improvement process is establishing an operational and practice baseline at each site. Setting out the key conditions that are (or need to be) operating in a centre aiming for improvement is stage one of any plan to improve the pedagogy and practices with a view to increasing the child and family outcomes. This step focused on making clear the entry-level or threshold conditions for full participation in the current study. Those processes and structures that were agreed to be in place from the outset of the project were recorded as ‘threshold conditions’. The centre leadership and staff committed to resource and ensure these conditions remained in place during the improvement process.

The review and development of threshold conditions for this study involved:
1. drawing from the empirical literature base the influences that had been found to make a difference to staff performance and child outcomes,
2. reviewing the composition of each centres relative to the regulations, and noting any arrangements that were above minimum set standards and
3. using the Participatory Action Research process to work together with the leadership and staff teams to ensure certain operating processes would be in place for the course of the study.

This preliminary work was done while recruiting the sites, negotiating the project and developing contracts with the service providers.

Development of the threshold conditions enabled each site’s context to be transparent regarding several aspects of quality provision, including the deployment of staff time, resource commitment, team cohesion, governance processes, leadership involvement, and operational considerations related to planned and unplanned change. These conditions were expected to be covariates that would impact the progress and outcomes of pedagogical improvement activity. Hence, knowledge of the ‘starting-point’ at each site and tracking developments or changes in these conditions was built into the overall data collection. Transparency in the baseline conditions within the services also enabled the whole project team to consider unique operations and practices that shaped the local organizational culture and influenced staff decisions regarding what they most needed to attend to each day.

Clarifying quality-level thresholds that make a difference between achieving child outcome effects from ECEC programs is also argued to assist policy-makers in allocating resources to ECEC centres. Large-scale empirical studies, that hold both quality process data and child outcome evidence, have sought to highlight threshold quality levels with a view to revealing the ‘sweet-spot’ whereby sufficient resources are allocated to ECEC programs to guarantee improvements in child outcomes and yet overspending on programs that do not generate real gains in children’s achievement is avoided. Different methodological approaches have been used for this work, including (a) noting thresholds based on structural quality levels that are set within regulations; (b) noting thresholds based on quality ratings such as NQS results; (c) identifying thresholds by examining score distributions and cut-points on standard process quality measures; (d) examining the relationship between quality and child outcomes and (e) testing the difference in relationship between quality and outcomes at different points within the quality range (Zaslow, Anderson, Redd, Wessell, Tarullo & Burchinal, 2010). E4Kids adopted the latter two of these methodologies and found
multidimensional and co-dependent relationships among the different dimensions of quality, and the differential amounts of program that children receive. There was no independently verifiable collective level of quality and dosage that assured the production of certain levels of child outcome. However, the findings confirmed certain teaching and learning dimensions within a program that made a significant difference to children’s achievement outcomes, having controlled for other influences such as home learning environment, child and community characteristics and family SES. There was a positive effect for instructional support on the outcomes of children who received relative more of this within their programs. Burchinal et al., 2010 also found that the level of quality of instructional dialogue predicted children’s gains in language, reading and mathematics skills, and the quality of teacher-child interactions was the strongest predictor of increased social competence in children and lower levels of problem behavior. Furthermore, when analyzing several large US data sets Burchinal and colleagues found a curvilinear relationship between the quality and child outcomes evidence, “with the shape of the relationship suggesting that child outcomes started to improve only when quality reached a certain fairly high level on widely used quality measures” (Zaslow, et. al., 2010, p. 23).

Within the E4Kids study, because the quality of instructional support in play settings was generally low across kindergartens and early childhood centres, how much difference increases in the quality of instructional support would make to children’s language reading and mathematics skills could not be fully tested. Rather, intervention studies are needed where the educators are trained to provide more instructional support within play settings and where changes in child outcomes are tracked. The VAEL study makes a small beginning to this work. In the least, some basic operating capacities must be present in any ECEC service if it is to effectively and efficiently demonstrate gains from evidence based professional learning. At commencement, the VAEL study drew threshold or entry conditions for the sites by confirming (a) the structural quality levels that are set within regulations and whether sites were inputting more than minimum structural levels and (b) noting the NQS quality ratings of the services and (c) based on findings from the large scale studies that are cited above VAEL set staff input thresholds that enabled educators to have time and be supported as they worked to improve their pedagogy (in particular their instructional support during play activities). A copy of the threshold condition document is shown on the following two pages.

The pilot study confirmed that some basic capacities must be established for an ECEC service to effectively and efficiently benefit from a model of professional learning that is designed to improve pedagogy and affect child outcomes. Unless threshold conditions are in place, a service requires much more intensive preparation and preliminary development¹, perhaps including external expert coaching and leadership support, before embarking on specific work designed, for example, to faithfully implement the 3σ approach.

¹ Further information on this is available in the main study, where one service operator was not able to maintain threshold conditions and progress on improvement was severely impeded.
This document outlines the threshold conditions that must be established in order for an early childhood centre or programme to effectively and efficiently benefit from the VAEL model of professional development. These conditions form the basis of the agreement of all parties engaged in the VAEL study. By agreeing to the threshold conditions outlined below it is understood that they are the minimum standards required to support a learning treatment model that will improve the quality of early childhood educator’s educational program and practice and lead to improvements in young children’s outcomes.

**THRESHOLD CONDITIONS**

1. **Capacity**
   a. Evidence of room and service level planning & programming (NQS Quality Area 1) that sets out the education and care program in place for children
   b. Ability and willingness to keep records of child progress against the five learning outcomes (VEYLDV/VEYLP), and in relation to the designed 3a experiences and practices
   c. Time:
      i. Ability for all educators in participating rooms, and the Educational Leader and/or leadership team including the Centre Director, to attend the equivalent of 5 full days of workplace-sponsored professional learning;
      ii. Ability for all educators in participating rooms to engage in on-site coaching activities during the program period and planning time;
      iii. On site, the Educational Leader has a minimum of 2 hours per week mentoring/coaching time for each participating educator or “room”.
   d. Staffing:
      i. Consistent educators in each participating room;
      ii. Conditions that enable the educators to maintain their ongoing engagement in the study;
      iii. Roster flexibility to support the educators’ implementation of 3a strategies;
      iv. Management-level support and encouragement for the participating staff to meet the professional learning and coaching requirements, and the inclusion of replacement staff as needed.
      v. Facilitation and organisation for the ongoing collection of research data; including child, family and educator data.

2. **Centre cohesion**
   a. Strong coherent leadership structure and team (e.g. centre coordinator, Educational Leader)
   b. Alignment around clear educational philosophy, vision/mission & management
   c. Effective communication (between the service administration and educators as well as in and between rooms)
   d. Ability to work as a team
   e. Engagement of families
3. Governance
   a. Lead Organisation staff member willing to oversee and manage the project at the local sites/area level (including communication, scheduling, organisation)

4. Presence of target population
   a. Greater than one-third of local children/families have a Health Care Card.

5. Up-front buy-in
   a. Leadership commits to participation & prioritisation of study requirements
   b. Leadership commits to providing the necessary resources for educators to implement the 3a strategies (e.g. Books for Conversational Reading, materials for LearningGames®)
   c. Educators have a ‘voice’ in the implementation process
   d. Both leadership staff & educators attend information session prior to final commitment
   e. Leadership & staff commit to the partnership contract, signalling dedication to project
   f. Leadership provide MGSE researchers access to centre’s NQS Assessment and Rating Report/Quality Improvement Plan and staffing information as necessary for the conduct of the project
   g. Leadership commits to ensuring communication with families about the study occurs on an ongoing basis
   h. Leadership commits to facilitating researcher assessments and progress checks of children in the study including the recruitment of children and families to the study

6. Educational/Pedagogical Leadership
   a. Capability – Leadership provides support for the Educational Leader to meet the professional learning and coaching requirements of the study
   b. Experience/Ability to Lead – Leadership designates an Educational Leader with the capacity and experience to mentor/coach educators in their educational program and practice and in the implementation of 3a practices
   c. Strategic decision making focused on professional learning across the service

7. Transitions/Handovers
   a. There is an orientation process to ensure new staff are aware of the expectations of the VAEL study
   b. Any changes in Educational Leader will be communicated with MGSE and a relevant handover will occur

8. Resourcing
   a. Site – Work in partnership with MGSE in the delivery of the VAEL study
   b. MGSE – Oversight of study - work in partnership with Sites, Management and LGAs in the delivery of the study
   c. LGA/Partner organisation – Work in partnership with MGSE in the delivery of the VAEL study

Note: Earlier Abecedarian research shows that children who spend more hours in the program benefit more than those who have low participation levels. Thus, in terms of child outcomes, it is preferable if children spend a significant amount of time in the program each week.
'Proofing’ the process of engagement with stakeholders/partners

To enact a PAR model where the ‘power to act’ is vested at the source – within ECEC programs – the leadership and engagement culture within a service must be open to facilitating the pedagogical improvement that is planned. To this end VAEL study developers devoted considerable time at the study commencement (2013-2014) negotiating with service providers who were prepared to open their sites. Taking part in planning the improvement process requires leadership ‘buy-in’ in the first instance, ensuring that the leadership and staff could engage in specific training, practice and data collection processes over a two-year period.

In the initial consultation Moonee Valley City Council (MVCC) were identified as a key partner for the pilot study. MVCC were an approved provider for a number of education and care services, several of which were located in geographical areas that were identified in the Australian Early Development Census (AEDC) as having children identified higher than the Victorian average vulnerable in two or more domains. Two services were selected after consultation with Council’s Family & Children’s Services management; a long day care service in Flemington and a sessional kindergarten in Avondale Heights.

Using PAR time was spent engaging with MVCC as the primary partner. The Senior Management level determined that their Pedagogical Leader for all MVCC services would play a key PAR research leader role for this study. The MVCC Pedagogical Leader worked to build a robust process of engagement among the staff teams at the sites and between MVCC and the University researchers. This role proved to be key in enlisting each member at the selected MVCC sites. Together, the Pedagogical Leader and staff from the sites engaged in the initial professional learning (intervention) program, and the Pedagogical Leader took responsibility for keeping close liaison with each educator at the two sites to ensure they were clear about plans, comfortable with the engagement process and confident to use tools and collect evidence as necessary.

Furthermore, to consolidate the PAR approach and ensure governance of the study that involved all parties, a Steering Group was established to monitor the implementation of the study. Membership comprised representation from DET, the City of Moonee Valley, the City of Hume (main study), Broadmeadows Valley Primary School (BVPS) (main study), Mission Australia (main study), Gowrie Victoria (main study) and MGSE. The Group was chaired by the University Professor of Early Childhood or nominee. Additional members were seconded to the Project for their specific expertise as deemed necessary by the group. The group met at least three times per year to review development plans, report on organisational, cultural and/or operational matters, consider progressive findings and provide oversight of the study.
Development and trial of instruments for use during the study

A number of different tools were employed in the VAEL pilot study in order to assess their fit for purpose. These instruments were used to either evaluate the impact of the intervention, to support in implementing the intervention, or both. Some of these instruments were standardised, validated tools while others were designed or tailored specifically for this study. Table 5 describes which tools were used in the pilot study and/or the main study and a brief description of each tool follows.

Table 5. Instruments used in the VAEL pilot and main study.

<table>
<thead>
<tr>
<th>Focus</th>
<th>Tool</th>
<th>Pilot</th>
<th>Main</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child &amp; Family Data</td>
<td>Family Survey</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>Family 3a Feedback Survey</td>
<td>✗</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>PLS-5</td>
<td>✗</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>Boehm</td>
<td>✗</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>WJIII</td>
<td>✗</td>
<td>✔</td>
</tr>
<tr>
<td>Quality &amp; Practice Data</td>
<td>CLASS</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td></td>
<td>Time Sample</td>
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<tr>
<td></td>
<td>Coach Record</td>
<td>✔</td>
<td>✔</td>
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<td></td>
<td>Educator Record</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td></td>
<td>Implementation Forms</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Educator data and feedback</td>
<td>Educator surveys</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>PL Evaluations</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td></td>
<td>Current Practice Reviews</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>Focus Groups</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

Child and Family Data

Family Survey

The family survey was designed to gather information about the child, the family and the home environment. The survey was given to all families who consented to participate in the study.

Information collected regarding the child included his/her name, gender, age, Aboriginal or Torres Strait Islander (ATSI) status, country of birth and main language spoken. Main caregivers were asked how many days the child spent in care at this service, any other childcare the child regularly attends and whether the child had any developmental concerns. The survey also asked what main caregivers liked to do when spending time with their child and what their hopes were for their child.

Main caregivers, and their partners (if applicable), were asked their name, gender, age, their ATSI status, country of birth, main language spoken and English language proficiency. They were also asked about their highest level of education completed, employment status, whether they were studying, healthcare card status and income. Main caregivers were also asked about the number of books in their home and other questions relating to reading and literacy.

No significant changes were made following the pilot study year in regard to content for the family surveys.
Family 3a Feedback Survey

During the pilot year it became apparent that there was a need to gauge the level of understanding and engagement that families had with the 3a strategies. It was decided to develop a brief Family 3a Feedback Survey to assess how effectively information regarding the 3a strategies had been communicated and shared with families. The survey also questioned whether families used any 3a strategies at home and whether they saw the 3a strategies as having been beneficial for their child. The survey was designed to be a short (5-10 minute) anonymous survey and would be available to families in hard copy and online. The Family 3a Feedback Survey was introduced in the main study, and the sustainability phase following the pilot study at MVCC.

Tests of child development

During the pilot year additional funds became accessible to the VAEL study and the decision was made to incorporate child tests to assess change in the levels of children’s conceptual and language development. The tests selected to be used in the main study were the Boehm Test of Basic Concepts - 3 Preschool (BOEHM 3), the Preschool Language Scale, 5th Ed, (PLS-5) and Woodcock Johnson III (WJIII). Each of these assessment tools are standardised and normed tests. It was proposed that these would be used as pre- and post-test measures to compare the degree of change in the main study sample to determine the impact of the intervention. Although none of these tests were used in the pilot study the BOEHM and WJIII were used with the LDC sustainability site in 2015/16.


The Preschool Language Scales-Fifth Edition (PLS-5) is an individually administered test used to identify children who have a language delay or disorder. PLS-5 was selected because it is developed for use with children from birth through 7 years 11 months of age. Being scalable across this age range meant both toddler and preschool programs could apply the one measure. PLS-5 is composed of two standardised scales (Auditory Comprehension and Expressive Communication), and three supplemental measures (Language Sample Checklist, Articulation Screener, Home Communication Questionnaire). The Auditory Comprehension (AC) scale is used to evaluate the scope of a child’s comprehension of language. The Expressive Communication (EC) scale is used to determine how well a child communicates with others. None of the supplemental measures were used in the VAEL study.

Boehm Test of Basic Concepts – 3 Preschool

The Boehm Test of Basic Concepts-3 Preschool (BOEHM) is a standardised, normed, test designed to assess young children’s understanding of the basic relational concepts important for language and cognitive development, as well as for later success in school. The concepts assessed are fundamental to understanding directions, classroom routines and are an important aspect of emergent literacy. The testing range for the Boehm-3 Preschool assessment is 3 years through to 5 years 11 months.
Woodcock Johnson III

The Woodcock-Johnson III (WJIII) is a normed, validated measure of cognition and achievement (Woodcock, McGrew & Mather 2001; McGrew & Woodcock Johnson, 2001) based on the Cattell-Horn-Carroll (CHC) theory that intelligence is a cluster of several broad and narrow abilities. The Woodcock-Johnson Tests of Cognitive Abilities were first developed in 1977, revised in 1989 and again in 2001.

The WJIII test was chosen as the tool to measure the impact of our intervention in regard to the changes in cognition and achievement shown in our sample of children. It was also selected as it was used in the E4Kids study (2010-2015) to allow for potential comparison between the VAEL and E4Kids cohorts. The same battery of tests was selected as was used in the E4Kids study, and included:

- **Cognitive: Test 1 Verbal Comprehension** (including Picture Vocabulary, Synonyms, Antonyms, and Verbal Analogies). The test measures the broad ability Comprehension Knowledge (Gc) and incorporates the narrow abilities of Lexical Knowledge and Language Development.
- **Cognitive: Test 2 Visual-Auditory Learning.**
- **Cognitive: Test 5 Concept Formation.** The test measures the broad ability Fluid Reasoning (Gf) and incorporates the narrow ability of Induction.
- **Cognitive: Test 6 Visual Matching.** The test measures the broad ability Processing Speed (Gs), and incorporates the narrow ability of Perceptual Speed.
- **Cognitive: Test 18. Rapid Picture Naming.**
- **Achievement: Understanding Directions.** The test measures the broad ability Comprehension Knowledge (Gc) and the narrow abilities of Listening Ability and Language Development.
- **Achievement: Applied Problems.** The test measures the broad ability, Quantitative Knowledge (Gq), incorporating quantitative reasoning, mathematics achievement and mathematics knowledge (quantity, simple addition and subtraction, and concepts of time and money).
- **Achievement: Sound Awareness.** Includes rhyming deletion, substitutions and reversals.

Quality and Practice Data

CLASS (Toddler and Pre-K)

The Classroom Assessment Scoring System (CLASS) observation tool is a reliable, validated tool that focuses on promoting and measuring effective teacher-child interactions that advance children’s learning and assists educators in supporting children’s social and emotional functioning (Pianta, La Paro & Hamre, 2008). The CLASS tool may be used as a measure of associations between classroom processes and children’s development and behaviour over time, as well as an objective and concrete measure of teaching practices for accountability and teacher professional development purposes (Pianta, La Paro & Hamre, 2008). It has been shown to be a measure of process quality, defined as the nature of children’s interactional experiences, such as teacher-child interaction, peer interaction, teacher-family interaction and importantly teachers’ instructional and pedagogical skills (Ishimine, Tayler & Thorpe, 2009).
The CLASS tool has six versions; Infant, Toddler, Pre-K, K-3, Upper elementary and Secondary. The VAEL study used both the Toddler and the Pre-K versions of this tool. The Toddler version is for children aged between 15 and 36 months. It consists of two domains – Emotional and Behavioural Support and Engaged Support for Learning, informed by eight dimensions (as shown in Table 5). The Pre-K CLASS tool is for children aged between 3 and 6 years of age. It consists of three domains – Emotional Support, Classroom Organization and Instructional Support, informed by eleven dimensions (as shown in Table 6).

Table 6. Domains and dimensions CLASS Toddler and Pre-K Tools

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type</th>
<th>Calculation (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional and Behavioural Support</td>
<td>Domain</td>
<td>Average of PC, RNC, TS, RCP &amp; BG</td>
</tr>
<tr>
<td>Positive Climate (PC)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Negative Climate (NC)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Reverse Negative Climate (RNC)</td>
<td>Dimension</td>
<td>Inverse of Negative Climate score.</td>
</tr>
<tr>
<td>Teacher Sensitivity (TS)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Regard for Child Perspectives (RCP)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Behaviour Guidance (BG)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Engaged Support for Learning</td>
<td>Domain</td>
<td>Average of FLD, QF &amp; LM</td>
</tr>
<tr>
<td>Facilitation of Learning &amp; Development (FLD)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Quality of Feedback (QF)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Language Modelling (LM)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Emotional Support</td>
<td>Domain</td>
<td>Average of PC, RNC, TS, RSP</td>
</tr>
<tr>
<td>Positive Climate (PC)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Negative Climate (NC)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Reverse Negative Climate (RNC)</td>
<td>Dimension</td>
<td>Inverse of Negative Climate score.</td>
</tr>
<tr>
<td>Teacher Sensitivity (TS)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Regard for Student Perspectives (RSP)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Classroom Organisation</td>
<td>Domain</td>
<td>Average of BM, PD &amp; ILF</td>
</tr>
<tr>
<td>Behaviour Management (BM)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Productivity (PD)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Instructional Learning Formats (ILF)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Instructional support</td>
<td>Domain</td>
<td>Derived (Average of CD, QF &amp; LM)</td>
</tr>
<tr>
<td>Concept Development (CD)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Quality of Feedback (QF)</td>
<td>Dimension</td>
<td></td>
</tr>
<tr>
<td>Language Modelling (LM)</td>
<td>Dimension</td>
<td></td>
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</tbody>
</table>

The E4Kids study was the first Australian study to use the CLASS, a measure of teacher-child and child-child interaction, to compare the process quality of different types of early childhood education and care services. E4Kids used the Australian data to validate this tool for Australia (Cloney et al., 2017). The VAEL study used CLASS both as an assessment measure of quality as well as content for professional learning to provide participants with an understanding of the dimensions of quality within the context of CLASS. CLASS was chosen because process quality is measured systematically and the published measure has been demonstrated to be psychometrically sound. The CLASS tools were used in both the pilot study and the main VAEL study.
**Time Sampling Tool**

Taylor and Flottman (2013) developed a time sampling instrument for the *Child Learning Program: Supporting NQS Implementation at the Doveton Learning Centre* Research Project. This tool was used to capture the ways in which educators in the Learning Centre used learning space and learning time with children in their program and how often children were afforded opportunities to engage with educators in their program. Following its implementation in the Doveton Project the time-sample tool was adapted for use in the VAEL project pilot study.

International research studies have established that high quality teacher/child interactions in early childhood education and care settings are positively associated with gains in young children’s academic (language, literacy and executive functioning) and social-emotional skills (Hatfield et al., 2015; Williford, Maier, Downer, Pianta & Howes, 2013). Specifically the use, intensity and nature of teachers’ instructional support and language interactions have been linked to the development of young children’s academic, language and literacy skills (Pianta et al., 2014; Howes, Burchinal, Pianta, Bryant, Early & Clifford., 2008; Mashburn et al., 2008; Burchinal et al., 2006; Hamre & Pianta, 2005). Time samples were employed in the US National Centre for Early Development and Learning (NCEDL) study to support researchers to understand the variations in preschool programs and how they relate to child outcomes (Early, Barbarin, Bryant, Burchinal, Chang, Clifford, Crawford, Weaver, Howes, Ritchie, Kraft-Sayre, Pianta, & Barnett, 2005). In Italy time samples were used to document variations in day care programs (organization of space, activities, routines and positioning of adults) to reflect on and enact effective changes and document their impact on child outcomes (Molina, Marotta & Bulgarelli, 2016).

The pilot study time sample data collection form, captured how the educators are using their time, specifically, the proportion of time educators are engaged with individual children, small groups, large groups and other activities. The time sample data also included the context for each time point (indoor, outdoor, meal time, nappy change etc.).

During the pilot study year it became apparent that the time sampling technique had potential to collect richer data relating to the type and quality of adult-child interactions observed and it was decided to add ‘talk type’ to the Time Sampling Tool and whether any 3a strategies were noted during the period observed. While activity type and context are very straightforward to code the following definitions (Figure 2 below) were given for talk type.

The Time Sampling Tool was administered by a researcher who observed educators working within their regular ECEC program. Researchers were instructed to be as unobtrusive as possible and not engage with the educators or children wherever possible. Educators were instructed to continue with their regular program and activities. Researchers administering the Time Sampling Tool were either part of the core VAEL team or trained by a member of the team. Initially two researchers assessed educators concurrently to ensure inter-rater reliability.

Prior to conducting the observation the researcher completed the basic information at the top of the form (educators present, room, number of adults, number of children, start times). If there were more than two educators present the researcher used more than one observation form. The occurrence of educators’ engagement in activities and language responses in interactions with children were recorded at a notation occurrence (or non-occurrence) of two minutes for three 20 minute sessions (with a short break between each session) during the educational program in each program. During a single observation interval researchers recorded educators’ activity type, the context and the style of language interaction (or talk type).
**Supervisory talk** = Talk related to program management such as giving directions, managing behaviour or giving permission.

**Educational Talk** = Talk to promote children’s learning such as use of descriptive language, talk to extend children’s ideas and language, or to promote thinking. Talk that is intentional; educators are deliberate, purposeful and thoughtful in the use of language. This type of talk focuses on extended discourse (i.e. back and forth exchange).

**Responsive Talk** = Talk that responds to children’s interests or needs. Acknowledgement of a child/children’s verbal/non-verbal language but without a focus on learning.

**No talk** – The educator was not talking

**Inaudible** – Researcher was unable to hear what the educator was saying.

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*Figure 2. Talk type definitions used in the Time Sampling Tool.*

Time sample data were used to capture the impact and success of the VAEL professional learning approaches and interventions on improving the frequency and quality of educators’ daily interactions with young children over time.

**Educational Leader Records and Coach Records**

The *Educational Leader Record* was designed to capture information relevant to coaching / mentoring sessions held by the Educational Leader with an educator or educators within their service.

The *Coach Record* was designed to capture information relevant to coaching / mentoring sessions held by the MGSE external expert coach with either the Educational Leader or educator(s) within the service.

Both the Educational Leader record from and Coach Record form included the following information:
- the date, time of day and length of the session
- the context and location of the session
- the mentoring area / content focus
- mentoring and coaching strategies
- the level of involvement of the educator/Educational Leader being coached
- the action plan for the educator/Educational Leader being coached
- any general notes and observations

These forms were intended to be both a tool for the Educational Leader/Coach to monitor progress and focus their coaching sessions and also as a data collection tool. Both records were used in both the pilot and main study with no significant modifications made.
Implementation data

The Implementation data collection forms were designed to be used by educators as a way to plan and collect data for the implementation of the 3a strategies. The forms were designed to be linked to existing documents required by the ECEC services as part of the documentation of their educational program and practice. The forms focused on the planning intention for each strategy; Enriched Caregiving, Conversational Reading and LearningGames®, as well as the frequency that each strategy was implemented with individual children in each targeted program in the ECEC service.

The instrument was designed to link to educators’ existing educational program to their planning and implementation of the 3a teaching and learning strategies and were aligned to the practice principles and learning outcomes from the VEYLDF. The forms were adaptable and each centre was encouraged to tailor the form to best fit their understanding of planning and programming for young children’s learning and development and to align to existing program documentation. In the development of the implementation records a focus was placed on documenting the frequency of implementation. This was based on the research evidence that indicates that the higher the frequency of implementation of the 3a strategies the more positive the developmental outcomes for children (Sparling, 2011).

Educator Data and Feedback

Surveys – educators

Educator Surveys conducted in the pilot study included an initial ‘pre’ survey at the beginning of the year and a ‘post’ survey at the end of the year. The ‘pre’ survey gathered demographic information about the educators including gender, age, ATSI status, country of origin, language spoken, education level and employment status (casual, part-time, or full-time).

Both the pre and post survey also gathered information relating to opinions about quality education and care, sharing information with families, experience and opinions relating to 3a strategies and other details. The repeated use of questions pre and post allowed researchers to gauge change in practice, opinions and attitudes. Minor changes were made to the survey content from the pilot to the main study. Furthermore, any services participating in the study for more than 1 year were asked to complete a sustainability survey. The sustainability survey again incorporated repeated questions to gauge change in practice, opinions and attitudes.

Professional Learning Evaluations

The Professional Learning Evaluation forms were developed to collect information on participants’ perspectives of the VAEL professional learning program; both the professional learning sessions and the coaching sessions. The data collection tool used both a Likert scale as well as open-ended questions to capture participants’ attitudes and perspectives of their experience of the VAEL professional learning program. The Educator evaluation sought to gain information about educators application of the professional learning to their practice and the Educational Leader evaluation aimed to capture how the professional learning assisted Educational Leaders’ role in supporting educators to apply the new learning to practice. These forms were used in both the pilot and main study with no significant changes made to the content or structure of the evaluation form.
Current Practice Review Forms

The current practice review form was a brief questionnaire given to educators during the final professional learning session of each year. This review asked educators to rate the quality of their current practice, and their practice one year earlier. They were also asked to explain these changes or lack of changes and any factors with have impacted on the quality of their interactions with children since being involved with the VAEL study. This was used in both the pilot and main study with minor changes made for use in the main study.

Interviews and focus group discussions

During the final professional learning session each year discussions were recorded in order to capture feedback from participants relating to their implementation of the evidence-based strategies and the barriers and supports to enact this work. This included interviews with Educational Leaders, semi structured group discussions and general comments and feedback made by any/all participants. Interviews and focus group discussions were held at the end of the pilot year and the main study years.

Data analysis and evaluation

The VAEL study primary aim was to develop and test a professional in-service model for improving the quality of educator-child interactions. The professional learning intervention components included (a) 3a and CLASS training, and (b) expert and local coaching and mentoring to support educators with the implementation of the pedagogical strategies. Because presage variables (e.g., characteristics of staff, children and families, community factors, centre organisational culture etc.) influence the implementation process variables of the intervention the analytic model was designed to consider factors that moderated the effect of the intervention. Changed pedagogical practice (e.g. use of 3a strategies, increased 1:1 adult-child interactions) because of the intervention was the primary outcome of the study, and change in child outcomes (e.g. language and concept development, cognition and social engagement) was a secondary outcome of the main study.

The study design and focus aligned with the application of qualitative and basic quantitative methodologies including content analysis, thematic review, frequency counts and basic descriptive statistics, and where applicable multi-level modelling of background characteristics, implementation process variables, and child outcomes variables. The analytic plan for the pilot study involved a stepped strategy addressing two key questions:

1. What features of practice are apparent in the programs undertaking a pedagogical improvement process? Here, the analyses focused on describing use of educator time and adult-child interactions and comparing the data from baseline (study commencement) to repeated samples of site practice during the implementation (first year), and where applicable during the sustainability (second) year/s.

2. What features of the professional learning model are salient to the implementation of planned practice-change? Here, the primary analytic focus addressed the value/influence of threshold conditions, the distributed model of professional learning, and the merit of specific tools to reveal (to themselves) educator practices and to enable them to plan further pedagogical change.
Pilot study findings

The features of practice in the programs engaged in pedagogical improvement

During the pilot study year, 10 CLASS observations were completed. At the LDC pilot site this included two Toddler CLASS assessments in the 0-3-year-old programs at three time-points (March, June and November) and at the kindergarten pilot site this included two Pre K CLASS assessments in both the 4 year old programs at three time-points (March, June and December). Results are illustrated in Figure 2 and Figure 3 below. The CLASS scale represents low-levels of support (0-2), moderate levels of support (3-5) and high levels of support (6-7). It is important to remember that these graphs and any interpretations following must be treated with caution due to the small number of observations made.

Moderate entry-level ratings of emotional and behavioural support were recorded in the LDC observations and these levels increased to high-quality support as the year progressed. Initially low levels of Engaged Support for Learning were observed however the ratings improved markedly over the year, demonstrating that educators at the LDC pilot site had changed pedagogical practices and were engaged in moderate levels of support for learning by the end of the intervention year.

Figure 3. Toddler CLASS outcomes – LDC pilot site.
The Pre-K CLASS observations conducted at the kindergarten pilot study site initially revealed moderate levels of emotional support, which were found to increase to high-quality emotional support as the year progressed. Classroom organization (productivity, behavior management and facilitation of learning) was also recorded to be moderate, and this fluctuated over the year. Instructional support (concept development, explanations and feedback, language quality), was the lowest scoring domain however steady increases were observed over the year. That the level of instructional support indicated growth across the year was taken as a positive indication that when educators focus on this area it is possible to improve the effectiveness of interactions within play-based settings and (as found in prior large-scale studies) enhance children’s academic and social achievements. However, it is important to remember in this small pilot study that the small sample size and the limited number of observations do not allow measures of significance of the changes, can contribute to the variability in these results.

![Figure 4. Pre-K CLASS outcomes – kindergarten pilot site.](image)

**Figure 4. Pre-K CLASS outcomes – kindergarten pilot site.**

**Time sample indications of quality at the pilot study sites**

During the pilot study, 8 time sample observations were completed. Results are graphed on the following pages. Time sample data collected included a breakdown of whether an educator was directly engaged with children; working with one child, a small group (2-3 children), a large group (4+ children); or not directly working with children; passively supervising children, working with educators, engaging in routines or cleaning/organising. Individual observations vary depending on a number of factors including ratios in the program, time of day, activity in the program (mealtime, free play, group time, transition to sleep etc.) and results should be treated as indicative only due to the small numbers in this pilot study.

Both the LDC and kindergarten time sample observations show an increase in the proportion of time educators spent interacting one on one with children. Some reductions are seen in the
proportion of time spent engaging in activities that do not directly involve children, for example, supervising, cleaning and organising (see Figure 5 and Figure 6 below).

**Figure 5. Time sample activity data - LDC pilot site**

**Figure 6. Time sample activity data - kindergarten pilot site**
Educators self-assessed practice

In the Post (intervention) Survey educators were asked whether they believed that using the 3α strategies had changed/improved their teaching practice, educational program and practice, relationships with children and planning for children’s learning. Overwhelmingly, educators agreed or strongly agreed that using the 3α strategies improved their teaching practice, educational program and practice, relationships with children and planning for children’s learning (see Table 7).

Table 7. Educators’ opinions regarding practice improvement – pilot study

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree or disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using the 3α strategies improved my teaching practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>8</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Using the 3α strategies improved my educational program and practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>8</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Using the 3α strategies improved my relationships with children</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Using the 3α strategies improved my planning for children’s learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>6</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>
Findings from the Professional Learning Model components

There were twelve participants in total across the two cohorts in the pilot study; 1 Educational Leader and 3 educators from the kindergarten pilot site (note; the Educational Leader also worked as an educator); 1 Educational Leader and 6 educators from theLDC pilot site, as well as the Pedagogical Leader from MVCC. These sessions were facilitated by members of the research team from MGSE. The participants completed the full series (n=7) of professional learning sessions.

The professional learning component

At the completion of the professional learning program in the pilot study participants were asked to complete an evaluation that consisted of 5 questions asking them to rate their views on the value of the program using a 6-point Likert scale, and two open-ended questions directed towards participant reflection on the strongest and weakest features of the professional learning sessions. 100% of the participants strongly agreed or agreed that the professional learning content assisted them to support young children’s learning. Educators reported that the research data, focus on language priority and content on practice as strong features of the professional learning.

All the educators reported that the professional learning content had supported them to improve their educational program and practice. Educators commented that group discussions, receiving feedback and sharing VAEL data were helpful in improving and seeing improvements in practices across the year.

“The sessions have helped me become more intentional in the language I use. It has helped me see potential and valuable learning opportunities in much of what happens in our program, in particular when it comes to routines.”

- Educator, kindergarten site

In addition, Educational Leaders and educators noted the following as the strongest features of the professional learning program

1) learning/sharing new content, particularly the research and how this related to practice,
2) viewing program/service data that highlighted improvements,
3) viewing videos of the 3a teaching and learning strategies and practicing 3a strategies,
4) supporting interactions with individual children,
5) discussions as a team – networking, sharing ideas and strategies of what has worked with individual children, getting feedback,
6) having resources,
7) having shared and clear expectations of practices in the workplace,
8) having views heard and valued, feeling encouraged, motivated and
9) having friendly role models delivering content who could explain content along with a coach coming in following professional learning who could further explain if there are questions.

Educational Leaders and educators also documented what they felt to be the weakest features of the professional learning program as follows:

1) the delivery time – in the evenings after work,
2) learning overload at the beginning of the year,
3) additional PD on top of heavy load of council professional learning,
4) times the coach visited were sometimes very busy and made it hard to observe and
5) difficulty connecting with colleagues as an educator who is not implementing strategies.

Based on the evaluation of the VAEL pilot professional learning program modifications were made to further enhance the experience for the main study.

The coaching component

External expert coaching commenced with an initial session for both Educational Leaders to establish expectations of the role of Educational Leader and provide further insight into the study itself. The Pedagogical Leader was also involved in this initial session. Further coaching sessions were scheduled and communicated to educators to enable rostering and other requirements to be considered. The final coaching sessions were conducted in September with a focus on planning for sustainability and the external expert coach supported each Educational Leader to create an action plan for sustainability into 2015.

Each Educational Leader was allocated time to enact the role in leading the implementation of the 3α strategies and to work with individuals and small groups of educators at their site to support their learning. At the LDC site the Educational Leader initially devoted 3 hours per week to this role, and at the kindergarten site this role involved 2 hours per week. Table 8 and Table 9 to follow provide detail of the coaching by the expert coach as well as each of the Educational Leaders.

Table 8. Summary of expert coaching sessions - pilot study

<table>
<thead>
<tr>
<th></th>
<th>LDC</th>
<th>Kindergarten</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ed Leader</td>
<td>Educator</td>
</tr>
<tr>
<td>Number coached by the external expert coach</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Period of coaching</td>
<td>Mar-Sept</td>
<td>Mar-Sept</td>
</tr>
<tr>
<td>Total number of sessions by the external expert coach</td>
<td>14</td>
<td>34</td>
</tr>
<tr>
<td>Total Amount of sessions (hours)</td>
<td>29.7</td>
<td>18.1</td>
</tr>
<tr>
<td>Average Length of session (mins)</td>
<td>127.1</td>
<td>32.0</td>
</tr>
</tbody>
</table>

The external expert coach reviewed the schedule of coaching with each Educational Leader bi-monthly. The purpose of this was to ensure that the coaching sessions continued to align with expectations for practice and other organisational goals, and to enable the collective participation of the Educational Leader as well as the educators in the process of coaching. Through these reviews the length of sessions was extended as the Educational Leaders reported that they valued the opportunity for the external expert coach to observe them working with educators in the program. The regularity of the coaching sessions was also identified as being a valued element of the professional learning process. Educators noted that they valued the timely opportunities to ask questions and seek feedback after professional learning content sessions. In consultation with each Educational Leader there were specific educators that were identified for additional time during educator coaching sessions to reinforce specific strategies.
Educational Leaders were initially supported by the external expert coach to work with individual and small groups of educators to coach them in implementing the evidence-based strategies. As the pilot study year progressed Educational Leaders took more of the responsibility for coaching educators in an effort to embed the practice changes in a sustainable way that could be driven from the service itself. Educators reported the value of these sessions as strong relationships were developed between the Educational Leader and each educator which provided educators with a ‘safe space’ to ask questions or to be observed without fear of judgment. Educators from the LDC pilot site noted that they valued the regular sessions and the time the Educational Leader spent in their programs.

**Table 9. Summary of Educational Leader coaching sessions - pilot study**

<table>
<thead>
<tr>
<th></th>
<th>LDC site</th>
<th>Kindergarten site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of educators coached by the EL</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Period of coaching</td>
<td>Mar-Oct</td>
<td>May - Sept</td>
</tr>
<tr>
<td>Total number of sessions by EL</td>
<td>35</td>
<td>15</td>
</tr>
<tr>
<td>Total amount of sessions (hours)</td>
<td>10.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Average length of session (mins)</td>
<td>18.5</td>
<td>15</td>
</tr>
</tbody>
</table>

**Features of the model salient to implementation of planned practice change**

The primary conditions deemed to be of greatest importance during the VAEL pilot study were 1) leadership; both management and educational leadership, 2) coaching and support from the Educational Leader, 3) educator time, 4) consistency of staff, and support for on-going learning and implementation.

**Threshold Conditions and leadership**

Across the course of the VAEL pilot study several conditions were found to impact on the effectiveness of the practice implementation and the attitudes of educators. The seeing into place and the maintenance of threshold conditions were identified as either enabling educator practice implementation or acting as a barrier for effective educator practice implementation. Through the development and implementation of the pilot study the importance of leadership at both the local site and at senior management levels was identified as critical to the success of implementation of the professional learning program and the pedagogical improvement implementation. During the pilot study, there were leadership changes, at both a service and senior management level. This resulted in challenges to be addressed in ensuring consistent support was being provided to the educators and effective communication of the study was occurring within the services.

**Coaching and support during practice implementation**

The role of the Educational Leader as a support was identified as vital for ongoing engagement for implementation during the pilot study. Educators reported that the support and encouragement from the Educational Leader enabled them to implement the strategies. Educators reported that
they felt ‘safe’ to ask questions and felt respected as they learnt how to embed the 3α strategies in their practice. Based on the evidence structural leadership was highlighted as being essential from the outset for success of implementation.

**Time**

Time was a factor that was identified as a barrier to documentation and implementation of 3α at multiple points during the pilot study. Participants, for example, reported that they had limited time to complete the required documentation. The educators also reported limited time to spend with individual children to implement the 3α strategies as a significant challenge. Strategies to address these challenges were included in the professional learning sessions as well as during the support from the external expert coach and Educational Leaders throughout the year. Limited time to spend with children was identified as a particular challenge within the 4-year-old programs in the kindergarten site where teacher-child ratios and sessional kindergarten program hours impacted on the possibilities for one-to-one teacher child interactions. The external expert coaching sessions were modified to include specific attention given to identify specific times during the program to implement the 3α strategies. Both the external expert coach and the Educational Leader worked with individual educators to support them to identify and document when these opportunities were.

**Staffing consistency and on-going support**

Staffing was an essential condition to the effective implementation of the VAEL Professional Learning Model and the 3α strategies. Inconsistency of educators was reported as a barrier for implementation as casual educators or new educators did not have the knowledge to implement the 3α strategies.

It was noted that in the pre-survey educators reported ongoing training as the most positive influence on their ability to implement the strategies effectively. This was also reflected in post-survey responses where educators reported face-to-face professional learning sessions and ongoing coaching and support from the Educational Leader as the most supportive feature of the study. For example:

> [The biggest support was] the information and practice during training. Having a mentor visit each time a new strategy was implemented was invaluable. Networking with other educators using the 3α strategies.
>
> — Educator, post survey
Pilot outcomes that guided the main study

Early in the partnership with Moonee Valley City Council (MVCC) it was identified that broader engagement of leadership and management within MVCC Family & Children’s Services was required to drive the engagement and participation of educators at both the sites. The role of Pedagogical Leader; a 0.6 FTE leadership position within MVCC’s Family & Children’s Services Department became the key liaison position working with both MGSE and the ECEC services to support the success of the study. This role was established in 2004 and in 2014 was responsible for overseeing professional learning and continuous improvement across the 19 Council managed ECEC services, including kindergartens, long day care, occasional care and family day care. Within the context of VAEL the Pedagogical Leader had an active role in attending VAEL operations and governance meetings. The Pedagogical Leader was also involved in planning for and facilitating the professional learning sessions from the introductory sessions through to November 2014. It was essential that educators understood the expectations from a research perspective, and also from a Council perspective in the context of the participatory action research design.

As such, the knowledge of the evidence-based teaching and learning strategies proved critical in leading the continued engagement of educators at both the LDC pilot site and the kindergarten pilot site, and for the Pedagogical Leader as she acted as a conduit between MGSE and management more broadly across Family & Children’s Services at MVCC. In addition to the role of liaison with MGSE the Pedagogical Leader worked closely with both the LDC pilot site and the kindergarten pilot site to support the implementation of the evidence-based teaching and learning strategies as well as incorporating the implementation records into the existing educational program and practice. The benefit of completing the 3a training, facilitated by MGSE, enabled the Pedagogical Leader to provide educators as well as management at MVCC with information and support as required around the scheduled coaching sessions with the external expert coaches and the professional learning sessions held across the year. The opportunity to engage in ongoing discussion with MGSE and MVCC, about the challenges and limitations for implementation further supported the adaptation of the structure of the study and more specifically the coaching sessions as undertaken by the external expert coaches. In brief, the role of Pedagogical Leader in a local government area proved to be crucial as this pilot study was rolled out at the two MVCC sites. This role is not always available, although several local governments who sponsor and oversee approved education and care services deploy a professional to this role. Our study found there was great leadership value in having such a role being enacted in a locality, and deploying the personnel to focus on evidence-based implementation and/or pedagogical improvements.

At the end of 2014 negotiations with MVCC in relation to their long-term commitment to the VAE study saw the ongoing engagement of the Pedagogical Leader role and consistent Educational Leaders at the two services to support the continued implementation into the sustainability phase. In January 2015 the decision was made that the kindergarten site would not to continue in the study.

Additional educators were enrolled in the sustainability phase at the LDC site however no additional children or families were enrolled.
4. MAIN STUDY

Aim

The aim of the VAEL main study was to develop and test a professional in-service model for improving the quality of educator-child interactions which has downstream positive effects on the learning outcomes for children, specifically children experiencing disadvantage. The professional learning intervention components included (a) 3a and CLASS training, and (b) expert and local coaching and mentoring to support educators with the implementation of the pedagogical strategies.

The main study also aimed to collaborate, through PAR processes, with a community experiencing high levels of disadvantage, and seeking to promote positive learning opportunities and everyday experiences for their very young children.

Methodology

Because presage variables (e.g., characteristics of staff, children and families, community factors, centre organisational culture...) influence the implementation process variables of the intervention the main study analytic model addressed factors that moderated the effect of the intervention. Changed pedagogical practice (e.g. use of 3a strategies, increased 1:1 adult-child interactions) because of the intervention was the primary outcome of the study, and change in child outcomes (e.g. language and concept development, cognition...) was a secondary outcome for the main study.

The analytic plan for the main study is a stepped strategy addressing three key basic questions, the first two of which were also addressed in the pilot study:

1. **What features of practice are apparent in the programs undertaking a pedagogical improvement process?** Here, the analyses focus on describing the use of educator time and the adult-child interactions, and comparison of data from baseline (study commencement for a site) through progressive samples of site practice during the implementation (first year), and where applicable during the sustainability (second) year.

2. **What features of the professional learning model are salient to the implementation of planned practice-change?** Here, the primary analytic focus addressed the value/influence of threshold conditions, the distributed model of professional learning, and the merit of specific tools to reveal to the educators their interaction patterns and performance during programs in order to enable them to plan further pedagogical change/improvement.

3. **What developmental gains do we observe in children when they attend rooms with educators who are taking part in professional learning? How do ECEC program inputs influence children’s developmental outcomes (cognitive, conceptual and language attainments).** Here, program data is the independent variable for identifying what child outcomes showed significant growth, taking into account child, family and community characteristics.
The main study – selection of sites

In September 2014 discussions were held with Hume City Council, Broadmeadows Valley Primary School (BVPS), and Mission Australia regarding recruitment of a VAEL main study site. The VAEL pilot study identified that there was a need to reach a community with a higher percentage of children (than the pilot study children) experiencing disadvantage, as reflected in AEDC data. The Broadmeadows LGA fitted this criterion (see Table 10).

**Table 10. Main study - vulnerability according to AEDC data by LGA.**

<table>
<thead>
<tr>
<th>Suburb (LGA)</th>
<th>Developmentally vulnerable on one or more domains (%)</th>
<th>Developmentally vulnerable on two or more domains (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadmeadows (Hume)</td>
<td>46.5</td>
<td>23.5</td>
</tr>
<tr>
<td>Victorian Average</td>
<td>19.5</td>
<td>9.5</td>
</tr>
</tbody>
</table>

(Developmental vulnerability; AEDC (2012, 2015)

The Broadmeadows parties reached agreement about how the VAEL main study could be completed from 2015, with close participation of all agencies and the Victorian Department of Education and Training.

A long day care site was chosen (for 2015) by the group for implementation of the main study. This long day care service was managed by Mission Australia and co-located with Broadmeadows Valley Primary School. The service operated both long day care programs (4 programs for children aged birth to 5 years old), and 2 sessional preschool programs. The facility also provided Maternal & Child Health services, managed through Hume City Council, and allocated space for playgroup programs, although these only ran on occasions. During 2015 the service was under-utilised with frequently changing enrolment patterns. For the purposes of the main study, and because of changed management arrangements at this site for 2016, the long day care site is referred to as the LDC site 1 for the main study. Furthermore, because of Mission Australia leaving the site, the LDC site 1 did not undertake the planned ‘sustainability’ year.

In December 2015 Mission Australia ceased the management and provision of service at LDC site 1. The Department of Education and Training, Hume City Council, and Broadmeadows Valley Primary School, began the process of engaging a new service provider. In November 2015, Broadmeadows Valley Primary School and Gowrie Victoria reached formal agreement on their new partnership in the service. Gowrie Victoria commenced operations at the research site in January 2016.

Negotiations between Broadmeadows Valley Primary School, Gowrie Victoria and MGSE were held in December 2015 to review the VAEL study implementation plan, and revise the intervention year steps in light of the new leadership and staff at the centre. From January 2016, the long day care service re-commenced the first year of the main study, to ensure the professional learning intervention was received. For the purposes of the study, the 2016 professional learning intervention is referred to as the LDC site 2.

In summary, the VAEL main study commenced in January 2015, and was conducted in a long-day
care facility on the Broadmeadows Valley Primary School site. The operators of this facility changed hands during December 2015 and for this reason we use the nomenclature LDC site 1 and LDC site 2, signifying the Mission Australia service (LDC1) or the Gowrie service (LDC2)

Description of educators at main study sites

A total of 46 educators and other staff were enrolled in the VAEL main Study, 18 from LDC site 1 and 28 from LDC site 2. Of these educators, 42 completed an educator survey, 15 from LDC site 1 and 27 from LDC site 2. Table 11 below shows a breakdown of the number of staff at LDC site 1 and 2, including their qualifications, type of employment, average years at the centre, average years in ECEC, whether born in Australia and whether speaking a language other than English.

Table 11. Description of educators - main study

<table>
<thead>
<tr>
<th></th>
<th>LDC site 1</th>
<th>LDC site 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Qualifications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certificate III in Children’s services</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Diploma in Children’s services</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Bachelor of Education</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Masters of Teaching (EC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>18</td>
<td>28</td>
</tr>
<tr>
<td><strong>Type of Employment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Time</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Part Time</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Casual</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>18</td>
<td>28</td>
</tr>
<tr>
<td><strong>Average years at centre</strong></td>
<td>1.1</td>
<td>*</td>
</tr>
<tr>
<td><strong>Average years in ECEC</strong></td>
<td>5.7</td>
<td>5.6</td>
</tr>
<tr>
<td><strong>Educators who identify as ATSI</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Educators born in Australia</strong></td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td><strong>Educators who speak a LOTE</strong></td>
<td>12</td>
<td>13</td>
</tr>
</tbody>
</table>

Although LDC site 2 had a larger number of staff the breakdown of qualifications was similar with most staff having a Certificate III level qualification, and the remaining staff holding either trainee level qualifications or were bachelor trained staff. However, the type of employment at each site was significantly different with 55% of staff at site 1 being employed on a casual basis and only 17% on a full-time basis, whereas at site 2, 14% were employed on a casual basis and 71% on a full-time basis. The type of employment contract is indicative of workforce stability and consistency. LDC site 1 was found to have an unstable workforce, and an average length of just over 1 year at the centre by any staff member is also indicative of the workforce instability. The average length of time by staff working at the centre was not applicable at LDC site 2 as this site was first opened at the beginning of 2016. However, staff at both LDC site 1 and LDC site 2 reported a similar average length of time working in ECEC suggesting similar levels of experience.
Fewer than half the educators at LDC site 1 reported being born in Australia (7) and two-thirds (12) reported speaking a language other than English whereas the majority of educators at LDC site 2 were born in Australia (22) and almost half reported speaking a language other than English (13).

Description of families and children in main study

All children and families at the LDC site 1 and 2 were invited to participate in the study and upon consent were then invited to complete a survey about their child and family. A total of 142 families consented to participate in the study (57 at LDC site 1 and 85 at LDC site 2) and 107 of these completed all or part of the survey (46 from LDC site 1 and 61 from LDC site 2). Due to partial completion of some surveys there is some missing data on some variables. Additionally, as the management of the Broadmeadows based centre changed a number of families remained at the site resulting in 12 children being enrolled in both study groups (LDC site 1 and LDC site 2).

107 families completed all or part of the survey (46 from LDC site 1 and 61 from LDC site 2). Due to partial completion of some surveys there is some missing data. The following data was obtained from the family surveys. 52% of the child participants at both sites were girls and two children at LDC site 1 and one child at LDC site 2 were identified as Aboriginal or Torres Strait Islander. 85% (LDC site 1) and 84% (LDC site 2) of the children were born in Australia. Of the children enrolled at LDC site 1, 37% were reported as having English as their first language; in addition 72% were reported as speaking a language other than English at home. At LDC site 2, 51% were reported as using English as their first language, and 62% as speaking a language other than English at home. The most frequently spoken language reported at both sites was Arabic although a wide range of languages were reported (approximately 20 different languages were noted at each site). 28% (LDC site 1) and 18% (LDC site 2) of families reported that their child had health or developmental concerns.

Parents who completed the family survey at LDC site 1 were more likely to be born overseas (61%), speak a language other than English (74%), have a partner (67%) and have a Health Care Card (72%). Similarly, at LDC site 2 parents were more likely to be born overseas (59%), speak a language other than English (61%), have a partner (77%) but were less likely to have a Health Care Card (46%). Parents from both sites reported a range of educational qualifications from ‘no schooling’ to ‘postgraduate university degree’. At both sites, approximately one third of parents reported completing Year 12 or below (27% LDC site 1; 33% LDC site 2); another third of parents had completed TAFE or diploma level qualification (33% LDC site 1; 31% LDC site 2) and less than a third reported university level qualifications (24% LDC site 1; 29% LDC site 2).

39% (LDC site 1) and 46% (LDC site 2) of families reported being in paid work. A proportion of parents did not respond to the question regarding income (LDC site 1 41%, LDC site 2 26%). However, of those who did the majority (LDC site 1 55%, LDC site 2 57%) were in the lower four income brackets (ranging from an annual income of $0 to $99,999).

Families were also asked about the number of books in their home, and their reading and literacy activities. 7% (LDC site 1) and 15% (LDC site 2) of families reported having more than 100 books in their homes. At LDC site 1, fewer than half of parents reported reading (themselves) every day (41%), and even fewer reported reading to their child every day (35%). Similarly, at LDC site 2, 39% reported reading daily themselves, and 57% reported reading to their child every day. Most families reported engaging in activities to help their child learn the alphabet on either a daily or weekly basis (LDC site 1 daily (39%), weekly (22%); LDC site 2 daily 33%, weekly (25%).
Sustainability phase at LDC pilot site

Concurrent with the aim of the study to influence educators’ pedagogical practice that advances children’s learning and development, a sustainability phase formed part of the main study. The sustainability phase was conducted to support the continued implementation following the withdrawal of the MGSE specialist team. Negotiations with MVCC agreed that the Pedagogical Leader would work with the LDC site, specifically the Educational Leader and service management to drive the ongoing commitment to the pedagogical improvement program. The Pedagogical Leader, Educational Leader and external expert coach worked collaboratively to develop an action plan for sustaining the implementation of the evidence-based strategies in 2015. This was used as a guiding document for quarterly meetings between the Educational Leader and external expert coach.

Description of Educators for the sustainability phase

In addition to the ten staff members enrolled in the pilot study at the MVCC site a further 14 staff were recruited at commencement of the sustainability phase, resulting in a total of 24 staff in the sustainability study staff team. Of these 24 educators 23 completed the educator survey. Table 12 below shows a breakdown of the educator characteristics at the sustainability site, including qualifications, type of employment, average years at the centre, average years in ECEC, whether born in Australia and whether speaking a language other than English.

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Sustainability Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate III in Children’s services</td>
<td>5</td>
</tr>
<tr>
<td>Diploma in Children’s services</td>
<td>14</td>
</tr>
<tr>
<td>Advanced Diploma</td>
<td>1</td>
</tr>
<tr>
<td>Bachelor of Education</td>
<td>3</td>
</tr>
<tr>
<td>Masters of Teaching (EC)</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Employment</th>
<th>Sustainability Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Time</td>
<td>11</td>
</tr>
<tr>
<td>Part Time</td>
<td>9</td>
</tr>
<tr>
<td>Casual</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
</tr>
</tbody>
</table>

| Average years at centre               | 4.4                  |
| Average years in ECEC                 | 9.7                  |
| Educators who identify as ATSI        | 0                    |
| Educators born in Australia           | 10                   |
| Educators who speak a LOTE            | 16                   |

The distribution of staff qualifications is like that of the original pilot group and main study LDC sites. Most staff held Certificate III level qualifications, with the remaining staff having either trainee
level or bachelor-level qualifications. Most staff at the sustainability site held either full time (11) or part time (9) roles at the centre with only three staff being employed on a casual basis. The educators had, on average, spent over four years at this centre and had been almost 10 years working in ECEC, suggesting a stable and experienced workforce. More than half of educators reported being born overseas (13) and most reported speaking a language other than English at home (16).

The sustainability phase implementation plan

As part of the study design, the sustainability site had a reduction in ongoing professional learning and direct engagement with MGSE during the sustainability phase. The MVCC Educational Leader undertook the follow-on program training and coaching, using the evidence-based and CLASS materials across the service within the four programs at the sustainability site. The external expert coach met with the Educational Leader to check for fidelity of implementation and to record progress. This occurred each quarter for approximately 3 hours. See Figure 7 below.

![Figure 7. Structure of professional learning program for main study sustainability phase](image)

Due to the expansion of the educator group in the sustainability site there were two professional learning sessions held in June and July to revisit the pedagogical principles of the evidence-based strategies, and to review the CLASS dimensions. In November the educators and Educational Leader and service manager joined with participants from LDC site 1 of the main study to review their involvement in the intervention across the year as part of an implementation review. This also sought to provide the opportunity for a broader professional learning community to be established across participating sites. In December members of the MGSE research team shared the observation data with the educator team at a staff meeting and assisted in the setting of goals for the following year.
Implementation of professional learning intervention

To address the additional analytic question raised after the pilot study (Question 3 above) an amendment to the existing ethics approval was submitted to include the addition of child assessment to the main study design. This was granted in November 2014 (University of Melbourne Human Research Ethics Committee ID 1341058.2) and in accordance with linked approvals provided by the Victorian Government Department of Education and Early Childhood Development (later Department of Education and Training). An additional amendment that identified the change in service management at the end of 2015 was also approved in February 2016 by the University of Melbourne Human Research Ethics Committee (ID 1341058.4), and further endorsed by the Victorian Department of Education and Training.

The professional learning content and structure

3a Practitioner, Coach and Affiliate Trainer certified professional learning programs were developed by MGSE and Professor Joe Sparling to support educators to develop a sustained approach to implementing and embedding 3a teaching strategies in their educational programs and interactions with children. The content of the 3a Practitioner professional learning program formed the basis of the professional learning program for the implementation of the professional learning intervention.

Following feedback from educators through an evaluation of the professional learning program in the pilot study, adaptations were made to the delivery of the professional learning program for the main study (2015-2016). The professional learning program was facilitated over four full days in a block at the end of January. This change in structure supported educators to gain a broader understanding of the evidence-based teaching strategies and CLASS framework at the outset of the year and provided them with maximum time to receive ongoing support from the external expert coach to refine their understanding and implementation of the strategies.

This new structure responded to the challenges reported by participants in the pilot study in relation to attending professional learning after work hours, waiting for new content to be delivered during the year, and having limited time to implement some of the evidence-based strategies in the second half of the year. The structure of the professional learning program for the main study is reported in Figure 8 below.

![Figure 8. Structure of professional learning program for main study LDC site 1](image-url)
Two refresher professional learning sessions were planned for June & July as an approach to revisit content with educators as well as provide an overview of the evidence-based teaching and learning strategies for additional educators. A final professional learning session was facilitated in November as a method to share CLASS and time sample observation data, collect additional focus group data and acknowledge the participation of educators and leaders in the year of the research.

The content of the professional learning sessions followed a similar structure as the pilot year with all the CLASS content delivered on day 1 followed by the 3α evidence-based pedagogical strategies content. Details of the content of each professional learning session is outlined in Table 13 (LDC site 1) and Table 14 (LDC site 2).

**Table 13. Overview of professional learning content - LDC site 1**

<table>
<thead>
<tr>
<th>Session</th>
<th>Content</th>
</tr>
</thead>
</table>
| PL1     | Quality in ECEC  
          CLASS – Emotional Support  
          CLASS – Classroom Organisation  
          CLASS – Instructional Support |
| PL2     | 3α – Abecedarian Approach Australia  
          3α, the NQS and VEYLDF  
          Conversational Reading  
          Joint Attention  
          Planning for Conversational Reading |
| PL3     | LearningGames®  
          LearningGames® and VEYLDF  
          Planning for LearningGames |
| PL4     | Language Priority  
          Enriched Caregiving  
          Planning for Enriched Caregiving  
          VAEL study expectations/outline of coaching schedule  
          Evaluation |
| PL5     | Overview of VAEL study  
          Linking 3α to VEYLDF/NQS  
          Enriched Caregiving  
          3α planning and implementation records  
          LearningGames® |
| PL6     | Overview of VAEL study  
          Review of Enriched Caregiving – 3N strategy  
          Review of LearningGames  
          3α planning and implementation records  
          Conversational Reading  
          Joint Attention |
| PL7     | Implementation Review  
          Overview of study data  
          Focus group discussions  
          2016 Sustainability phase requirements  
          Evaluation |
### Table 14. Overview of professional learning content - LDC site 2

<table>
<thead>
<tr>
<th>Session</th>
<th>Content</th>
</tr>
</thead>
</table>
| PL1     | The VAEL study  
Quality in ECEC  
3α – Abecedarian Approach Australia  
3α, the NQS and VEYLDF  
Language Priority  
Enriched Caregiving  
VAEL study expectations/outline of coaching schedule |
| PL2     | Conversational Reading  
Joint Attention  
CLASS – Emotional Support  
Planning for Conversational Reading and Enriched Caregiving |
| PL3     | LearningGames® and VEYLDF  
CLASS – Classroom Organisation  
Planning for LearningGames® |
| PL4     | Review of Conversational Reading & LearningGames®  
CLASS – Instructional Support  
Planning and implementation for VAEL |
| PL5     | Overview of VAEL study  
Quality in ECEC  
3α – Abecedarian Approach Australia  
Overview of 3α research and theory  
Linking 3α to NQS/VEYLDF  
Joint Attention  
Enriched Caregiving  
Conversational Reading  
LearningGames® Planning and implementation for VAEL |
| PL 6a & 6b | Sharing of CLASS data to date  
Sharing of time sample data to date  
Identifying program goals for ongoing improvement |
| PL7     | Implementation Review  
Overview of study data  
Focus group discussions  
2016 sustainability phase requirements  
Evaluation |

Regular coaching was supplied to support implementation of evidence-based teaching and learning strategies in the professional learning sessions. As illustrated in Figure 9 expert coaching from a university team member occurred from February through to August, with the Educational Leader commencing coaching with educators from March through to November.

The above program was adapted as professional learning program for LDC site 2 in 2016. The design of the professional learning program was again refined to incorporate findings from LDC site 1 in 2015, including distributing the first four days across four months while the staff concurrently enrolled and got to know new children at the site and set up their programs.
The core professional learning sessions, which consisted of the 3a and CLASS content, were delivered from January to March with an additional professional learning session (8 hours) offered in April to accommodate the anticipated changes in staff. This was supported with intensive expert coaching by a university team member, commencing after the initial professional learning session in January. The Educational Leaders commenced coaching in March and continued until November. In addition to these sessions two follow up professional learning sessions were planned for June and September to share the CLASS and time sample observation data with educators and provide further feedback from the observation visits. The VAEL Professional Learning Model also included an implementation review in November with the key educators involved in evaluating the changes in their own practice as well as identifying key strategies and techniques that the Educational Leader used that were most effective. This professional learning session was an opportunity to share CLASS and time sample observation data, collect additional focus group data and acknowledge the participation of educators and leaders in the year of the research.

The coaching schedule followed the same structure that was tested in the pilot study and consisted of two levels of coaching; the external expert coach working with both Educational Leaders and educators; and Educational Leaders working closely with all educators across all programs.

Both the external expert coach and the Educational Leaders across the main study maintained records which provide evidence of ongoing development and provided a systematic approach to specific mentoring and coaching required by individual educators. As outlined in the development and trial of instruments section (p 38) these coaching records were designed to track the process and progress of the coaching sessions and were adapted from the coach and Educational Leader records used in the pilot study. The records were refined to capture:

- the date and time spent coaching
- the context of the coaching session
- the content focus area
- the strategies used by the Coach/Educational Leader and whether these strategies were newly introduced, reintroduced or reinforced
- the educator level of involvement
- associated observation notes and
- an action plan for Educational Leader/educator based on each completed coaching session.

*Figure 9. Structure of professional learning program for main study LDC site 2*
Main study findings

The findings from the analysed data are presented below, with each question addressed in sequence. First, changes in adult-child interactions are reported, then findings related to the influence of the professional learning model on changed pedagogy. Findings related to the sustainability phase at MVCC are then included so that some consideration can be made of sustaining the effects of professional learning and pedagogical change over time. Following this, findings regarding the ways in which child outcomes changed over the course of the study are presented, by the impact of the study on the families across sites. Finally, cross-site analyses that were possible with these (limited) datasets are addressed.

The impact on educator-child interactions

Practice in the toddler programs

The toddler programs were observed on four occasions across the year by two trained Toddler CLASS observers. However, because of the very small sample size no formal inter-rater reliability tests were conducted during this year of the study, and this limitation should be taken into account when interpreting the findings. Further, likely explanations of the reported findings in this section are discussed in the following chapter (Chapter 5). Clear gains, measured using the Toddler CLASS, were seen for both LDC sites in the domains of Emotional and Behavioural Support and Engaged Support for Learning using the Toddler CLASS tool, as can be seen in Figure 10. Moderate levels of Emotional and Behavioural Support were observed at the start of the year for each site and both sites were able to show consistent improvement throughout the year. The initial levels of Engaged Support for Learning observed were low with LDC site 1 showing some improvement at the end of the year and LDC site 2 showing consistent and greater improvement by the end of the year.

![Figure 10. Toddler CLASS outcomes - main study](image-url)
Practice in the three-to-five-year-old programs

The CLASS Pre-K assessment tool was used on four occasions across the year to measure the Emotional Support, Classroom Organisation and Instructional Support in the programs. Results are set out in Figure 11 below. These data were collected consistently by two Pre-K CLASS-trained researchers, yet because of the very small sample size no formal inter-rater reliability tests were conducted, and this limitation should be taken into account when interpreting the findings.

Emotional support in LDC site 1 was observed to vary within the moderate range across the year, whereas in LDC site 2 the moderate level of emotional support recorded at the outset was increased to high-level support as the year progressed. Classroom Organisation was found to range between poor and moderate in LDC site 1; however, in LDC site 2 this domain was found to demonstrate strong moderate levels of quality. The level of Instructional Support remained in the low range at LDC site 1 whereas LDC site 2 demonstrated consistent, if not substantial improvement over the year, increasing from a low level to a moderate level by late in the year. LDC site 1 showed variable results throughout the year performing better during May and November across all domains. In comparison LDC site 2 showed steady improvement across all domains.

![Figure 11. Pre-K CLASS outcomes - main study](image)

Educators use of their time

Time sample data collected included a breakdown of whether an educator was working with one child, a small group (2-3 children), a large group, passively supervising children, working with educators, engaging in routines or cleaning/organising. Individual observations vary depending on many factors including the adult-child ratios in the program at time of observation, the time of day, and the activity in the program (mealtime, free play, group time, transition to sleep etc.). These data were collected by two trained researchers and were used primarily to provide feedback to the staff on how they distributed their time so that staff could further consider their practices during efforts to enact pedagogical improvements. There was a focus during the professional learning and
coaching intervention on increasing the 1:1 and small group engagements with children in the programs. Observations for LDC site 1 (Figure 12) were variable, in this case indicating a general decrease in time spent working with one child and some increase in the time spent with a small group and with the large group of children. There was also a reduction observed in the amount of time spent cleaning and organising.

![Figure 12. Time sample outcomes - main study LDC site 1](image)

At LDC site 2 (Figure 13) reductions in time spent supervising, working with educators, cleaning and organizing were recorded over the year. Overall an increase in time spent working directly with children was observed, most notably in time spent working with small groups.

![Figure 13. Time sample outcomes - main study LDC site 2](image)
The type of educator talk

Talk types recorded included educational talk, responsive, supervisory, no talk and inaudible (for full description of tool refer to time sample entry of development and trial of instruments section, page 37). At various times different talk types are more or less appropriate, for example, when putting a child to sleep ‘no talk’ might be most appropriate however during other activities might also represent lost opportunities to engage with children. Responsive talk is very important in the building and maintenance of supportive and caring relationships. However in order to maximise the learning and developmental opportunities for children educational talk is central and is supported by the 3a strategies. Very high levels of responsive talk was seen at LDC site 1 throughout the year (see Figure 14). Supervisory talk was relatively high at the beginning of the year however this decreased significantly over the year. Low levels of educational talk were observed at the first three time-points however these rose markedly in the final observation.

Figure 14. Time sample talk type outcomes - main study LDC site 1

LDC site 2 also recorded high levels of responsive talk throughout the year (see Figure 15). The level of educational talk started at a higher baseline and considerably higher levels were seen at the third time-point then again at the fourth and final time point. The level of supervisory talk decreased throughout the year as did the amount of no talk.

Figure 15. Time sample talk type outcomes - main study LDC site 2
The salient features of implementation for practice-change

In this section, the primary analytic focus and results address the value and/or influence on practice-change of the threshold conditions, the distributed model of professional learning, and the use of specific tools that were designed to reveal to the educators their interaction patterns and performance with the children during the ECEC programs. Further, given the context of management change that occurred during the main study (LDC site 1 transitioned to LDC site 2 after 1 year), when new management and staff were engaged) findings from the main study sites that related to educational leadership and service stability are also reported in this section.

The threshold conditions

Prior to the commencement of the professional learning program with each LDC site in Broadmeadows a negotiated set of threshold conditions were agreed to by each service provider. Service management and leadership committed to resource and ensure these conditions remained in place during the improvement process. In LDC site 1 this was led by an Area Manager from Mission Australia with limited involvement with the service Manager who was employed just prior to the commencement of the intervention year. This proved to be problematic from the outset with conflicting priorities identified early as being a barrier to successful engagement with the research team and implementation of the professional learning content. Due to an ongoing turnover of staff there were challenges in educators remaining consistent in each program and limited evidence of a regular educational program and documentation of children’s learning and development. There were a high number of staff employed on casual contracts which also hindered the capacity in each program to drive the adaptations of practice.

The organisational culture was focused on compliance and other technical elements of operating a children’s service with limited consideration given to pedagogy. These conflicting priorities were illustrated through the role of the Educational Leader who also held the role of assistant manager with much of the time focused on maintaining enrolments and other administrative tasks. The external expert coach used significant amounts of time working with the service Manager to support the ongoing engagement with and participation in the research study. With continued negotiation there were some changes across the year, however the inability to meet the conditions required for effective engagement in the study hindered the rate of changes to adult-child interactions and pedagogical change.

Conversely to the experience in 2015, a negotiated set of threshold conditions were agreed to by the service management and leadership team at LDC site 2. These were then used as part of any discussions with Educational Leaders, during management decisions regarding staffing, establishing rosters and growth across the centre as enrolments increased. For example, the prioritisation of the study requirements were included in the development of curriculum documents resulting in a shared understanding of how the relevant elements of the threshold conditions fit with other organisational goals and values. Overall, the developing organisational culture was closely aligned with the capacity and resourcing requirements of the threshold conditions critical to the success of the study.
Professional Learning

The professional learning program was delivered to nine educators at the LDC site 1 in January 2015, including the Educational Leader. There was no service management representation during the professional learning program, although management had been invited and encouraged to take part. Several participants reported in the professional learning evaluation that it would have been beneficial if management had attended the professional learning sessions so they were aware of what was expected as part of the implementation of the evidence-based intervention. During the VAELE main study professional learning program, the Educational Leader and Manager from FSCC (LDC pilot site), and specialist staff from Hume City Council also participated in the first four days of training.

Additional professional learning sessions were provided to LDC site 1 in June and July in response to significant staff turnover. These two sessions were facilitated after hours for the duration of 4 hours in total. In addition to refresher professional learning sessions the external expert coach also conducted additional coaching sessions for both the Educational Leader and educators at LDC site 1. This was in response to several challenges at the service; staff turnover; inconsistent staffing (a high percentage of staff employed on a casual basis); a lack of engagement from management; and a slower than anticipated implementation of the evidence-based strategies. These challenges aligned with the LDC site 1 service having been rated, by the ACECQA NQS quality rating process and concurrently with the study commencement, as needing significant improvement.

The Educational Leader and educators reported that the professional learning sessions were clear and provided useful information that supported them to enact the evidence-based teaching and learning strategies. Several educators noted that they gained new knowledge of how to interact with children and noted that the practical nature of the professional learning sessions further supported their understanding of ECEC pedagogy and programming. The Educational Leader from LDC site 1 suggested that content be provided over a longer period of time to allow educators time to focus on implementing the evidence-based strategies in a staggered way.

The professional learning program was further refined and implemented to support educators in the LDC site 2 to gain a broader understanding of the evidence-based teaching strategies and CLASS framework in the first six months of the intervention year. This concentration of training in the first six months provided the staff of LDC site 2 with maximum time to receive ongoing support from the external expert coach to refine their understanding, implementation and planning of the strategies in their educational program and practice. Twenty-three participants; 16 educators, and 7 Educational Leaders attended some or all of the professional learning sessions provided. There was an initial 8 hour professional learning session in January 2016, followed by three sessions of 4 hours each. These professional learning sessions were held during the day in small groups where educators and leaders were ‘backfilled’ as necessary at the service. These sessions were conducted between February and April. As additional educators were employed in response to increased enrolments, a full day overview of the professional learning content was held for the new educators in April. The aim was for the majority of educators to have received a significant amount of professional learning content that could then be built upon through the coaching program that took place on a weekly basis. With the growth of the educator team a decision was made to extend the time spent in regular external, expert coaching: this involved weekly coaching for Educational Leaders and educators continuing until November to support the practice-change implementation.

Feedback was sought from the Educational Leaders and educators in relation to how the
Several educators reported that the content of the professional learning sessions supported them to think about strategies that scaffold children’s learning in a deeper, more intentional way. In relation to their educational program and practice educators identified that focusing on how to implement specific evidence-based strategies, and thinking about different times of the days that could be used as language rich learning opportunities in relation to individual children as key practice change supports. Several educators also reported the benefit of having the same training: this was said to ensure discussions with colleagues about the implementation of the evidence-based strategies was easy, and the professional learning content was maintained as a focus in planning discussions. Several educators further commented that they realised the need to work with their colleagues as a team to reflect on what strategies they are currently implementing with children, and to discern other learning strategies they could employ to support children.

It was noted that in the pre-survey educators reported ongoing training as the most positive influence on their ability to implement the strategies effectively. This was also reflected in post-survey responses where educators reported face-to-face professional learning sessions and ongoing coaching and support from the Educational Leader as the most supportive feature of the study. For example:

[The biggest support was] the information and practice during training. Having a mentor visit each time a new strategy was implemented was invaluable. Networking with other educators using the 3a strategies.
– Educator, post survey, LDC site 2

At the conclusion of 2016 feedback was sought from all participating educators and Educational Leaders in relation to each component of the multi-component model of professional learning. The components included:
- Educational Leadership
- Coaching
- Training (with a focus on elements of the 3a training content)
- Access to CLASS and time sample data results
- Support from management and leadership

Overall all respondents rated each component as either very effective or extremely effective. The majority of educators rated Educational Leadership as either very effective or extremely effective. The coaching component was again rated by 89% of educators and Educational Leaders as either very effective or extremely effective. In the LDC site 2 cohort there was 6% of educators that noted variables such as the impact of the implementation year and whether staff had been trained etc are likely to have impacted on these results. For example, one respondent from Gowrie Victoria noted that they were new to the study and rated every coaching component as ‘no impact or ‘somewhat effective’. The majority of respondents from both LDC site 2 and the sustainability site rated elements of the training content be either very or extremely effective. Having access to the CLASS and time sample data was again rated as either very or extremely effective. 89% of educators and Educational Leaders reported that the support from management and leadership was either very or
extremely effective.

Coaching

The coaching component of the professional learning program was designed to support educators to translate the content of the evidence-based teaching strategies (and CLASS framework) into the practical implementation of these strategies in their daily interactions with young children. As outlined in the earlier section of this report the coaching was conducted across both the pilot study and the main study. Table 15 provides an overview of the number of educators who received coaching by the external expert coach, when the coaching took place through the duration of the professional learning program and the amount of time educators were involved in coaching.

Table 15. Summary of expert coaching sessions

<table>
<thead>
<tr>
<th></th>
<th>LDC site 1</th>
<th>LDC site 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of staff coached by the external expert coach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed Leader</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Educator</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>Period of coaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed Leader</td>
<td>Mar-Nov</td>
<td>Jan-Nov</td>
</tr>
<tr>
<td>Educator</td>
<td>Mar-Nov</td>
<td>Feb-Nov</td>
</tr>
<tr>
<td>Total number of sessions by the external expert coach</td>
<td>86</td>
<td>103</td>
</tr>
<tr>
<td>Ed Leader</td>
<td>40</td>
<td>34</td>
</tr>
<tr>
<td>Educator</td>
<td>46</td>
<td>69</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total amount of sessions (hours)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed Leader</td>
<td>94.0</td>
<td>33.2</td>
</tr>
<tr>
<td>Educator</td>
<td>24.1</td>
<td>38.3</td>
</tr>
<tr>
<td>Total</td>
<td>118.1</td>
<td>71.5</td>
</tr>
<tr>
<td>Average length of session (mins)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed Leader</td>
<td>141.0</td>
<td>58.5</td>
</tr>
<tr>
<td>Educator</td>
<td>31.4</td>
<td>33.3</td>
</tr>
<tr>
<td>Total</td>
<td>82.4</td>
<td>41.7</td>
</tr>
</tbody>
</table>

Across the two LDC sites there was significantly greater time spent coaching the Educational Leader in LDC site 1. Part of this time involved meeting with the Educational Leader and the service Manager to negotiate and plan for continued implementation. In addition to this time was spent developing the knowledge and skills of the Educational Leader for her to work with the educators across the programs.

Educational Leaders views on coaching

Educational Leaders and educators provided feedback on the coaching component of the
professional learning program as part of the evaluation. All Educational Leaders reported that the coaching sessions supported them to assist educators to implement the evidence-based strategies to support young children’s learning. They reported that being provided with feedback and advice enabled them to have conversations within their teams. They also noted that the sharing of practical strategies provided them with skills and practical application to share with individual educators within their teams. Participants also noted that working with the external expert coach to adapt the planning and implementation records to suit their context was a strong feature of the coaching sessions. In addition, Educational Leaders noted that the flexibility of the coaching to fit with the needs of the program and receiving constant and consistent support and ongoing feedback supported their motivation to focus on continuous improvement.

Educational Leaders reported that the coaching sessions could have been improved by having a more specific schedule for times and dates of the external expert coach visits. One participant noted that more individual feedback for all educators would further enhance the sessions, however it was acknowledged that this already happened but would like to see more of it.

Educator’s views on coaching

A significant majority of the educators reported that the coaching sessions have supported them to implement the evidence-based techniques and strategies into my daily practice with individual children. Educators noted the following strategies were most effective in supporting them to embed the evidence-based strategies into practice:
- role modeling,
- being able to ask questions,
- having the opportunity to reflect on their practice with the coach with a focus on how to implement specific evidence-based teaching and learning strategies,
- accessing resources to support them to implement the strategies,
- being able to brainstorm and discuss with colleagues their progress in the implementation of evidence-based strategies,
- including educators’ input in discussions,
- reflecting on practice which was then followed up with coaching and
- being given feedback to “reflect and improve on some areas” of teaching practices.

Educators reported that weakest features of the coaching sessions were feeling watched and they would have preferred more reflective conversations during non-contact hours than discussions during program time.

‘I really valued that my input was included and that the coaching was flexible to accommodate individual educators’ needs and strengths.’ (Educator, LDC site 2)

Implementation of evidence-based strategies

With the professional learning intervention focused on adult-child interaction the impact of the changes to educator-child interactions (as recorded using the CLASS and time sample evidence above) was also considered through educator self-report, post-survey and focus group responses.

The educators highlighted ‘time’ as a barrier to achieving the level of documentation of evidence-
based strategies during the main study. They reported having limited time to complete the required documentation. However, despite educators reporting limited time to enact the strategies and engage with individual and small groups of children there were definite improvements in the type and frequency of adult-child interactions as illustrated in the section above.

The external expert coach met with Educational Leaders and management to establish a format for documenting the evidence-based strategies that aligned with current program documentation at the service. These discussions also involved broader strategic discussion about how the 3α teaching and learning strategies fit with other curriculum and operational priorities within the service. This process was required to be prescriptive with LDC site 1 to ensure that the minimum requirements were maintained in relation to the planning and dosage requirements. Both the Educational Leader and external expert coach worked closely with key educators to monitor the relevance of the records in relation to the implementation of the evidence-based strategies and to support individual children’s learning and development. This focus on the planning and implementation records was frequently identified as a content focus during coaching sessions from both the Educational Leader and external expert coach with LDC site 1. The process of establishing protocols for documenting the 3α strategies with LDC site 2 was a more collaborative process with the external expert coach working closely with Educational Leaders and management to identify processes to embed the 3α strategies into existing planning documents. Minor adaptations were made several times throughout the year with specific educators to support their planning for individual children using the evidence-based strategies.

Although the records maintained for planning the evidence-based strategies were reported to be relevant to each program’s educational program, the frequency of implementation record was considered to be ‘just another form to complete in our limited time’ (Educator, LDC site 2). Based on this feedback the planning and implementation records were revised at different points throughout the main study so that they continued to be purposefully aligned to the Victorian Early Years Learning and Development Framework (VEYLDF) Practice Principles and Learning Outcomes as well as the National Quality Standard for Early Childhood Education and Care and School Aged Care (NQS); specifically Quality Area 1 – Educational Program and Practice, and Quality Area 5 – Relationships with Children.

Copies of these implementation records were collected by the MGSE research team throughout the year as a data collection tool to monitor the planning for, and the frequency of how the educators were implementing the 3α teaching and learning strategies. This process of recording the frequency of each of the 3α teaching and learning strategies also supported educators to make their interactions visible to themselves and to their colleagues. Some educators reported that within their teams they became more aware of when, how and with whom the interactions in their programs were occurring.

Educator’s self-reported perceptions of their own practice change was sought regarding the use of 3α strategies (see Table 16 below). Most educators agreed or strongly agreeing that the 3α strategies assisted them as they worked toward pedagogical improvements. However, educators reported limited time to spend with individual children to implement the evidence-based strategies, and engaging in individual and small group interactions was considered a significant challenge. These are core principles that support the 3α approach and hence, strategies to address these challenges were included in the professional learning sessions as well as during the support from the external expert coach and Educational Leaders throughout the year. Limited time to spend with children was identified as a particular challenge within the 4-year-old sessional kindergarten
programs where teacher-child ratios and sessional kindergarten program hours impacted on the possibilities for one-to-one educator child interactions. Specific attention was given during the professional learning program and coaching sessions to identify specific times during the program to implement the evidence-based strategies within programs. Both the external expert coach and the Educational Leader worked with individual educators to support them to identify and document when these opportunities were.

Table 16. Educators’ opinions regarding practice change - main study

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree or disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using the 3σ strategies improved my teaching practice</td>
<td>1</td>
<td>12</td>
<td>15</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using the 3σ strategies improved my educational program and practice</td>
<td>1</td>
<td>13</td>
<td>14</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using the 3σ strategies improved my relationships with children</td>
<td>1</td>
<td>3</td>
<td>9</td>
<td>15</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using the 3σ strategies improved my planning for children’s learning</td>
<td>4</td>
<td>11</td>
<td>13</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Educational Leadership as a key factor within the intervention model

The VAEL study intervention model conceptualised the designated Educational Leader as having a key role in supporting educators to reflect on how they work and learn with other adults. The model also assumed that the educators’ role is to enhance young children’s learning outcomes, specifically implementing the evidence-based teaching and learning strategies. Within the LDC sites the Educational Leader in LDC site 1 and LDC site 2 enacted contrasting responsibilities.

In LDC site 1 the Educational Leader had a dual role of both educational leadership and serving as Assistant Manager within the service. Under the threshold conditions that were agreed upon at the outset of the main study. The LDC site 1 Educational Leader was allocated 5 hours per week to undertake the role of Educational Leader. At LDC site 2 the role of Educational Leader was shared across 5 Leaders during the initial 6 months of the operations; a leader from each operating program at the service was engaged with Educational Leader activity. After continued negotiations with the LDC site 2 service provider the role of Educational Leader for the site was formally established in July 2016. The service designated two Educational Leaders across the 5 programs; an Educational Leader responsible for working with the 3 birth-to-three year old programs; and an Educational Leader responsible for working with the two 3-5 year old programs. Each Educational Leader was allocated 6 hours per week to undertake their role. This was in addition to their teaching role in an allocated program.

The Educational Leaders were initially supported by the external expert coach (see Table 17) to work with individual and small groups of educators to coach them in implementing the evidence-based strategies. As the year progressed Educational Leaders took more of the responsibility for coaching educators, thereby embedding the practice changes in a sustainable way that could be
driven from the service itself.

Table 17. Summary of Educational Leader coaching sessions - main study

<table>
<thead>
<tr>
<th></th>
<th>LDC site 1</th>
<th>LDC site 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of educators coached by the EL</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Period of Coaching</td>
<td>Mar-Nov</td>
<td>Jul-Nov</td>
</tr>
<tr>
<td>Total number of sessions by EL</td>
<td>43</td>
<td>39</td>
</tr>
<tr>
<td>Total amount of sessions (hours)</td>
<td>36.2</td>
<td>25.8</td>
</tr>
<tr>
<td>Average length of session (mins)</td>
<td>50.5</td>
<td>40.0</td>
</tr>
</tbody>
</table>

The role of Educational Leader as a support was identified as vital for ongoing engagement for implementation. At the conclusion of the main study feedback was sought from all educators in relation to the techniques and strategies used by Educational Leaders that were considered to be effective in supporting their practice change. The educators reported that the support and encouragement from the Educational Leader enabled them to implement the strategies with confidence. Educators reported that they felt ‘safe’ to ask questions and felt respected as they learnt how to embed the evidence-based strategies in their practice. Table 18 provides an overview of the strategies and techniques that were identified by the educators as being the most effective. These were coded according to literature referenced as relational or instructional leadership qualities (Crevani, 2015; Heikka & Waniganayake, 2011; Artman-Meeker et al., 2015).

Table 18. Effective strategies used by the Educational Leaders

<table>
<thead>
<tr>
<th>Relational</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• quality of relationships with individual educators</td>
<td></td>
</tr>
<tr>
<td>• being approachable and non-judgmental</td>
<td></td>
</tr>
<tr>
<td>• supporting individual educators at their stage of professional learning</td>
<td></td>
</tr>
<tr>
<td>• providing timely individualised feedback</td>
<td></td>
</tr>
<tr>
<td>• providing encouragement and support</td>
<td></td>
</tr>
<tr>
<td>• building team capacity and works as a member of the team</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instructional</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• credibility as an Educational Leader supporting implementation as the Educational Leader was also implementing the evidence-based strategies in their practice</td>
<td></td>
</tr>
<tr>
<td>• role modelling</td>
<td></td>
</tr>
<tr>
<td>• strong knowledge of the evidence-based strategies and could easily explain these to individual educators</td>
<td></td>
</tr>
<tr>
<td>• provoking educators’ thinking</td>
<td></td>
</tr>
<tr>
<td>• providing clear direction</td>
<td></td>
</tr>
<tr>
<td>• assisting in aligning individual goals to children’s learning</td>
<td></td>
</tr>
<tr>
<td>• providing ongoing support with documenting strategies and embedding them in educational program and practice</td>
<td></td>
</tr>
<tr>
<td>• using existing structures and processes to support implementation of new teaching and learning strategies (educator meetings and performance review processes)</td>
<td></td>
</tr>
<tr>
<td>• providing new knowledge and reinforces this at different times throughout the program</td>
<td></td>
</tr>
</tbody>
</table>
Educational Leaders were invited to participate in a structured interview to obtain their perspectives on their role in supporting the implementation of the learning intervention. Educational Leaders viewed their role primarily as supporting the development of a shared language across programs. They reported that their focused knowledge of the evidence-based strategies supported them to work with educators to set specific goals in relation to an educator’s practice, and to set individual learning goals for children which could be linked to existing documentation and curriculum documents. Educational Leaders identified the most effective strategies that they used were developing and maintaining strong relationships with individual educators, based on trust and respect. This enabled them to role model appropriate practice and then engage educators in discussion about the elements of practice. Working with educators’ strengths was also reported as being an effective strategy to engage educators from the outset. Observation was also identified as an effective strategy, specifically when there was time allocated to provide timely, targeted feedback. Feedback was highlighted by Educational Leaders across all sites as being a critical component on working with educators.

“‘Relationships and trust and time were key factors.’
(Educational Leader, structured group interview, 2016)

Service stability as a key factor during pedagogical improvement processes

Across the main study years several conditions were found to impact on the effectiveness of educators’ implementation, and attitudes towards the evidence-based strategies. Conditions were identified as either enabling implementation or acting as a barrier for effective implementation. The primary conditions were 1) leadership; both management and educational leadership, 2) time, 3) consistency of staff, and 4) professional learning opportunities.

Based on the evidence the ‘management’ leadership was highlighted as being essential from the outset for success of implementation. During the implementation of the professional learning program for LDC site 1 a lack of engagement from the management and leadership level was identified. Several participants reported that it would have been beneficial if management had attended the professional learning sessions so they were aware of what was expected for implementing evidence-based strategies.

“…it would have been vital for Management to be also present in at least some of this Professional Development.”
(Educator, LDC site 1)

Educators from LDC site 2 reported the positive impact of management involvement. Several educators reported that the support from management was strong and that they felt there was a high expectation of them to be implementing the evidence-based strategies.

“…it was great that even management understood what we were doing in the rooms. We were on the same page and we could talk about it across the programs.”
(Educator, LDC site 2)

Consistent staffing was also highlighted as essential condition to the effective implementation of the professional leaning model and the evidence-based strategies. Inconsistency of educators in the ECEC programs was reported as a barrier for implementation: casual educators and/or new
educators did not have the knowledge to implement the evidence-based strategies. This was identified as a particular challenge in LDC site 1. As discussed previously there was a limited return on the investment of professional learning for LDC site 1 staff because there was significant turnover of staff across the year. This meant there were gaps in knowledge and skills in the team throughout the year. Feedback received from educators through the pre- and post- survey highlighted this as a challenge. Of the eleven educators that participated from LDC site 1 in January, only 3 remained in November. One of the potential barriers to consistency in staffing was the fact that most of the educators were employed on casual contracts, yielding limited job security under the existing leadership and management of the service. Alongside this challenge was the fluctuating enrolment patterns of families and children: enrolments were reducing across the year. In practice, LDC site 1 was a service facing on-going administrative directions and operational challenges that affected the capacity of the educators to focus on pedagogical improvement.
Impact on child outcomes

Children’s development of basic concepts

The Boehm-3 test of basic concepts was used for children at both the main study sites. The intention was to test children at the beginning, and then at the end of the year of the professional learning intervention, to determine change in their understanding of basic concepts across the professional learning period.

Twenty-four children were tested at LDC site 1 and testing at the start of the year was spread over several months due to staggered enrolment of children and other issues at the site. The average time between the first and second testing was 7 months. Overall, the gain in age adjusted percentile scores was 6 percentile points. A paired sample t-test between time 1 (M=16.2, SD 16.3) and time 2 (M=22.8, SD=22.7) scores was significant (t(23)=-2.291, p<0.05) with a medium effect size (d=0.5), indicating that despite relatively small numbers of children the gains made were educationally important.

Thirty-five children were assessed at LDC site 2. Time 1 testing took place in February and March and time 2 testing in November with an average time between tests of 9 months. The overall gain in age adjusted percentile scores was 6 percentile points. Again a paired sample t-test showed this increase between time 1 (M=24.4, SD=25.6) and time 2 (M=30.3, SD=24.9) was significant (t(34)=0.044, p<0.05) with a small effect size (d=0.35).

![Figure 16. Changes in children’s knowledge of basic concepts – main study](image-url)
Children's development of language

The Preschool Language Scale (5th Edition) was used for children at both the main study sites. Again the intention was to test children at the beginning, and at the end of the year of the professional learning intervention, to determine change in language skills across the professional learning period.

Thirteen children were tested at LDC site 1 using the PLS5 at both the beginning and end of the year. As with the Boehm, testing at the start of the year was spread over several months due to staggered enrolment of children. The average time between the first and second test was 7.5 months. Thirty children were assessed at LDC site 2 using the PLSS test at the beginning and end of the intervention year. Average time between time 1 and time 2 testing was 8.5 months. At both sites small positive improvements were seen in children’s understanding of language (the auditory comprehension score) and spoken language (expressive communication score) and the total language score of the PLS however none of the small gains observed were statistically significant (see Figure 17 below). All children assessed with the PLS-5 scored below average (almost one SD below the expected mean). Between t1 and t2, the total sample gained about two points in the standard score scale, indicating a greater gain over the period than would be expected due to development alone.

Figure 17. Changes in children’s development of language – main study
Children's Development of Cognitive Abilities

The Woodcock Johnson III (WJIII) was chosen to measure changes in cognition and achievement in children across the professional learning period. It was used at the main study LDC site 2 only.

30 children were tested at LDC site 2 using the WJIII test at both the beginning and end of the year with an average time between tests of 8 months.

There were a number of challenges in testing children on all of the subtests of the WJIII (i.e., time taken to administer; child attention and assessment fatigue; child not meeting basal requirements; errors in calculating basal or ceiling scores). This meant that for some WJIII subtests there were very small sample sizes. Results are presented below for 3 subtests of the WJIII that align with the language priority goals of the professional learning model, that is, Picture Vocabulary, Concept Formation, and Understanding Directions. Further analysis of other WJIII subtests can be completed, however, a total Cognitive Ability score cannot be calculated for each child.

All comparisons between time 1 and time 2 scores were significant. Picture Vocabulary and Concept Formation had medium effect sizes (d=0.58), while Understanding Directions had a large effect size (d=0.9). These results indicate that despite small numbers of children assessed the gains measured were of educational importance.

Table 19. Child outcomes: WJIII subtests - main study

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive: Verbal Comprehension, Picture Vocab (1A)</td>
<td>9.63</td>
<td>10.60</td>
<td>n=30, t=-3.09, p&lt;0.05</td>
</tr>
<tr>
<td>Cognitive: Concept Formation (5)</td>
<td>2.90</td>
<td>4.93</td>
<td>n=30, t=-2.92, p&lt;0.05</td>
</tr>
<tr>
<td>Achievement: Understanding Directions (4)</td>
<td>4.70</td>
<td>8.30</td>
<td>n=10, t=-3.04, p&lt;0.05</td>
</tr>
</tbody>
</table>

Educator reports of child outcomes

Educators provided feedback in relation to their observation of children's improved learning and development. Across both main study sites and the sustainability site there were reports of improved outcomes for children. The educators reported that using the 3a strategies supported relationship building among educators and children, and greater engagement levels in their individual interactions with children. Educators also reported that implementing the 3a strategies assisted them to get to know children on a deeper level. This was particularly noted by educators working in the sessional kindergarten program.

Most of the educators reported during the focus group sessions that they had observed an increase in children’s language development. They highlighted improved vocabulary, richer expressive language and children responding better to open ended questions and demonstrating increased comprehension. Children’s confidence and interest in learning were also noted as outcome improvements observed by educators.
Findings from the sustainability phase

Toddler CLASS results are shown below in Figure 18. Toddler CLASS outcomes - sustainability study. This figure also shows results for the site during the pilot phase of the study. Both the Emotional and Behavioural Support and the Engaged Support for Learning domains show increasing levels of quality as measured by the CLASS tool, from commencement of the pilot study to closure of the sustainability period. These results suggest that the quality of teacher-child interactions can be changed, and in this case consistently improved, and that this changed can be sustained over time.

![CLASS scores](image)

**Figure 18. Toddler CLASS outcomes - sustainability study**

Pre-K CLASS assessments were not conducted at the sustainability site during the pilot phase of the study, so comparisons between the pilot and year and sustainability phase in these programs were not made. However, Figure 19 (below) sets out the observed practices of the Pre-K classes during the sustainability period. The Emotional Support and Classroom Organisation domains illustrate high quality levels across the year. The level of Instructional Support is more variable however levels are still considerably higher than the sites observed in the main study, and significantly higher that all sites measured within the E4Kids longitudinal study, where low levels of Instructional support were found. As no data were collected in the pilot phase there are limited conclusions that can be drawn regarding sustaining improved results. In the least, practice over the sustainability phase indicates the process quality domains measured by CLASS were robust, and should be contributing to the advances in the children’s outcomes.
In terms of the distribution (Figure 20) and type of talk (Figure 21) predominantly used at MVCC during the sustainability year variability is evident across the periods observed, while also confirming predominant use of interactions involving a small group, or one child, with some increase in the use of whole group talk later in the year. The educators also focused on educational and responsive talk in their engagements with the children.
Coaching to sustain practice

Through the sustainability phase of the study the Educational Leader worked with all educators across the four programs to support the continued implementation of the evidence-based strategies. The Educational Leader was designated 5 hours per week to work with educators to advance this work alongside the teaching role that the Educational Leader held. However, the research team only collected Educational Leader records on the coaching sessions with the 4 educators in the pilot study. Table 20 shows that there was a similar pattern of coaching sessions with educators in both the pilot study, as supported by the external expert coach and the sustainability phase where the Educational Leader led this work themselves in a targeted, planned way.

Table 20. Summary of Educational Leader coaching sessions for LDC site - pilot study

<table>
<thead>
<tr>
<th></th>
<th>Pilot LDC site</th>
<th>Sustainability LDC pilot site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of educators coached by the Ed Leader</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Period of coaching</td>
<td>Mar-Oct</td>
<td>Feb-Nov</td>
</tr>
<tr>
<td>Total number of sessions by Ed Leader</td>
<td>35</td>
<td>32</td>
</tr>
<tr>
<td>Total amount of sessions (hours)</td>
<td>10.8</td>
<td>12.1</td>
</tr>
<tr>
<td>Average length of session (mins)</td>
<td>32.35</td>
<td>36.25</td>
</tr>
</tbody>
</table>

Feedback from the Educational Leader and educators in the sustainability site were also sought. Both, the centre manager and the Educational Leader participated in the professional learning sessions that were provided to educators in the main study at LDC site 1. The Educational Leader noted that participating in the professional learning sessions for a second time reinforced her learning and supported her to gain a deeper understanding of evidence-based practices. She
commented that this assisted her to support the educators as they set specific goals to promote individual children’s learning. All educators, the Educational Leader and Centre Manager agreed that, during the sustainability phase, being provided with visual representations of their own practice through the sharing of CLASS and time sample observation data strongly supported reflection and shared discussion about ongoing improvement in individual and collection educator-child interactions within their programs.

Impact on child outcomes – sustainability site

A description of the environmental context of the children, including details relating to the family and home environment for the children enrolled at the sustainability site can be found in the pilot study section ‘Description of children’ (pp. 21-21). Measurement of child outcomes occurred across the sustainability phase, therefore there is no baseline (before implementation commenced) assessment of these children. In addition, only Basic Concepts and Cognitive Abilities were measured at the Sustainability site.

Children's development of basic concepts – sustainability study

The Boehm-3 test of basic concepts used during the main study was also used for children at the sustainability site. It is notable that at the LDC sustainability site the scores of children also increased between t1 (average percentile score 73.2) and t 2 (82.7) (this difference was not statistically significant). Further the actual level of performance was significantly higher than both of the main study LDC sites. This finding likely reflects the different home and community characteristics experienced by the children engaged in the pilot and the main studies. Independent of the attended centre, children gained some points in the Percentile scale between t1 and t2, indicating that all children independent of the attended centre and their starting level showed better development than the norm (about one more concept learnt than would have been expected).

Children’s development of cognitive abilities – sustainability study

The Woodcock Johnson III (WJIII) used in the main study at LDC site 2 was also used at the sustainability site. Fourteen children at the LDC sustainability site were tested at time 1 and time 2 with an average time between tests of 12 months (children at this site were tested at the end of 2015 and the end of 2016). As noted in the main study section ‘Children’s development of cognitive abilities’ (p 76) analysis of subtests was limited to those which aligned with the language priority goals.

Gains in the WJIII Picture Vocabulary subtest were not significant from time 1 (raw score 11.0) to time 2 (11.79). However, the gains in subtests Concept Formation (gain score of 4.78 points) and Understanding Directions (5.25 points) were significant with large effect sizes (d=1.6 – 1.9). Despite the small number of children with time 1 and time 2 scores these gains are educationally important.

Educator reports of child outcomes

Educators provided feedback in relation to their observation of children’s improved learning and development. Across both main study sites and the sustainability site there were reports of
improved outcomes for children. The educators reported that using the 3a strategies supported relationship building among educators and children, and greater engagement levels in their individual interactions with children. Educators also reported that implementing the 3a strategies assisted them to get to know children on a deeper level. This was particularly noted by educators working in the sessional kindergarten program.

Most of the educators reported during the focus group sessions that they had observed an increase in children’s language development. They highlighted improved vocabulary, richer expressive language, children responding more to open ended questions and demonstrating increased comprehension. Children’s confidence and engagement in learning were also noted as outcome improvements observed by educators.

Broad engagement with families across whole study (2014-2016)

Throughout the VAEL project a number of different approaches were taken by the participating ECEC services to raise awareness, engage families and encourage their support and implementation of the 3a strategies in the home environment. Some of these approaches are listed below, and Figure 22 illustrates some of the signage and posters deployed within centres:

- An information session for families led by the centre educators,
- Information sessions for families led by MGSE staff,
- 3a strategies incorporated into centre philosophy,
- 3a strategies and involvement in the VAEL project incorporated into centre websites,
- 3a strategies and involvement in the VAEL project included in enrolment information for new families,
- Information regarding 3a strategies included in centre newsletters to families;
- Signage in rooms and centres,
- Preparation of 3a Learning Games kits for families to borrow for use at home;
- Training/educating families informally in the use of 3a strategies,
- 3a strategies incorporated into usual lines of communication (discussions at drop off/pick up, parent teacher interviews etc.) and
- Educational program and practice documentation - daily diaries, portfolios, reflections, curriculum plan displayed on wall, learning journals, Learning portfolios, reflections in children’s journal.
Evidence from Parents

A 3a family feedback survey aimed to assess how effectively information regarding the 3a strategies had been communicated and shared with families, and how families felt about 3a strategies being used with their child/children (for more information see pages 33-33). 49 Families at LDC site 2 completed this survey along with 28 families during the sustainability phase. It should be noted that as this was a voluntary survey and it is likely that the families who completed a survey represent a subset of families (for example, likely to be more engaged, interested, more likely to speak English etc.).

Families were also asked to describe any strategies they observed being used with their child while s/he was at the centre, and to describe any strategies they were using at home. Most respondents described or listed strategies used with their child with varying degrees of detail. One parent noted that educators were ‘making a deliberate and conscious effort to draw on the learning opportunities that exist in everyday routines such as going to the toilet, hand washing, reading etc. to enhance and improve language and communication’ (sustainability site). Many parents also described employing the strategies in their home life and in the case of the following parent has reinforced the benefit of using such strategies. This parent wrote ‘Knowing about the 3a strategies has helped us be more deliberate in our interactions with [our child]. We typically do most of the strategies, now that we know the benefits we place more emphasis/attention on using them!’ (LDC site 2).

Parents were also asked if they felt the 3a strategies were beneficial for your child/children. (e.g. What did your child learn? How did they develop?). Again, most parents reported being favourable toward the 3a strategies, and the impact of the program on their child.

- We have noticed a noticeable development in our child’s expressive language skills. At his two-year-old MCH check-up he presented with a slight language delay. In the past few months we have observed a noticeable shift in his vocabulary and speech delivery, so much so that he is now considered within the 'normal' range for his age. We strongly believe that the 3a strategies have enhanced our experiences with our child as we have a greater understanding of how we can extend his learning and be 'present' with our child (sustainability site).
• The level of support and meaningful education activities that he is immersed in during his time at FSCC has certainly had a wonderful and positive impact on his learning and language.
• I feel like it has helped his language development and attachment with caregivers. They are all using these strategies and games which helps him to have consistency (sustainability site).
• I think (child’s name) has gained a lot from these strategies. .... She’s gained a lot of confidence and her language as expanded quite a lot, and her understanding (sustainability site).
• It’s very valuable and my child builds good confidence out of it, started communicating, turn taking (LDC site 2).

In other comments, several parents expressed concern that these strategies weren’t already embedded in practice in the early childhood sector. “A major thing I felt about 3a when I was presented with it (perhaps naively) was: "you mean early childhood carers and educators don’t do this already?" I was a little shocked that in 2016 these techniques were being presented as novel’ (sustainability site). Others commented on the confidence and competence of educators at the centre: ‘I was really impressed by how confident the staff were to get up and talk about the strategies they have been using in front of parents. Demonstrates they have good understanding of strategies and confidence in implementing them’ (sustainability site).

Evidence of family outcomes reported by the Educators
Educators were also given the opportunity during focus groups and coaching sessions to provide feedback on whether, and how, the 3a strategies had improved outcomes in relation to parent and family involvement. General comments across cohorts about how the 3a strategies had improved outcomes included:
• improved family connectedness and collaboration,
• building of a community of practice and
• having a joint focus on the implementation strategies to support learning outcomes for the child.

The most positive responses to this question came from the families of the children at the sustainability site. They reported that the 3a strategies had strengthened the connection between families and the service, and that their parent teacher interview process had a strong 3a learning focus, including the sharing of strategies for implementation at home.

The educators across sites were also asked if they were aware of families using the 3a strategies at home. Reports were mixed: some educators noted little or no knowledge of families using the strategies while others provided detail about how families were using the strategies. One educator reported ‘I am not aware of any families using the strategies at home’, while another reported, ‘Some families were asking about learning games and which are their child’s age appropriate [games]. Asking about conversational reading and wants to be practicing at home’. Another educator noted ‘Yes families are borrowing current games being played at the service. I have role modelled CR and 3S strategies and families have given positive feedback regarding their implementation at home’. Uptake at home appeared to be quite varied, and was likely dependent upon the stance individual educators took to engaging the families in the child ECEC program.
Summary of Main Study Findings

In summary, the VAEL study established the following findings:

**Educator practice change**
16 With training and support to practice, educators can adjust their use of time with the children in any ECEC program. There was evidence of relative increases in small group time and an increase in 1:1 interaction time. Deploying tactics that increased 1:1 adult-child interaction time was reported by most staff to be challenging, however there is evidence to suggest that educators were able to shift their practice despite these challenges over time.
17 Targeted professional learning (training, coaching and educational leadership) has been found to support educators to gain deeper theoretical, research-based and practical understandings of how children learn, their role in the learning process and what effective instruction looks like in practice.
18 The benefit of an external expert coach in the initial stages of implementation of new knowledge support the engagement of educators and leaders in committing to pedagogical change.
19 The evidence-based 3α teaching and learning strategies were reported by most educators to be helpful in improving the level of support they gave to children in the program.
20 Based on changes to educator practice there were gains in the level of emotional and behavioural support as well as engaged support for learning in Toddler programs as the intervention progressed. These gains were continued during the sustainability phase of the study. This was more strongly evident where the management and leadership group were all engaged with the study targets.
21 In the (Pre-K) three-to five year old programs there was variation in the relative levels of emotional, organisational and instructional support provided to the children across the year. Improvement was more evident in programs that had a more stable staff complement, and involvement from the management and leadership.
22 The most prevalent types of talk deployed by the educators (in both toddler and 3-5 year old programs) were responsive talk and educational talk, with increases in educational talk being demonstrated over the course of the study across all programs for children birth to five years.

**Professional Learning Implementation**
23 Professional learning programs that are distributed over time, and which involve external expert and local (Educational Leader) coaching can support practice implementation. This is achieved when characterised by regular, ongoing, individualised support which assists effective pedagogical change.
24 Coaching and educational leadership characterised by regular, ongoing, individualised support, assists the implementation and adaptation of effective pedagogical change.
25 The tools and documents used to record implementation evidence of the 3α teaching and learning strategies, and change in children’s outcomes, are more easily implemented by educators when they are aligned to the VEYLDF and NQS.

**Service Management and Leadership**
26 Threshold conditions make a difference to educators who are engaged in improving pedagogical practices. Improving practice, and subsequently child outcomes, seems to be facilitated when there is ‘buy-in’ by the management and leadership of the service; and when time is available for the Educational Leader to work with the educators as they strive to improve their practices.
27 Service stability and the influence of stable leadership appears to be a key factor in ensuring the progress of pedagogical improvement within an ECEC service.
Child Learning and Family Engagement

28 There was preliminary evidence that children’s conceptual and cognitive skills improved, beyond what was expected for normal development, from the outset to completion of the pedagogical practice intervention. These conceptual skills included understanding basic concepts, concept formation, verbal comprehension and understanding directions.

29 Small positive improvements in auditory comprehension, expressive communication and total language scores were evident.

30 There was evidence that families increased their understanding of effective engagement strategies to support their children’s learning and development.
5. DISCUSSION OF FINDINGS

Multi-component professional learning

There were several features of the professional learning model that were salient to the implementation of planned practice change across all the sites in the study. The VAEL study, for example, highlighted that a multi-component professional learning program that consists of training, external expert coaching and educational leader coaching supported practice change. The Educators and Educational Leaders, who participated in the VAEL study, reported that each component of the professional learning model supported them to implement the 3α evidence-based teaching strategies in their daily interactions with children within their play-based programs. Understanding the research and theory, and using the 3α teaching strategies in the training, for example, provided educators with new knowledge of the features of effective educator-child interactions. In addition they valued learning about portable teaching strategies that could be implemented at all times throughout the day with children from birth to five years of age and consisted of clear rules that could be applied in practice. A significant majority of educators reported that implementing the 3α teaching strategies assisted them to be more intentional in their curriculum decision-making and improved their interactions with children in their programs and built their confidence to share children’s learning with families.

Ongoing external coaching, with an independent ‘expert coach’ in situ supported individual educators and Educational Leaders to reflect on their current teaching practices and to adapt and embed the 3α teaching strategies into their daily interactions with individual and small groups of children. Coaching further assisted educators to embed the 3α teaching and learning strategies into their planning for individual children’s learning and development. Supplementary Educational Leader coaching enabled educators to further consolidate the new teaching practices, embed them into their planning and assisted them to increase the time they spent with individual and small groups of children across the daily routines and activities. Educators and Educational Leaders in the VAEL study identified the coach characteristics and coaching methods that supported them to improve their teaching interactions with children. These characteristics and methods aligned with effective coaching strategies outlined in the research literature for promoting the use of evidence-based practices in ECEC settings and included, for example, observation, role modeling, reflection, and feedback (Artman-Meeker et al., 2015). Educational Leaders reported the benefit for them of forming collaborative partnerships as part of the coaching relationship and the importance of building trust and not feeling judged as the most effective aspects of coaching in the VAEL study. As such it was the combination of training, external expert coaching support and educational leader coaching in the workplace over a sustained period of time that supported educators to improve the quality of their teaching interactions with children of all ages.

The VAEL study further verifies the importance of having a number of mechanisms in place to sustain the continuous improvement of teaching practices. Offering different levels of certified training to Educational Leaders during the study so that over time they could independently train new staff as they were inducted into the service was key to supporting consistent continuous improvement. In this study all participating educators and Educational Leaders and managers received Practitioner training. Over time Educational Leaders received Coach training and Affiliate training to support them to coach educators in the effective implementation of evidence-based teaching strategies and align these practices with their planning. Affiliate training provided the Educational Leaders with the knowledge and skills to deliver Practitioner training to educators in
ECEC services and to new staff as they were inducted into the service. These strategies supported a consistent and sustained approach to raising the quality of support offered to children across every room in each service participating in the study.

In addition the VAEI study highlighted that pedagogical improvement was supported by the use of a range of planning and implementation templates, records and tools that revealed to educators the frequency, intentionality and quality of their interactions with children in their play-based programs. In the VAEI study a number of planning and implementation documents were employed to support educators’ teaching practices throughout the professional learning intervention. Different tools illuminated different aspects of implementation for pedagogical improvement and collectively supported educators to embed and plan for quality practices in their daily programs and to align them with the VEYLDF and NQS. Introducing them over time in a purposeful way that mirrored the expectations of implementation set out in the professional learning program was an important aspect of the VAEI professional learning strategy and approach.

Sharing data that illustrated practice change was also key to driving pedagogical improvement. After each round of observation data collection the MGSE research team shared the time sample and CLASS data with all the educators and Educational Leaders. Educators provided feedback that seeing this data and the changes in practice supported them to see what aspect of their teaching interactions with children they could improve over time and to devise strategies as a team to continue to improve the quality of their interactions with children in their daily programs. Implementation records assisted educators to monitor over time how often they interacted with individual children and the dosage of particular teaching strategies that children were receiving over time. Mapping tools assisted educators to intentionally plan for expanding young children's understanding and cognition at all times of the day and supported educators to encourage individual children's engagement in learning throughout the day (including routines). Progress records supported educators to track children’s learning over time. Planning templates helped educators to use their observations as a basis for planning, to think deeply about why and how a 3a teaching strategy would advance a child's learning and to track the impact of this strategy on individual children’s learning and development. Planning templates were linked to the EYLF and VEYLDF child learning and development outcomes and NQS Quality Areas 1: Educational Program and Practice and 5: Relationships with Children, to support educators to explore how their teaching aligned with principles and practices outlined in national and state frameworks and standards. In addition, the coaching records captured the feedback, modelling and planning support offered to educators and provided evidence for educators on how they were tracking and the impact that their teaching was having on children’s learning. Thus having a range of tools, templates and records to illuminate aspects of their teaching, implementation and planning supported educators to engage in professional, shared conversations with colleagues and families on children’s learning and to reflect deeply on how their teaching was impacting on young children’s learning and development.

Service management and leadership

The VAEI study has confirmed the importance and value of having threshold conditions in place to support professional learning that aims to improve the quality of educator-child teaching interactions. This is in keeping with international and national research findings on the core conditions that support improved educators’ teaching strategies (Brookes in Page and Tayler, 2016; Darling Hammond et al., 2009; Gomez, Kagan & Fox, 2015; Walter & Briggs, 2012). Service management ‘buy in’ and a commitment to resourcing ‘threshold conditions’ from the outset of a
study is important as it impacts on the effective timing, frequency and duration of core components of a professional learning intervention and the level of exposure and support offered to educators and Educational Leaders participating in the study to achieve set outcomes. As a result, operational and practice baseline conditions and a supportive organizational infrastructure must be in place as they influence the degree to which educators improve their pedagogical practices and shape child outcomes. The VAEL main study site 1 data highlighted the value and importance of managers and leaders participating in the training, and monitoring and ensuring that all educators and Educational Leaders are allocated the time required to participate in all components of the professional learning for the duration of the professional learning intervention. The VAEL main study site 1 data study further revealed that ongoing security for staff in the form of contracts was important to educators involved in the study and can influence staff retention.

The VAEL study has further verified that the organisational infrastructure of an ECEC service impacts on the degree to which educators can implement the evidence-based teaching strategies as intended. Fidelity of implementation of new evidence-based teaching strategies takes time and sustained effort. The VAEL study has revealed that effective practice change occurs when educators are provided with regular and ongoing individualized support. In addition individual support is further enhanced when expectations are transparent and every educator and Educational Leader in the ECEC services is actively involved. This active ‘whole of centre’ participatory approach to the implementation of a suite of professional learning components (training, coaching and educational leadership) is key to building a professional learning community in which new knowledge is shared and embedded into daily programs, practices and planning. Furthermore, the VAEL study revealed that when management are involved in the training this supports a shared language and vision of child learning that, in turn, supports a team approach to continuous improvement.

The VAEL study also confirmed the central role that the Educational Leader plays in building high-quality programs built on evidence-based teaching and learning strategies. The experience of implementing the professional learning in different sites in the study revealed that structural conditions needed to be in place for Educational Leaders to be successful in their role. These included clear role definition and clarity of expectations, having the authority and autonomy to enact the role and the time to plan for, work with educators and evaluate the work being undertaken to drive continuous pedagogical improvement. The varied experiences of the LDC sites in the main study further confirmed the central importance of the organisational culture of an ECEC service supporting and enacting clear threshold conditions.

**Educator practice change**

The VAEL study findings further highlighted several features in the programs engaged in the professional learning. For example, it was revealed that engagement in the professional learning program resulted in an improvement in all participating educators’ use of time. It is important to note that that educators working across different age groups in different sites increased the amount of time they spent with individual and small groups of children and reduced the amount of time that they spent in activities that did not engage children. They converted all times of the day into opportunities for enhancing children’s learning. In addition, engagement in the VAEL professional learning supported educators to increase, over time, the intent and content of their interactions with children. All educators, regardless of their qualification and the age of the children they were teaching, focused on supporting children’s cognition and development through the use of descriptive language, language to extend children’s ideas and higher order thinking, as well as,
extended discourse. It is interesting to note that the greater gains for educators occurred in the programs where there was consistent staffing and where the majority of educators had participated in the VAEL professional learning program.

At the beginning of the pilot and main study years the CLASS data revealed similar patterns in levels of emotional and instructional support and classroom organization as those centres in the E4Kids study. As the professional learning unfolded across each year of the VAEL study there was consistent improvement in educators’ teaching interactions in all three CLASS domains regardless of qualification or the age of the children. Once again there were significantly greater gains across each of the quality domains in the sites where there was a greater engagement of educators, Educational Leaders and management in the VAEL professional learning program and a more consistent approach to implementation. These gains were also maintained during the sustainability phase at the MVCC centre based long day care service. While there were some fluctuations in the areas of instructional support and engaged support for learning, overall there was a gain from the commencement to the conclusion of the programs’ involvement in the study. In addition these greater improvements occurred in the sites where there was more consistent staffing and greater engagement of leadership and service management in the professional learning implementation process. It is important to note that educator VAEL data consisted of small sample sizes and that there is opportunity for further research with larger numbers of participating educators on the impact that professional learning has on raising the quality of educator-child interactions in ECEC services (for which see section 7 of the report).

In addition to improved practices and increased time spent with children educators reported that participating in the VAEL professional learning had heightened their awareness of child learning and development. Families also reported gains in their children’s learning and the impact of the educators’ teaching practices on their children’s confidence and learning. Thus participating in professional learning increased educators’ awareness of children’s engagement and learning in their daily practice. This awareness enabled them to share children’s learning with families and to support application of these evidence-based teaching strategies in the home learning environment.

Child learning outcomes

The VAEL study also suggests that ECEC program inputs in the form of targeted professional learning can influence child outcomes. Within the VAEL study there were different representations of SES. The results show that there were gains for all children who participated, but that they differed across the pilot and main study sites. The children attending the pilot services showed small gains in language and concepts and educationally important gains in cognitive abilities but their performances were significantly higher than the children in the main study LDC 1 and 2 sites. This was likely a reflection of the different community and home characteristics experienced by the children in the pilot and main study sites. The children in the main study showed gains in conceptual and cognitive skills (understanding basic concepts, concept formation, verbal comprehension and understanding directions), beyond what was expected for normal development, in the rooms where educators are participating in professional learning from the outset to completion of the pedagogical practice intervention. There were also small positive improvements in children’s language (auditory comprehension, expressive communication). It is important to note however that the child outcomes were secondary to the study and that child VAEL data consisted of small sample sizes. Further research is required with larger numbers of participating educators and children to establish the impact that educators’ engagement in professional learning on children’s learning and development outcomes (for which see section 7 of the report).
The professional learning program implemented in the VAEL study supported educators to improve and sustain the quality, frequency and intentionality of their teaching interactions with young children in their daily play-based programs. Engaging in evidence-based professional learning and being supported to raise the quality of support offered to young children can, in turn, influence child learning outcomes. Effective evidence-based professional learning provides a team of educators and Educational Leaders with a range of components - pedagogical training and coaching - on the application and use of evidence-based teaching. Effective implementation is a complex process and requires a number of support mechanisms in place to enable educators to apply and use the teaching and learning strategies in their daily interactions with children within their play-based programs. In the following section we present the VAEL Professional Learning Model that draws on these findings and international research evidence to present a systematic and sustainable approach to evidence based professional learning and pedagogical improvement that has the potential to be up-scaled across the broader ECEC sector to support higher quality services and reduce disadvantage in ECEC.
6. PROJECT OUTCOME

The VAEL Professional Learning Model

The VAEL Professional Learning Model was developed in the context of national and state policy and key findings from the E4Kids and VAEL study. It outlines the key components and processes that will effectively and efficiently support early childhood educators to improve the quality and intentionality of their teaching interactions with young children. The VAEL Professional Learning Model is built on the understanding that effective professional learning outcomes are achieved when 1) there are clear expectations between the key partners (service management, Government agencies and research/training representatives), and 2) service management puts in place a range of support mechanisms to enable every educator to fully participate.

Figure 23. VAEL Professional Learning Model
Embedded within this model is a suite of professional learning program components; training, external expert coaching and educational leadership. These components are distributed across the year in order to provide educators with the time to deepen their knowledge of teaching and learning and to embed that knowledge into their daily interactions with children. The model incorporates a participatory, action-based approach to learning in order to build and maintain a whole of centre approach to continuous improvement. Another key feature of this model is the provision of processes and tools to 1) assist educators to track and assess the effectiveness of their teaching interactions and 2) assess the impact of their teaching interventions on young children’s learning. For the purposes of this model it is suggested that educators are included when they are permanent and ongoing staff spending a minimum of 2 days per week in the education and care of young children.

Collaborative Partnerships

Communication between the key partners (i.e., training staff, external expert coach, centre management & educational leaders) prior to and during the professional learning intervention ensures that educators can participate in each component of the professional learning program. Key partners work together to establish threshold conditions that can be negotiated and agreed to. If this is not possible it is recommended that they embark on a preliminary development phase in order to work towards putting in place threshold conditions prior to the commencement of the professional learning program.

Leadership and Service Management

It is essential that there are shared values to enable an ECEC service to function as a learning community. This must be led by the leadership and service management team with ‘buy in’ and commitment to the professional learning program. Accountability will form part of the ongoing engagement with the professional learning program. Threshold conditions are the foundational requirement for supporting the effective and sustained use of evidence-based teaching and learning strategies in the ECEC service. They support educators at the service to participate in all components of the professional learning program. They also ensure that dedicated time is allocated to Educational Leaders to 1) receive external expert coaching and 2) work with individual educators to improve the quality and intentionality of their teaching practices for the full duration of the professional learning intervention. Where ECEC services are unable to meet threshold conditions the leadership and service management will work with external expert educational leaders/coaches and services to provide more intensive preparation and preliminary development in order to ensure that services have the capacity and commitment to support the implementation of the professional learning program as originally framed and intended. Discussions could include reviewing 1) the composition of of each centre relative to regulations and noting any arrangements that are above minimum set standards, 2) room and service level planning and programming, 3) management arrangements, 4) staffing arrangements, 5) the deployment of staff time, 6) staff contracts, 7) time allocated to Educational Leader to work with educators on teaching practices, 8) allocation and prioritization of professional learning time, 9) governance processes, 10) operational considerations related to planned and unplanned change, 10) resourcing considerations.

Ensuring threshold conditions are met requires monitoring throughout the year in consultation with key stakeholders. Reporting to key partners at the end of the first year of implementation ensures
greater transparency and accountability in how the threshold conditions were met.

The key elements for leadership and service management are:

- Committing to threshold conditions (see page 28) and learning strategies in the ECEC service;
- Monitoring that threshold conditions are in place across the duration of a teaching year;
- Reporting on how the threshold conditions have been maintained at the completion of the professional learning program implementation.

Recognition of the importance of building and maintaining a ‘whole of centre’ approach to quality improvement through a participatory action-based process also forms part of an effective PL model. The following elements will form part of the planning for implementation of the PL model:

- Implementing a multi-component distributed professional learning program consisting of training, coaching and educational leadership;
- Training: Creating new knowledge of theory and research that supports evidence-based teaching practices with a core team of educators;
- Creating new knowledge of evidence-based coaching practices with Educational Leaders;
- Training all staff throughout the year to support the effective and sustained use of evidence-based teaching and learning strategies in the ECEC service;
- Coaching: Monitoring fidelity of implementation through evidence-based coaching strategies which includes observation, feedback, modelling, goal-setting, program planning, critical reflection;
- Educational Leadership: Monitoring fidelity of implementation, through evidence-based coaching strategies which includes observation feedback, modelling, goal-setting, program planning, critical reflection and
- Sharing evidence based teaching practices with families to support home learning.

Training options

Educator training

Professional learning content that is built around evidence-based teaching strategies with a focus on key process quality variables such as adult: child interactions is key for all staff at the ECEC service (management, Educational Leaders & educators). This training content will offer new knowledge of 1) evidence-based teaching strategies, 2) how they enrich young children’s cognitive and language capabilities, 3) how they align with key policy frameworks (e.g., VEYLD) and standards (e.g., NQS) and 4) how to enact them in practice. This knowledge helps educators to improve the quality and intentionality of their teaching interactions with children. The training further provides resources to support the planning for and implementation of evidence-based teaching practices into daily interactions with children and into the educational program. Completion of the training provides assurance that the team of educators in an ECEC service are building their knowledge and expertise on effective teaching practices that promote young children’s language and cognition in the years prior to school.
Coach training

Training for Educational Leaders (and other designated centre staff member if required) at the ECEC service that offers new knowledge of evidence based coaching methods and how they improve the quality and intentionality of educator-child interactions that advance child learning. It supports Educational Leaders to coach educators in the effective implementation of evidence-based teaching practices in daily educational programs and to integrate these practices into their planning and assessment of children’s learning and development. It provides resources that allow Educational Leaders to capture the implementation of evidence-based strategies in educational programs and offers strategies to support the fidelity of educators’ implementation of teaching strategies. A range of planning formats are provided for Educational Leaders to assist educators to include the evidence based teaching strategies in their planning. Completion of the training provides assurance that Educational Leaders have the knowledge, skills and methods for advancing the quality and intentionality of educators’ evidence based teaching strategies in their daily interactions with children.

‘Train the Trainer’ training

Training for Educational Leaders and a colleague at the ECEC service that offers new knowledge of adult learning. ‘Train the Trainer’ training provides Educational Leaders (and other designated centre staff member) with the knowledge and skills to deliver educator training to educators in the ECEC centre. This process supports capacity building internally or across networks of ECEC services and addresses the impact of staff turnover. This enables ECEC leadership and service management to 1) maintain the fidelity of implementation of evidence-based teaching strategies and 2) improve the quality and intentionality of adult-child interactions across the year as staff are inducted into and leave the service.

Depending on the professional learning content used in the Professional Learning Model there may also be certification processes that are completed to provide assurance that participants have the knowledge, skills and methods for advancing the quality and intentionality of educators’ evidence based teaching strategies.

Coaching and Educational Leadership

Expert coaching support for Educational Leaders

External expert coaching that provides Educational Leaders with the opportunity to strengthen the knowledge gained in coach training and to practice targeted evidence-based coaching methods. Practicing specific coaching methods (observation, feedback, modelling, reflection, goal setting and program planning) with an external expert coach through a disciplined and structured process builds Educational Leaders’ knowledge, skills and capacities to lead a process of quality improvement in teaching practices and planning processes with individual educators in their ECEC service. Expert coaching includes observing Educational Leaders coaching educators in the ECEC service and providing them with feedback.
Educational Leader coaching support for educators

Educational Leader coaching that provides educators with the opportunity to strengthen the knowledge gained in training and to learn targeted evidence-based coaching methods. Receiving individualised support through a range of evidence-based coaching strategies (observation, feedback, modelling, reflection, goal setting and program planning) supports educators to implement evidence-based teaching strategies with fidelity and embed them into their daily educational program and practice. They are further supported to tailor the evidence-based teaching strategies into their planning for individual children and assess the impact of these strategies on children’s learning. Educators are further supported by Educational Leaders to share their implementation and planning with colleagues through educator meetings as well as informally.

Monitoring the effectiveness of implementation

- Trialing and implementing evidence-based teaching practices in daily practice,
- Assessing and monitoring the fidelity of implementation of evidence-based teaching practices through coaching,
- Reviewing the evidence of the impact of evidence-based teaching practices on children's learning through programming and planning and NQS evidence
- Reviewing the evidence of the improvement of educator-child interactions through Coaching records and Educational Leader records and staff meetings.

There are several key points at which the effectiveness of the implementation of evidence based teaching strategies are tracked and assessed. External expert coaches maintain records of 1) the support they offer Educational Leaders and 2) observations and assessments of the effectiveness of Educational Leaders’ coaching practices with individual educators throughout the year. They also record Educational Leaders’ experiences of supporting educators to effectively implement evidence based teaching practices in daily educational programs and to integrate these practices into their planning and assessment of children’s learning and development.

Educational Leaders maintain records that evidence the frequency and fidelity of educator’s implementation of evidence based teaching practices in daily educational programs. They also record their observations and the strategies used to engage individual educators in continuous improvement in their interactions with young children with a focus on children’s learning and development.

Educators assess the degree to which their interactions with children capture the intent of the evidence based teaching strategies in their meetings with Educational Leaders. As they tailor the evidence based teaching strategies into their planning for individual children they assess the impact of these strategies on children’s learning and development.
Delivery of the professional learning program

The professional learning program consists of three stages of delivery.

**Stage 1:** Following a formal agreement by Management to commit to the ‘threshold conditions’ throughout the year 3 days (8 hours x 3 days for educators and management) are allocated to the completion of the educator training and certification if relevant, within the first three months of the implementation of the model.

**Stage 2:** When management reports that all staff have completed educator training, an external expert coach delivers coaching to the Educational Leader (and other designated centre staff member). These coaching sessions occur each fortnight for a period of 4 hours. It is proposed that this is moderated for ECEC services based on their NQS quality assessment rating:
- For services rated as Working Towards NQS expert coaching sessions will occur for the duration of the year (n: 176 hours (44 weeks x 4 hours)).
- For services rated as Meeting NQS expert coaching sessions will occur for the first six months of the year (n: 72 hours (24 weeks x 3 hours)) and then bimonthly from July to November (n: 9 hours (3 x 3 hours)).
- For services rated as Exceeding NQS or have an Excellent quality rating these expert coaching sessions occur fortnightly for the first six months of the year (n: 72 hours (24 weeks x 3 hours)).

When Educational Leaders have received four weeks of training they complete training focused on the evidence based methods to support coaching (8 hours for two staff). Throughout the year the Educational Leader and educators share information on the evidence based teaching strategies with families. In the second six months of the professional learning program educators share with families the ways in which they are planning for and assessing the impact of evidence based teaching strategies on children’s learning and development.
Stage 3: When management reports that the Educational Leaders (and other designated staff member) have completed coach training, Educational Leaders commence coaching to educators in the service. It is proposed that this is moderated for ECEC services based on their NQS quality assessment rating:

- For services rated as Working Towards NQS one hour Educational Leader coaching sessions are delivered to educators fortnightly across 44 weeks (e.g. mid-February to mid-November).
- For services rated as Meeting NQS one hour Educational Leader coaching sessions are delivered to educators monthly across 44 weeks (e.g. mid-February to mid-November).
- For services rated as Exceeding NQS or have an Excellent rating one hour Educational Leader coaching sessions are delivered to educators six weekly across 44 weeks (e.g. mid-February to mid-November).

Following the completion of the professional learning program, Management compile a report for the Department of Education and Training (DET) that outlines how the threshold conditions have been met. Evidence in the form of a revised Quality Improvement Plan or National Quality Standard evidence may also be required.

Identifying services based on need (NQS and AEDC data)

It is recommended that professional learning programs are rolled out to services based on AEDC data in communities with high levels of disadvantage. Consideration should also be given to a services’ NQS quality rating as follows:

- ECEC services that are located in communities with high levels of disadvantage;
  - ECEC services that have received a Working Towards NQS quality rating;
  - ECEC services that have received a Meeting NQS quality rating
  - ECEC services that have received an Excellent or Exceeding NQS quality rating
Recommendations

The Victorian Advancing Early Learning Study has established that participating in a multi-component professional learning program (training, external expert coaching and educational leader coaching) that is distributed over time supports educators to improve the quality of their interactions with children in rooms from birth to five years of age. Investment directed towards multi-component professional learning programs increases educators’ knowledge of evidence-based teaching practices and supports them to implement these intentional teaching strategies with fidelity. It can also support educators to align their teaching practices to planning processes, curriculum frameworks and standards outlined in Quality Areas 1 and 5 of the NQS system. Educators have the opportunity to critically reflect on the impact of their teaching on children’s learning outcomes.

Improving the quality of educators’ interactions with young children in everyday ECEC programs requires timely, targeted and ongoing support, management ‘buy in’ and commitment. Threshold conditions must be in place for an ECEC service to effectively benefit from a model of professional learning that is designed to improve the quality of adult-child interactions and affect child outcomes. These threshold conditions should support the effective and sustained implementation of a professional learning program and ECEC services should monitor and report that these conditions have been met for the full duration of the program implementation. Where ECEC services are unable to meet threshold conditions it is recommended that service management and leadership be supported to provide more intensive preparation and preliminary development in order to ensure that services have the capacity and commitment to implement the professional learning program as originally framed and intended.

Educational Leaders and external expert coaches are key to building an integrated whole of centre approach to continuous improvement over a sustained period of time. Investment in the employment of external expert coaches supports Educational Leaders to:

- effectively guide educators on site to trial and embed evidence based teaching strategies in their daily interactions with children in play-based programs,
- assisting them to increase the focus, frequency, intent and content of their interactions with individuals and small groups of children and
- tailor their teaching interventions on young children’s learning and to assess the evidence of the impact of their teaching practices on children’s learning in order to plan child learning goals.

Providing training, protocols and ongoing learning support from external expert coaches is recommended as this will enhance professional learning models.

To raise ECEC quality an allocation of dedicated time for Educational Leaders to support the continuous improvement of all educators’ pedagogical practices within the service is recommended. There is more likely to be a greater impact on practice, and leverage of better child outcomes, if there are clear role definitions and position descriptions for Educational Leaders that are explicit and that speak to their responsibilities in ‘leading learning’. Centre management leaders who report annually to their stakeholders on the amount of pedagogical support time offered to individual educators in the service ensure greater transparency, and contribute to increased staff morale and teamwork.
Targeting professional learning programs in areas of greatest need is recommended where there are low quality teaching practices in Victorian ECEC services so to improve young children’s learning outcomes.

7. ONGOING AND FUTURE WORK

This section of the report outlines key considerations for further research that focus on improving pedagogical practices and children’s learning outcomes within ECEC programs. Maintaining the focus on professional learning as a strategy to impact on educator practice with a particular focus on educator-child interactions and intentional teaching provides further opportunities for research into how a professional learning program drives pedagogical change. The VAEL study further focused on building a professional learning intervention using 3α teaching strategies that are designed to improve young children’s joint attention, receptive and expressive language and intellectual capabilities. There is the scope to examine the impact of different evidence-based teaching strategies alongside coaching on educators’ practices and child learning.

The VAEL study analysis revealed a positive correlation between the amount of time spent participating in the professional learning program distributed over time (training, external expert coaching and educational leadership coaching) and the quality of adult-child interactions. Future research is needed to establish how individual components of a multi-component professional learning program influence the improvement in educators’ pedagogical practices and how the timing, frequency, intensity and duration of individual components of the professional learning program (and in what combination with each other) are required to achieve and sustain high quality adult-child interactions that influence child learning outcomes.

There is the opportunity in future large-scale research studies to investigate whether educators with varying levels of qualifications require different levels of dosage of components of the professional learning intervention and/or more time to consolidate and improve the quality of their interactions with young children. Understanding how these factors contribute to the presence of high levels of adult-child interactions, regardless of qualification, is key to promoting child learning outcomes across ECEC services.

There is the scope to build on this finding by investigating further how different levels of dosage of teaching strategies (for example 3α) might influence children’s cognitive and language outcomes. In addition, future research could examine the timing, frequency, intensity and duration of different teaching on young children’s developmental outcomes. These types of investigations could be directed towards the impact of a range of evidence-based teaching interventions on young children’s learning to build understanding of the extent to which different intentional teaching strategies impact on young children’s learning outcomes from birth to five years of age. In addition, longitudinal research could be undertaken to investigate the impact of exposure to evidence based teaching practices in ECEC services through to school settings. This work could be further investigated with resource provision given to ways to support families attending services where educators are implementing evidence-based strategies as part of a professional learning program to incorporate these teaching strategies with their children in their home learning environment. Future roll out of professional learning programs should build in robust measures of child development in order to track change across implementation of evidence based teaching strategies. Including a set of vulnerability indicators that enables differentiation of impact of intervention on children with different levels of developmental risk will also add significant information for ongoing professional learning programs.
Consistent staffing in the VAEL ECEC services was associated with a higher fidelity of implementation of the teaching strategies with young children. There is a need, however, for future studies to investigate the extent to which staff turnover influences the implementation of specific teaching strategies and the impact this has on children’s learning outcomes. Furthermore research can also identify the mechanisms that support staff retention in ECEC centres implementing professional learning interventions that focus on improved educator and child outcomes.

Investigating how a range of variables contribute to improving and sustaining the quality of ECEC educators’ interactions with children will build a more nuanced and detailed data set. This, in turn, will inform the development of professional learning models that effectively shape practice-change and child learning outcomes.
8. REFERENCES


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